

Theory and Experiment to the Cell and Back

# BPS19

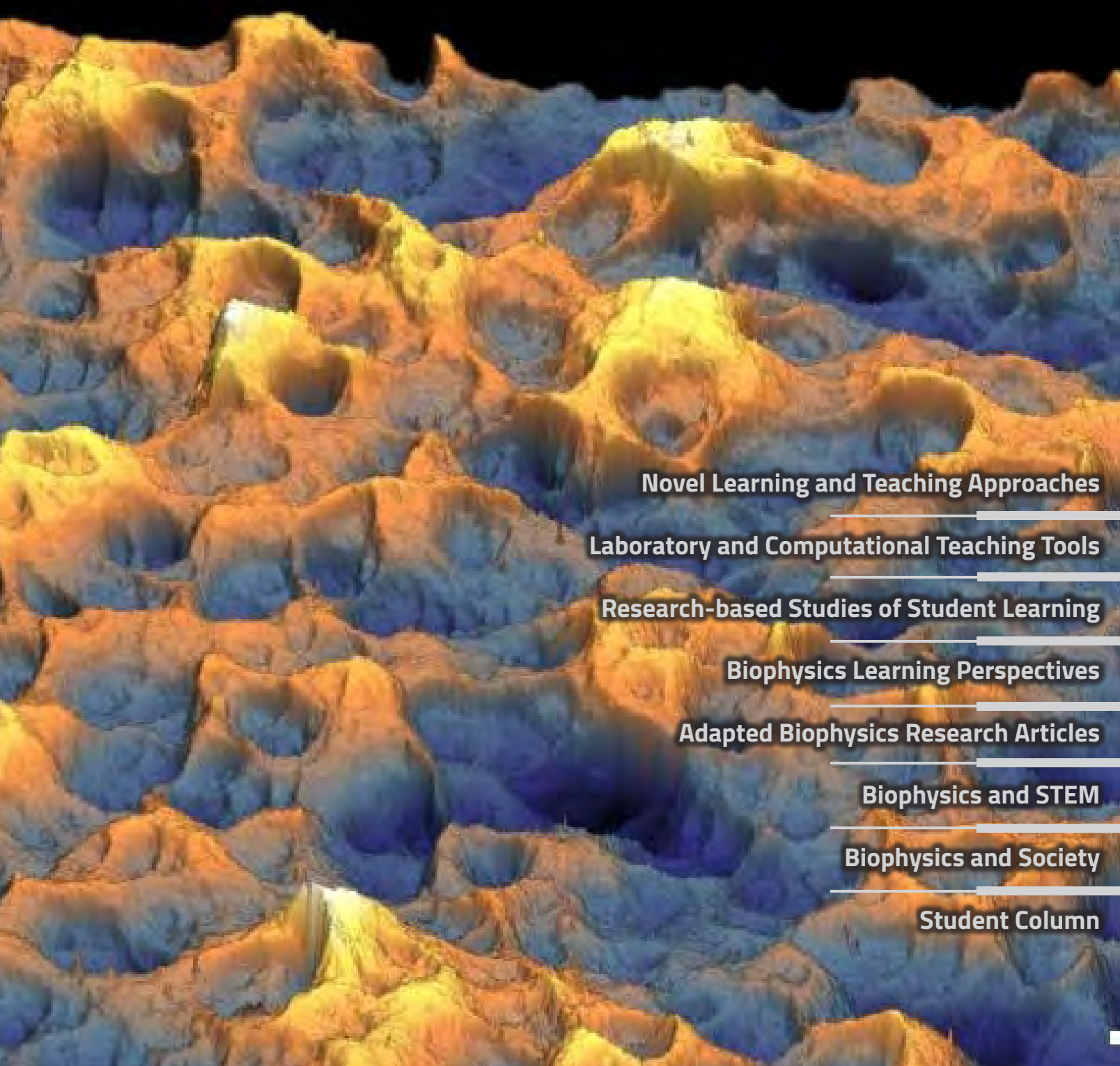
63<sup>RD</sup> ANNUAL MEETING OF THE BIOPHYSICAL SOCIETY

BALTIMORE, MARYLAND • MARCH 2–6, 2019

Program

Biophysical Society





**Novel Learning and Teaching Approaches**

**Laboratory and Computational Teaching Tools**

**Research-based Studies of Student Learning**

**Biophysics Learning Perspectives**

**Adapted Biophysics Research Articles**

**Biophysics and STEM**

**Biophysics and Society**

**Student Column**



# The **Biophysicist**

**Volume 1, Issue 1, 2019**

[www.thebiophysicist.org](http://www.thebiophysicist.org)

**A New Journal from the Biophysical Society**

# Biophysical Society



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# Biophysics Week

March 25–29, 2019

Biophysics Week Partners:



Biophysics Week is a global effort aimed at encouraging connections within the biophysics community and raising awareness of the field and its impact among the general public, policy makers, students, and scientists in related fields.

## Monday, March 25

Biophysics Week Kickoff Event at Johns Hopkins University

## Tuesday, March 26

Capitol Hill Briefing: The Cryo-EM Revolution presented by Eva Nogales

Sponsors: American Society for Cell Biology, JEOL.USA, the Lawrence Berkley National Lab, and Thermo-Fisher Scientific.  
Supported by: The University of California, Berkeley

## Wednesday, March 27

Webinar: Cover Letters Are Annoying, but Here's How You Write Them with Alaina G. Levine

## Thursday, March 28

John Hopkins University Student Poster Night at Baltimore City Hall

State Advocacy Days

## Friday, March 29

To Be Announced

## Daily Events:

Cell Picture Show

Take 5 for Science Policy Videos

Using Your PhD in Non-Academic Career Videos



**Order Your T-Shirt Today**

Order online at [biophysics.org/BiophysicsWeek](http://biophysics.org/BiophysicsWeek) or purchase at the Biophysical Society Booth at the BPS Annual Meeting.

Visit [biophysics.org/BiophysicsWeek](http://biophysics.org/BiophysicsWeek)  
for more information.

# GUIDE TO THE ANNUAL MEETING

## About the BPS Annual Meeting

The Biophysical Society (BPS) Annual Meeting is the largest gathering of biophysicists in the world, bringing together more than 7,000 researchers from over 45 countries. With over 200 sessions and more than 4,500 poster presentations, it can be overwhelming! Use this guide to help you get the most from your attendance at this world famous event.

## Scientific Sessions

The BPS Annual Meeting is known for its many types of sessions, often taking place concurrently. Each type has its own distinct scope, format, and speaker makeup.

### Symposia

- Broad topics featuring talks by leading researchers presenting new research
- Four speakers per two-hour session
- Two-to-three held concurrently

### Platforms

- More focused topics selected from among submitted abstracts held concurrently with symposia
- Eight speakers per two-hour session, including early career researchers
- Approximately six held concurrently during each symposium session

### Workshops

- Technique-oriented sessions
- Four-to-eight speakers per two-hour session
- Two-to-four held concurrently on Tuesday evenings

### Subgroup Programs

- Scientific sessions held Saturday
- Feature speakers presenting the latest research in biophysics subfields

### Biophysical Society Lecture

- One-hour presentation by a world-renowned biophysicist

## Professional Development

The Annual Meeting includes daily sessions and resources for the professional development of biophysicists at all stages of their careers: undergrads and grad students, early and mid-stage, and senior scientists. These sessions are held before, after, and in-between the scientific sessions.

### Career Development Center

Open all day, includes job and resume postings, interview scheduling, CV reviews, and job-related workshops

### Breakfasts

For students and postdocs to network and learn about available resources

### Panel Discussions

Expert presentations on career options, guidance on career transitions, funding resources, science policy

### Workshops

On publishing, teaching and science education, social media, grant writing, communication, and outreach

### Exhibits

Over 200 displays of new equipment, publications, and products

### Exhibitor Presentations

Hands-on demonstrations conducted by exhibiting companies of scientific products and their uses

## Posters

Most interactive and well attended scientific sessions of the meeting.

### Poster Presenters

It is important to present science, but also have posters available for attendee viewing prior to and following presentations.

### Poster Schedule

Please refer to the programming notice, desktop planner, or mobile app for the date and time of poster presentations.

### Board Assignments

Board numbers (B1, B2, B3, LB1, LB2, etc.) indicate the location of the poster board in the Exhibit Hall.

Poster numbers (250-Pos, 251-Pos, etc.) correspond with the number assigned to each poster in the online Abstracts Issue.

Presentation Date	Sunday, March 3	Monday, March 4	Tuesday, March 5	Wednesday, March 6
Setup Time	Saturday after 6 PM	Sunday after 6 PM	Monday after 6 PM	Wednesday after 7 AM
Removal Time	Sunday before 5:30 PM	Monday before 6 PM	Tuesday before 4 PM	Wednesday before 3 PM

**PLEASE NOTE: POSTERS WILL NOT BE COLLECTED OR STORED FOR PICK UP AT A LATER TIME.**

## Social and Networking Events

### Opening Reception

- Hors d'oeuvres and cash bar

### First-Time Attendee Drop-By

- Information on how to navigate the Meeting

### Dinner Meet-Ups

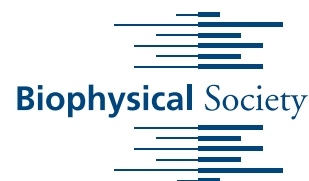
- Local student and early career attendees available each day at the Society Booth to help you explore local restaurants and neighborhoods

### Monday Evening Reception

- The place to meet, drink, eat, dance, and socialize with other meeting attendees
- Photo booth to capture memories
- Lounge with soft music for those who prefer a more quieter atmosphere

### New Member Welcome

- Opportunity to meet and socialize with new members and members of Society governance and committees



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Booth #201

## AMPLIFIERS

Introducing **dPatch**<sup>®</sup>, a digital, ultra-fast, integrated patch clamp amplifier and data acquisition system, bundled with **SutterPatch**<sup>®</sup>, a comprehensive software package built on the foundation of Igor Pro 8. Best suited for low-noise, single-channel and whole-cell recordings on both voltage and true current clamp modes. Optimized to enable the experimenter to set up and perform routine tasks quickly, yet highly configurable to meet the demands of the experienced electrophysiologist.



## MICROMANIPULATION

Continuing to build on our extensive line of micromanipulators, we introduce the **TRIO**<sup>™</sup> MPC-100, a highly-stable 3-axis manipulator system with synthetic 4th axis that can be set in software as any angle between 0 and 90 degrees for diagonal movement. The compact design of the integrated Rotary Optical Encoder (ROE) controller requires minimal bench space. Quality. Precision. Reliability.



## MICROSCOPES

Perform *in vivo* and *in vitro* advanced optical experiments using the **MOM**<sup>®</sup> multi-photon resonant scanning microscope, **BOB** open architecture upright scope, or **SOM**<sup>®</sup> simple moving microscope. We have solutions for wide field functional imaging, multi-photon imaging, photostimulation and slice electrophysiology. Stand-alone components include **MScan** software suite, the **RESSCANNER**, an ultra quiet resonant scan box and controller, and **PS-2** PMT power supply.



## MICROINJECTION

The **XenoWorks**<sup>®</sup> microinjection system has been designed to meet the needs of a wide variety of applications that require the manipulation of cells and embryonic tissues including ICSI, ES Cell Microinjection, and Adherent Cell Microinjection. Highly responsive movement and excellent ergonomics intuitively link the user with the micropipette, improving yield – saving time and resources.



# BPS19

63<sup>RD</sup> ANNUAL MEETING OF THE BIOPHYSICAL SOCIETY

BALTIMORE, MARYLAND • MARCH 2–6, 2019

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## 2019 Biophysical Society Lecturer

**Carol Robinson**

University of Oxford, United Kingdom

*From Peripheral Proteins to Membrane Motors — Mass Spectrometry Comes of Age*

Monday, March 4, 8:00–9:00 PM, Baltimore Convention Center

## About the Image

### *Lipid Connections Caught in the Gas Phase of a Mass Spectrometer*

Protein subunits of LeuT (PDB ID 2A65 green, purple) form a lipid-mediated dimer in the presence of cardiolipin (red head-group, grey side-chain). The quadrupole rods (silver) enable the discovery of lipid binding to membrane proteins through tandem mass spectrometry experiments.

List of Advertisers in the 2019 Annual Meeting Program

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The Biophysical Society would like to thank the following companies for their generous support of the Annual Meeting:

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Hamamatsu Corporation  
HORIBA Scientific  
IonOptix  
Journal of Cell Science  
Journal of General Physiology  
Leica Microsystems  
LUMICKS  
Mad City Labs  
Mizar Imaging  
Molecular Devices  
Nanon Technologies  
NanoSurface Biomedical  
Photonics Media  
Physics Today  
Smart Ephys  
Sophion Bioscience A/S  
Sutter Instrument  
The Journal of Physical Chemistry  
Wyatt Technology Corporation

*As of January 18, 2019*



# Hotel Map



1. *Baltimore Hilton	📍 401 West Pratt Street, Baltimore, MD, 21201	☎ 415-626-0200
2. Days Inn Inner Harbor	📍 100 Hopkins Place, Baltimore, MD, 21201	☎ 410-576-1000
3. Hampton Inn Baltimore - Downtown	📍 550 Washington Blvd, Baltimore, MD, 21230	☎ 410-685-5000
4. Hotel Monaco Baltimore	📍 2 North Charles Street, Baltimore, MD, 21201	☎ 443-692-6170
5. Lord Baltimore Hotel	📍 20 West Baltimore Street, Baltimore, MD, 21201	☎ 410-539-8400
6. Radisson Hotel Baltimore	📍 101 West Fayette Street, Baltimore, MD, 21201	☎ 410-752-1100
7. Holiday Inn Inner Harbor	📍 301 W Lombard Street, Baltimore, MD, 21201	☎ 410-685-3500
8. Sheraton Inner Harbor	📍 300 S. Charles Street, Baltimore, MD, 21201	☎ 410-962-8300
9. Hyatt Regency	📍 300 Light Street, Baltimore, MD 21202	☎ 410-528-1234
10. Renaissance Harborplace Hotel	📍 202 East Pratt Street, Baltimore, MD 21202	☎ 410-547-1200

\*Headquarter Hotel

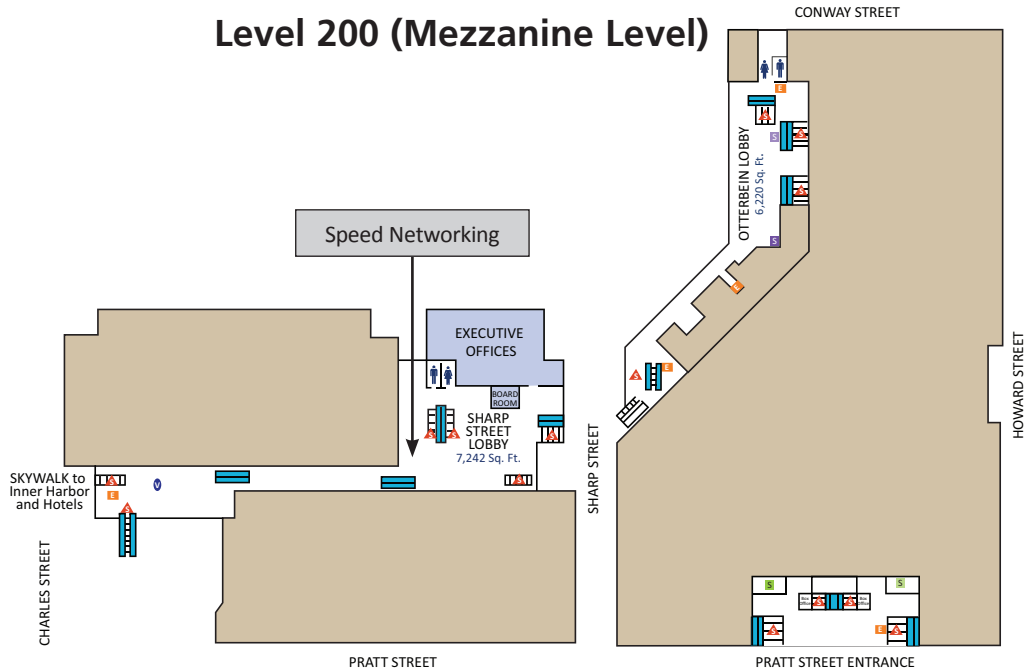
## Level 100 (Street Level)

- Society Meeting Office
- Charles Street Lobby
  - Registration
  - Coat Check
  - Luggage Storage
  - Society Help Desk
  - Cyber Café
  - Poster Pickup
  - Society Booth



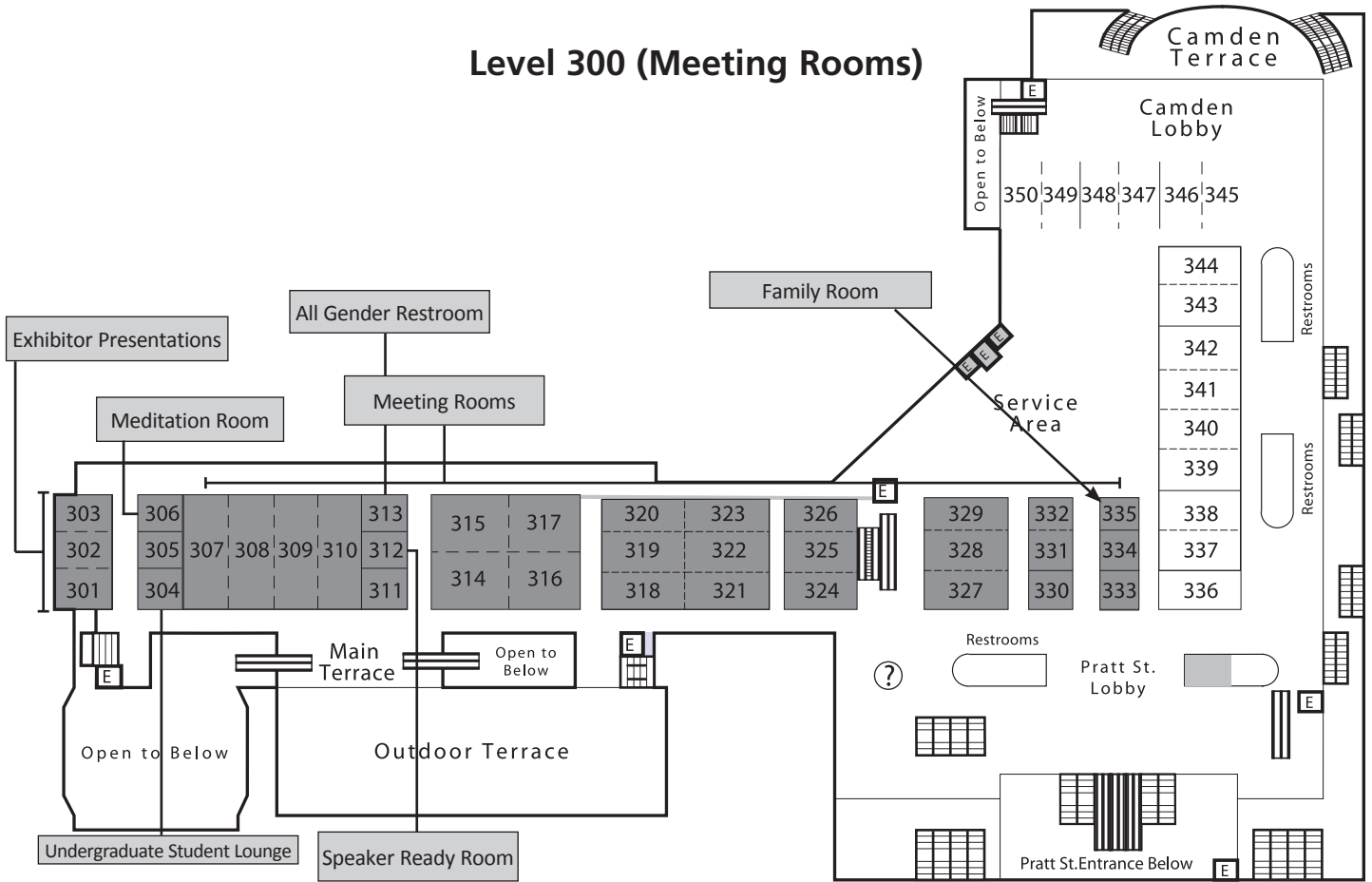
- Hall A-E
- Posters & Exhibits
  - Education and Career Opportunities Fair
  - Career Development Center
  - SRAA Competition
  - Exhibits Office
  - Exhibitor Presentations
  - Image Contest
  - Travel Awardee Reception

## Level 200 (Mezzanine Level)

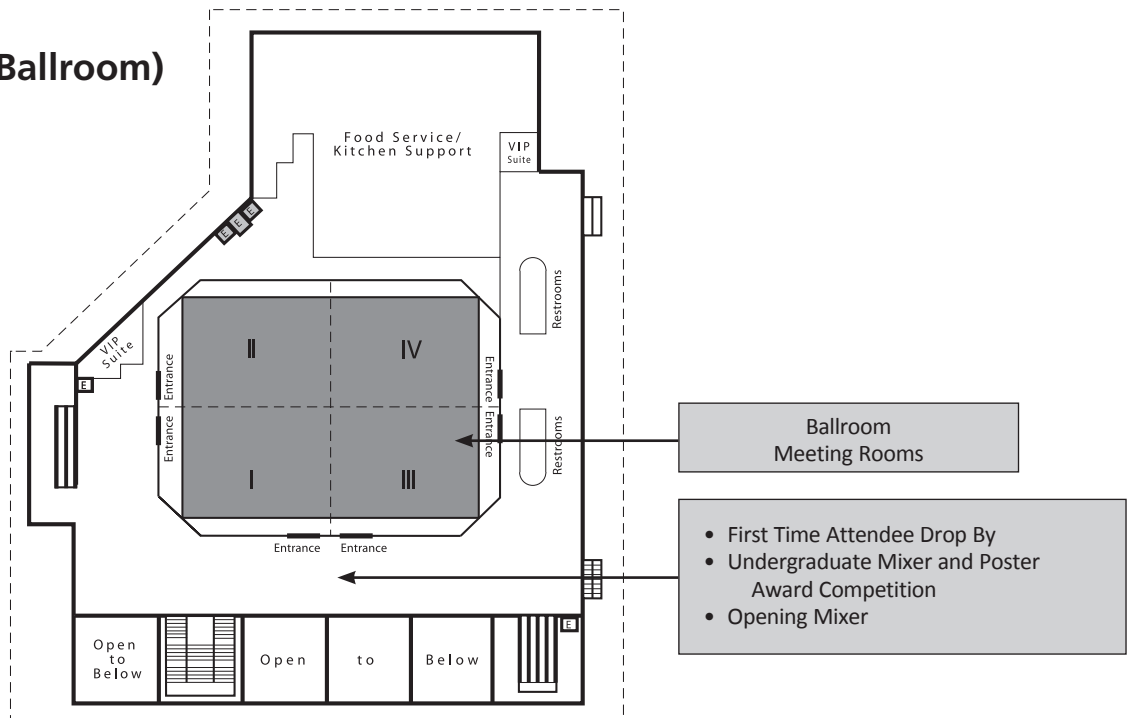


# Baltimore Convention Center

## Level 300 (Meeting Rooms)



## Level 400 (Ballroom)



# Biophysical Society Code of Conduct, Anti-Harassment Policy

*Adopted by BPS Council November 2015*

The Biophysical Society (BPS) is committed to providing an environment that encourages the free expression and exchange of scientific ideas. As a global, professional Society, the BPS is committed to the philosophy of equal opportunity and respectful treatment for all regardless of national or ethnic origin, religion or religious belief, gender, gender identity or expression, race, color, age, marital status, sexual orientation, disabilities, veteran status, or any other reason not related to scientific merit. All BPS meetings and BPS-sponsored activities promote a working environment that is free of inappropriate behavior and harassment by or toward all attendees of Society meetings and Society-sponsored activities, including scientists, students, guests, exhibitors, staff, vendors, and other suppliers.

This global policy applies to all locations and situations where BPS business is conducted and to all BPS-sponsored activities and events. This policy does not replace the specific staff policies for situations in which only staff are involved.

Reported or suspected occurrences of harassment will be promptly and thoroughly investigated. Following an investigation, BPS will immediately take any necessary and appropriate action. BPS will not permit or condone any acts of retaliation against anyone who files harassment complaints or cooperates in the investigation of same.

## Definition of Harassment

The term "harassment" includes but is not limited to epithets, unwelcome slurs, jokes, or verbal, graphic, or physical conduct relating to an individual's race, color, religious creed, sex, national origin, ancestry, citizenship status, age, gender, or sexual orientation that denigrate or show hostility or aversion toward an individual or group.

Sexual harassment refers to unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature. Behavior and language that are welcome/acceptable to one person may be unwelcome/offensive to another. Consequently, individuals must use discretion to ensure that their words and actions communicate respect for others. This is especially important for those in positions of authority since individuals with lower rank or status may be reluctant to express their objections or discomfort regarding unwelcome behavior. It does not refer to occasional compliments of a socially acceptable nature. It refers to behavior that is not welcome, is personally offensive, debilitates morale, and therefore, interferes with work effectiveness. The following are examples of behavior that, when unwelcome, may constitute sexual harassment: sexual flirtations, advances, or propositions; verbal comments or physical actions of a sexual nature; sexually degrading words used to describe an individual; a display of sexually suggestive objects or pictures; sexually explicit jokes; unnecessary touching.

## Investigative Process

Anyone who feels harassed is encouraged to immediately inform the alleged harasser that the behavior is unwelcome. In many instances, the person is unaware that their conduct is offensive and when so advised can easily and willingly correct the conduct so that it does not reoccur. Anyone who feels harassed IS NOT required to address the person believed guilty of inappropriate treatment. If the informal discussion with the alleged harasser is unsuccessful in remedying the problem or if complainant does not feel comfortable with such an approach, he/she should contact BPS's Executive Director or the Society President, or any BPS Officer. All complaints will be promptly and thoroughly investigated.

All reports of harassment or sexual harassment will be treated seriously. However, absolute confidentiality cannot be promised nor can it be assured. BPS will conduct an investigation of any complaint of harassment or sexual harassment, which may require limited disclosure of pertinent information to certain parties, including the alleged harasser. No retaliation will be taken against any employee, member, volunteer, exhibitor, or supplier because he or she reports a problem concerning possible acts of harassment. Employees, members, volunteers, exhibitors, or suppliers can raise concerns and make reports without fear of reprisal.

## Investigative Procedure

To report a complaint of harassment, please go to the staff office in the VIP Lounge in the Charles Street Lobby.

Once a complaint of harassment or sexual harassment is received, BPS will begin a prompt and thorough investigation.

An impartial investigative committee, consisting of the Past-President, current President, and President-Elect will be established.

The committee will interview the complainant and review the written complaint. If no written complaint exists, one will be requested.

The committee will speak to the alleged offender and present the complaint.

The alleged offender will be given the opportunity to address the complaint, with sufficient time to respond to the evidence and bring his/her own evidence.

If the facts are in dispute, the investigative team may need to interview anyone named as witnesses.

The investigative committee may seek BPS Counsel's advice. Once the investigation is complete, the committee will report their findings and make recommendations to the Society Officers.

## Disciplinary Actions

Individuals engaging in behavior prohibited by this policy as well as those making allegations of harassment in bad faith will be subject to disciplinary action. Such actions range from a verbal warning to ejection from the meeting or activity in question without refund of registration fees and the reporting of their behavior to their employer. Repeat offenders may be subject to further disciplinary action, such as being banned from participating in future Society meetings or Society-sponsored activities. In the event that the individual is dissatisfied with the results of the investigation, he or she may appeal to the President of the Society. Any questions regarding this policy should be directed to the BPS Executive Officer or other Society Officer.

## BPS Management Responsibility

Every officer, director, supervisor, and manager is responsible for ensuring that BPS provides an environment free of harassment and inappropriate behavior and that complaints are handled promptly and effectively. The BPS Society Office and Officers must inform the Society membership and all vendors and suppliers about this policy, promptly investigate allegations of harassment, take appropriate disciplinary action, and take steps to assure retaliation is prohibited.

## 2019 Program Committee

**Susan Marqusee**, University of California, Berkeley, Co-Chair  
**Andrej Sali**, University of California, San Francisco, Co-Chair  
**Ruben Gonzalez**, Columbia University  
**Joanna Swain**, Cogen Therapeutics  
**Michael Pusch**, CNR, Italy  
**Anne Kenworthy**, Vanderbilt University School of Medicine, Past Co-Chair  
**Francesca Marassi**, Sanford Burnham Prebys Medical Discovery Institute, Past Co-Chair

### BPS Officers

**Angela M. Gronenborn**, President  
**David W. Piston**, President-Elect  
**Lukas Tamm**, Past-President  
**Kalina Hristova**, Treasurer  
**Frances Separovic**, Secretary

### BPS Council

*Term Ending 2019*  
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**Bertrand Garcia-Moreno**  
**Arthur Palmer**  
**Joanna Swain**

*Term Ending 2020*  
**Zev Bryant**  
**Teresa Giraldez**  
**Ruben Gonzalez**  
**Marina Ramirez-Alvarado**

*Term Ending 2021*  
**Linda Columbus**  
**Jenny Ross**  
**David Stokes**  
**Pernilla Wittung-Stafshede**

### Biophysical Journal

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**Anne Kenworthy**, Associate Editor  
**E. Michael Ostap**, Associate Editor  
**Michael Pusch**, Associate Editor  
**Elizabeth Rhoades**, Associate Editor  
**Brian Salzberg**, Associate Editor  
**Tamar Schlick**, Associate Editor  
**Stanislav Shvartsman**, Associate Editor  
**Claudia Steinem**, Associate Editor

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**Dorothy Chaconas**, Director of Meetings & Exhibits  
**Catie Curry**, Publications Coordinator  
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**Stacey Wendelbo**, Programs Coordinator  
**Sean Winkler**, Director of Public Affairs & Advocacy  
**Ray Wolfe**, Creative Designer & Systems Engineer  
**Umi Zhou**, Meetings Coordinator

## Sorting and Programming of 2019 Abstracts

Sorting and programming of the 2019 Annual Meeting abstracts into poster and platform sessions was completed by: Jane Clark, Patricia Clark, Linda Columbus, Bertand Garcia-Moreno, Ruben Gonzalez, Teresa Giraldez, Anne Kenworthy, William Kobertz, Francesca Marassi, Joseph Mindell, Susan Marqusee, Anna Moroni, Robert Nakamoto, Arthur Palmer, David Piston, Michael Pusch, Marina Ramirez-Alvarado, Arnold Revzin, Jennifer Ross, Catherine A. Royer, Andrej Sali, James Sellers, Frances Separovic, Erin Sheets, Joanna Swain, Eric Sundberg, Pernilla Wittung-Stafshede, Zev Bryant.

## General Information

All functions will be held in the *Baltimore Convention Center*, unless otherwise noted.

### Badges

Badges are required for admission to all scientific sessions, including Saturday subgroup symposia, poster areas, exhibits, and social functions. A guest badge for non-scientific guests can be purchased for \$65 at the on-site registration counter located in the Charles Street Lobby. Guest registration is only for admittance to the Opening Mixer on Saturday night and Reception on Monday night. It does not include admission to scientific sessions, posters, or exhibits. There is a \$30 fee to reprint a lost or forgotten badge.

### Banking and Currency Exchange

Foreign currency exchange and other bank transactions can be done during regular bank business hours at Bank of America, 100 South Charles Street, Baltimore, MD 21201. ATMs are also available in the Baltimore Convention Center.

Monday–Thursday	9:00 AM–5:00 PM
Friday	9:00 AM–6:00 PM
Saturday & Sunday	Closed

### Business Center, 300 Level

The Baltimore Convention Center provides a full-service business center for the convenience of attendees and exhibitors. Services include photocopying, faxing, computer work stations, and printing services. Shipping is provided through UPS. The business center is located in the Pratt Street Lobby adjacent to Room 334. To contact the business center, call 410-649-7194 or email [Eking@abcimaging.com](mailto:Eking@abcimaging.com).

Sunday	9:00 AM–12:30 PM
Monday–Friday	8:30 AM–4:30 PM

### Career Development Center, Exhibit Hall

Services are available for both those seeking a position and employers with positions to fill. Please note, the career development center is the only place to post job openings. Unauthorized notices placed elsewhere in the Baltimore Convention Center will be removed.

Saturday	12:00 NOON–7:00 PM
Sunday–Tuesday	8:00 AM–5:30 PM

### Certificates of Attendance

Certificates of Attendance may be obtained in person at the Society Help Desk located at registration in the Charles Street Lobby or in the Society Meeting Office, in the VIP Lounge, Charles Street Lobby.

### Code of Conduct

The Biophysical Society Annual Meeting provides an environment that encourages free and respectful expression and exchange of scientific ideas.

Please review the code of conduct policy (page VI) that all meeting participants must follow.

### Coat Check/Luggage Storage, Charles Street Lobby

The cost is \$3.00 per item. Please do not bring luggage to meeting rooms. If you are planning to check items, please plan to arrive early to ensure that you are not late for sessions due to long lines.

Saturday	8:30 AM–7:30 PM
Sunday–Tuesday	7:30 AM–6:30 PM
Wednesday	7:30 AM–4:00 PM

### Dinner Meet-Ups

Interested in making new acquaintances and experiencing the cuisine of Baltimore? Meet at the Society Booth each evening, Sunday through Tuesday, at 6:00 PM where a BPS member will coordinate dinner at a local restaurant.

### Exhibits, Exhibit Hall A-E

The Exhibit Hall features the most advanced equipment, products, services, and publications available. A list of exhibitors as of January 18, 2019, can be found beginning on page 170. Please see Addendum for those registered after January 18, 2019.

Sunday	10:00 AM–5:00 PM
Monday	10:00 AM–5:00 PM
Tuesday	10:00 AM–4:00 PM

### Exhibitor Passport Competition

Pick up a Passport Competition booklet inside the entrance of the Exhibit Hall. Visit participating exhibitors, get your passport stamped, drop your passport at the Society Booth located in the Charles Street Lobby before 2:30 PM Tuesday. Winner will be announced on Tuesday at 3:00 PM in the Exhibit Hall. You must be present at the drawing to win. Good luck!

### Family Room, Room 335

The Family Room is equipped with diapers, electrical outlets for pumps, labels for breast milk, plastic bags for disposing of diapers, a small refrigerator, private areas for nursing, and a small area for rest and play.

Friday	2:00 PM–5:00 PM
Saturday	8:00 AM–7:00 PM
Sunday–Tuesday	7:30 AM–10:00 PM
Wednesday	8:00 AM–3:30 PM

### First Aid, Exhibit Hall E

In case of medical emergency, dial 7055 from any house phone or 410-649-7055 from a cell phone. The First Aid room is located behind Hall E. For other minor medical needs, this room will be staffed with First Aid Administrators trained in First Aid Response during the hours below.

Saturday	8:00 AM–6:30 PM
Sunday	7:30 AM–6:30 PM
Monday	7:30 AM–9:00 PM
Tuesday	7:30 AM–6:30 PM
Wednesday	7:30 AM–3:30 PM

## Individuals Requiring Assistance

Attendees requiring special assistance during the meeting should visit the Society Meeting Office in the VIP Lounge in the Charles Street Lobby. Society staff will do their best to accommodate requests; however, we cannot ensure that special needs will be met without prior notice.

## Internet Access

Wireless Internet access is available free-of-charge throughout the common areas of the Baltimore Convention Center, excluding the Exhibit Hall.

In addition, the Biophysical Society Cyber Cafe is located in the Charles Street Lobby. Attendees can access the Internet for free on one of the available computers. Usage time is limited to 10 minutes per session when others are waiting.

Saturday	8:00 AM–7:30 PM
Sunday–Tuesday	7:30 AM–10:00 PM
Wednesday	7:30 AM–3:00 PM

## Mobile App and Desktop Planner

The Biophysical Society's Official Mobile App is available for download in App Store and Google Play Store. iOS and Android Users can search for "bps events" to download the App. We do not support native apps for Windows Mobile and Blackberry; However, those users may access our mobile-friendly Desktop Planner at [www.biophysics.org/2019meeting](http://www.biophysics.org/2019meeting). Using the Mobile App you can view/create schedules, view abstracts/authors/exhibitors, receive event alerts from BPS, share your moments in social media, find/interact virtually with other attendees, and sync itineraries that were created with the Desktop Planner.

## Parking

The Baltimore Convention Center does not include a public parking facility. There are many public garages located around the city and within walking distance of the Convention Center.

## Photography

Registration for the meeting implies consent to having photographs taken and to their use by officials of the Biophysical Society, or their representatives, for editorial and promotional purposes, on the Society website, social media outlets, and publications. To respect the willingness of presenters to share data at the meeting, as well as their publication opportunities, **recordings of any kind (audio, video, camera, or cell phone) in the session rooms, Exhibit Hall, and poster areas are strictly prohibited.** Any individual seen taking photographs of any session or presentation will be escorted out by security.

## Poster Pickup

Posters ordered in advance through Tray Printing will be available for pick up at the Baltimore Convention Center Exhibit Hall entrance during the following hours:

Saturday	4:00 PM–7:00 PM
Sunday–Tuesday	9:00 AM–11:00 AM and 1:00 PM–4:00 PM
No Wednesday Pick up	

## Poster Sessions, Exhibit Hall A-E

Sunday–Wednesday

The Exhibit Hall will open at 8:00 AM each morning. It will remain open for poster viewing until 10:00 PM each night, except for Tuesday, when it will close at 4:30 PM for safety purposes during exhibit tear down. Posters are arranged according to topic. Your poster board

number begins with "B." On the day of presentation, authors assigned odd-numbered poster boards should present 1:45 PM–2:45 PM (10:30 AM–11:30 AM on Wednesday); even-numbered posters should present 2:45 PM–3:45 PM, (11:30 AM–12:30 PM on Wednesday). Other hours, day or evening, may be posted by the authors as desired. Additionally, authors may leave note paper so that visitors may request an appointment. Abstracts submitted after October 8, 2018, are scheduled each day, Sunday–Wednesday, during the regular poster sessions. These board assignments will begin with "LB."

Posters are to be removed by 5:30 PM on Sunday and Monday, and 4:00 PM on Tuesday in order to accommodate exhibits tear down, and 3:00 PM on Wednesday. Please do not leave materials or belongings under poster boards or in the poster area. The Society is not responsible for any articles left in the poster area.

## Meditation Room, Room 306

A room will be available for attendees to use for quiet meditation or prayer.

Saturday–Tuesday	8:00 AM–10:00 PM
Wednesday	8:00 AM–3:30 PM

## Raffles

**Exhibitor Raffle:** Want to win an Amazon Echo? Pick up an Exhibitor Passport Competition booklet inside the entrance of the Exhibit Hall. Visit participating exhibitors, talk to them to find out the answer to their question, get your passport stamped, and drop off your passport at the Society Booth located in the Charles Street Lobby before 2:30 PM on Tuesday, March 5. Raffle winner will be announced on Tuesday at 3:00 PM in the Exhibit Hall. You must be present at the drawing to win. Good luck!

**Wednesday Poster Session Raffle:** Attend the Wednesday poster sessions in the Exhibit Hall for a chance to win a Fitbit Versa! Drop your ticket in the ballot box in the Exhibit Hall. The winner will be announced at 12:30 PM on Wednesday in the Exhibit Hall. You must be present in the Exhibit Hall to win. Good luck!

Stop by the Society Booth to answer the biophysics trivia question for a chance to win a t-shirt each day Saturday–Tuesday.

## Registration Hours, Charles Street Lobby

Friday	3:00 PM–5:00 PM
Saturday	8:00 AM–6:30 PM
Sunday–Tuesday	7:30 AM–5:00 PM
Wednesday	8:00 AM–3:00 PM

## Restrooms

Restrooms are located in the Exhibit Hall, Charles Street Lobby, three banks are located on the third level, and one bank on the fourth level. A Gender Inclusive bathroom is located on the third level next to Room 313.

## Social Media

The Society staff will be updating the BPS Facebook page, Twitter feed, Instagram account, and blog with Annual Meeting information throughout the meeting. Follow us on:

Twitter:	@BiophysicalSoc, use hashtag #bps19
Facebook:	<a href="http://www.facebook.com/biophysicalsociety">www.facebook.com/biophysicalsociety</a>
Instagram:	@biophysicalsociety
Blog:	<a href="http://www.biophysics.org/blog">www.biophysics.org/blog</a>

## **Society Meeting Office, VIP Lounge, Charles Street Lobby**

Friday	3:00 PM–5:00 PM
Saturday	8:00 AM–6:30 PM
Sunday–Tuesday	7:30 AM–5:00 PM
Wednesday	8:00 AM–3:00 PM

### **Speaker Ready Room, Room 312**

We highly encourage all presenters in Symposia, Workshops, and Platform sessions to visit the Speaker Ready Room one day prior to their scheduled presentation time. This room will be set up for your use, and will contain several screens and data projectors to allow you the opportunity to review your material prior to your scheduled presentation time slot. All speakers must bring their own laptops. An audiovisual technician will be available during room hours to assist you in setting up your laptop with the data projector and to answer any questions. As a courtesy to other presenters, please limit your viewing time to five minutes during peak times.

Saturday–Tuesday	8:00 AM–6:30 PM
Wednesday	8:00 AM–1:00 PM

Data projectors will be provided in all session rooms in the Baltimore Convention Center. The data projectors will be compatible with both Windows and Mac laptops. Speakers must bring their own laptops. The Society does not provide laptops for those with flash drives or other storage devices.

### **Taxis**

Taxis will be available from the Charles Street Lobby of the Baltimore Convention Center.

Baltimore City Taxi .....	410-327-7777
Arrow Cab .....	443-575-4111
County Cab .....	443-575-4110
Diamond Cab .....	410-947-3333
Yellow Cab .....	410-685-1212

### **Undergraduate Student Lounge, Room 304**

This special space is reserved for undergraduate meeting attendees looking for a place to relax or catch up on coursework they may be missing while at the Annual Meeting.

Saturday–Tuesday	8:00 AM–6:00 PM
Wednesday	8:00 AM–12:00 NOON



# Mark Your Calendars! Future BPS Annual Meetings

## **64<sup>th</sup> Annual Meeting**

February 15–19, 2020  
San Diego, California

## **65<sup>th</sup> Annual Meeting**

February 20–24, 2021  
Boston, Massachusetts

## **66<sup>th</sup> Annual Meeting**

February 19–23, 2022  
San Francisco, California

## **67<sup>th</sup> Annual Meeting**

February 18–22, 2023  
San Diego, California

## Committee Meetings

All rooms are located in the *Baltimore Convention Center* unless noted otherwise.

### Friday, March 1

3:30 PM–4:30 PM

#### ***New Council Orientation***

Hilton, Peale C

5:00 PM–9:00 PM

#### ***Joint Council Reception, Dinner, and Meeting***

Hilton, Peale A/B

### Saturday, March 2

8:30 AM–11:30 AM

#### ***Joint Council Meeting (continued)***

Hilton, Peale A/B

### Sunday, March 3

8:30 AM–10:30 AM

#### ***Committee for Inclusion and Diversity Meeting***

Room 333

12:15 PM–2:15 PM

#### ***Public Affairs Committee Meeting***

Room 333

3:30 PM–5:00 PM

#### ***Early Careers Committee Meeting***

Room 333

6:00 PM–10:00 PM

#### ***Biophysical Journal Editorial Board Dinner***

Center Club

### Monday, March 4

8:30 AM–10:30 AM

#### ***CPOW Committee Meeting***

Room 333

3:30 PM–5:30 PM

#### ***Membership Committee Meeting***

Room 333

### Tuesday, March 5

8:00 AM–9:00 AM

#### ***Biophysical Society Business Meeting***

Room 324/325/326

9:00 AM–10:30 AM

#### ***Subgroup Chairs Meeting***

Room 331

3:00 PM–5:00 PM

#### ***Education Committee Meeting***

Room 333

6:00 PM–10:00 PM

#### ***Publications Committee Meeting***

Hilton, Calloway

### Wednesday, March 6

8:00 AM–11:00 AM

#### ***New Council Meeting***

Room 331

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*The Biophysical Society would like to thank Society members who serve on Council or Committees for their dedication and efforts.*

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## Professional Development & Educational Sessions

The Society's committees have planned a variety of professional development activities to take place during the Annual Meeting. Below is a schedule of all of those activities. Detailed descriptions of the sessions can be found in the daily program. In addition, a student lounge for undergraduates will be available Sunday, March 3, to Wednesday, March 6, in Room 304.

*Sessions in italics will be held in Career Development Center, Exhibit Hall A.*

### Saturday, March 2, 2019

- 2:00 PM–4:00 PM Science Communications Workshop with AAAS\*\*  
3:00 PM–4:00 PM *Leveraging LinkedIn in the PhD Job Search: Networking, Informational Interviews, and More*  
3:00 PM–5:00 PM Undergraduate Mixer and Poster Award Competition

#### One-on-One Resume and Career Counseling\*

1:00 PM–2:20 PM | 4:30 PM–5:30 PM

### Sunday, March 3, 2019

- 7:30 AM–8:30 AM Postdoctoral Breakfast  
9:00 AM–10:00 AM *Networking for Nerds: How to Create Your DreAM Career*  
10:30 AM–11:30 AM *Green Cards for Scientific Researchers: How to win your EB-1A/NIW Case! with Getson & Schatz, PC*  
11:15 AM–3:00 PM Exploring Careers in Biophysics Day\*\*  
11:30 AM–1:00 PM Undergraduate Student Pizza "Breakfast"  
12:00 PM–1:00 PM *Demystifying the Academic Job Search I: Understanding the Search Process from the Perspective of Search Committees and Decoding Job Announcements*  
1:00 PM–2:30 PM The World Outside the Lab: Many Ways to Use Your PhD Skills  
1:00 PM–3:00 PM Education & Career Opportunities Fair  
2:00 PM–3:30 PM Teaching Science Like We Do Science  
2:30 PM–3:30 PM *The Industry Interview: What you need to do before, during, and after to get the Job*  
2:30 PM–4:00 PM Brexit & Science: Consequences for Research Funding and Immigration Flows  
4:00 PM–5:00 PM *Nailing the Job Talk, or Erudition Ain't Enough*  
5:00 PM–7:00 PM PI to PI, a Wine & Cheese Mixer

#### One-on-One Resume and Career Counseling\*

8:30 AM–1:00 PM and 2:30 PM–6:00 PM

### Monday, March 4, 2019

- 7:30 AM–8:30 AM Graduate Student Breakfast  
10:00 AM–11:00 AM *Demystifying the Academic Job Search II: Preparing your Written Application Materials: CV, Cover Letter, and Research Statement*  
11:30 AM–12:30 PM *Networking for Nerds: How to Create Your DreAM Career*  
12:30 PM–2:00 PM The Nuts and Bolts of Preparing Your NSF Grant  
1:00 PM–2:30 PM Understanding the Congressional Budget Process: How Science is Funded  
1:30 PM–3:00 PM Biophysics 101: Gene Editing  
2:30 PM–3:30 PM *The Strategic Postdoc: How to Find & Leverage your Postdoc Experience*  
2:30 PM–4:00 PM Virtual Biophysics: Virtual and Augmented Reality Meets Biophysics  
2:30 PM–4:00 PM Designing and Implementing Strategies to Prevent and Recover from Burnout  
2:30 PM–4:00 PM Speed Networking  
4:00 PM–5:00 PM *Developing Your 30-Second Value Statement (aka Your Elevator Pitch)*

#### One-on-One Resume and Career Counseling\*

8:30 AM–10:00 AM | 11:30 AM–12:30 PM | 2:00 PM–5:20 PM

### Tuesday, March 5, 2019

- 9:30 AM–10:30 AM *Looking Beyond Academia: Identifying Your Career Options using MyIDP, LinkedIn & More*  
11:30 AM–12:30 PM *The Industry Interview: What you need to do before, during, and after to get the Job*  
12:00 PM–1:30 PM Founding, Establishing, and Maintaining a Research Laboratory at Primarily Undergraduate Institutions  
12:00 PM–2:00 PM Postdoc to Faculty Q&A: Transitions Forum and Luncheon  
1:15 PM–2:45 PM Nurturing a More Inclusive STEM Enterprise by Understanding Our Biases  
1:30 PM–3:30 PM The Nuts and Bolts of Preparing Your NIH Grant  
1:30 PM–3:00 PM Industry Panel  
2:30 PM–3:30 PM *Nailing the Job Talk, or Erudition Ain't Enough*

#### One-on-One Resume and Career Counseling\*

8:00 AM–12:00 NOON and 1:30 PM–5:00 PM

\* Slots for the One-on-One Resume and Career Counseling sessions are available on a first-come, first-served basis and fill up quickly. You may sign up for a slot beginning at 12:00 NOON on Saturday, March 2, in the Career Development Center, Exhibit Hall A. Please come prepared with resumes, CVs, and other appropriate materials.

\*\* This event requires pre-registration. If space is available, individuals who have not pre-registered may attend. Please stop by the event at the beginning of the session to see if space is available.

## Career Development Center Information

Exhibit Hall A

**Andrew Green** earned his PhD at the University of California, Berkeley, and has over 17 years of experience working with graduate students, PhDs, and postdocs as a career advisor. Before returning to Berkeley, where he serves as Associate Director of the Career Center, he spent six years on the faculty of Connecticut College. His specialty is working with PhDs and postdocs in the sciences and engineering pursuing professional opportunities in the business, government, and nonprofit sectors as well as those seeking faculty jobs. He has given invited presentations at major scientific meetings and research universities across the country; and appeared in the *Chronicle of Higher Education*, *NatureJobs*, and *The Atlantic Online*.

**Alaina G. Levine** is an award-winning entrepreneur, STEM career consultant, science journalist, professional speaker and corporate comedian. Her first book, *Networking for Nerds*, was published by Wiley in July 2015, and beat out Einstein (really!) for the honor of being named one of the Top 5 Books of 2015 by *Physics Today Magazine*. As President of Quantum Success Solutions, she is a prolific speaker and writer on career development and professional advancement for engineers and scientists. She has delivered over 700 speeches for clients in the US, Europe, Mexico, and Canada, and has written over 350 articles in international publications such as *Science*, *Nature*, *Scientific American*, *National Geographic News Watch*, *IEEE Spectrum*, and *Mechanical Engineering Magazine*. She is a career columnist for *Physics Today* and the American Physical Society's *APS News*, and a regular contributor to *ScienceCareers.org*. @AlainaGLEvine

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## Job Postings

### Employers

Stop by the Career Center to post your job opening today! All attendees will have access to your job posting while at the meeting and your job will be posted on our online Job Board as well. Search resumes for a perfect fit and schedule an interview while you're onsite at the meeting.

### Job Applicants

Looking for a job in biophysics? Stop by the Career Development Center and upload your resume for employers to view on the Job Board both onsite and online. You may also apply for posted jobs.



Discover your future...

**Biophysical Society**  
Job Board

[www.biophysics.org/jobs](http://www.biophysics.org/jobs)

## Travel Grant Awardees

Student Travel Awards partially supported by The Rockefeller University Press.

### Sunday, March 3

**Constance Agamasu**, Frederick National Lab, United States  
256-Pos, B31  
BIOPHYSICAL INSIGHTS INTO THE KRAS4B-FME-CALMODULIN INTERACTION.

**Salomon L. Alires**, University of New Mexico, United States  
728-Pos, B503  
NOVEL SENSORS FOR DETECTING ALZHEIMER'S DISEASE RELATED TAU PROTEIN AGGREGATES.

**Lucie Bergdoll**, University of California, Los Angeles, United States  
269-Pos, B44  
VDAC1 CONFORMATIONAL CHANGES INVESTIGATED BY HIGH PRESSURE DEER.

**Anne M. Brown**, Virginia Tech, United States  
230-Pos, B5  
MOLECULAR DYNAMICS SIMULATIONS OF GP120 AND GP41 OF HIV ENV PROVIDE INSIGHTS INTO STRAIN SPECIFICITY AND THE ROLE OF THE MEMBRANE ENVIRONMENT.

**Sriya Byrapuneni**, University of Minnesota Twin Cities, United States  
584-Pos, B359  
IMPACT OF HYPERTROPHIC CARDIOMYOPATHY MUTATIONS ON THE CARDIAC MYOSIN SUPER-RELAXED STATE.

**Charles H. Chen**, King's College London, United Kingdom  
435-Pos, B210  
RATIONAL DESIGN OF POLYLEUCINE-BASED ANTIMICROBIAL PEPTIDES AS PROMISING AGENTS AGAINST CANCER CELLS.

**Zhen Chen**, Rockefeller University, United States  
90-Plat  
STRUCTURAL INSIGHTS INTO MDN1, AN ~540 KDA AAA PROTEIN REQUIRED FOR RIBOSOME BIOGENESIS.

**Rohan Choraghe**, University of New Mexico, United States  
609-Pos, B384  
RHO MEDIATED MECHANICAL FORCE GENERATION THROUGH DECTIN-1.

**Megan Cullinan**, University of Colorado School of Medicine, United States  
179-Plat  
MEASURING DYNAMICS OF THE ACID-SENSING ION CHANNEL N-TERMINUS USING TRANSITION METAL ION FRET.

**Umidahan Djakbarova**, Ohio State University, United States  
462-Pos, B237  
CELL TO CELL HETEROGENEITY OF CLATHRIN COAT DYNAMICS IS CELL CYCLE DEPENDENT.

**Fathima T. Doole**, University of Arizona, United States  
428-Pos, B203  
EFFECT OF BIOPOLYMER TETHERS ON ANTIMICROBIAL PEPTIDE ACTIVITY IN BIOMEMBRANES.

**Monica Florescu**, Transilvania University of Brasov, Romania  
732-Pos, B507  
NANOZYME MODIFIED ELECTROCHEMICAL BIOSENSORS AS RAPID SCREENING TOOLS FOR BIOMOLECULES.

**Jenisha Ghimire**, Tulane University, United States  
420-Pos, B195  
DISCOVERING NOVEL ANTIMICROBIAL PEPTIDES USING HIGH-THROUGHPUT SCREENING AND RATIONAL VARIATION.

**Aparna Gudlur**, La Jolla Institute for Allergy and Immunology, United States  
215-Plat  
CALCIUM SENSING AND CONFORMATIONAL REARRANGEMENTS IN STIM1, THE ER CALCIUM SENSOR.

**Dvir Harris**, Technion - Israel Institute of Technology  
237-Pos, B12  
STRUCTURAL REARRANGEMENTS IN THE C-TERMINAL DOMAIN HOMOLOG OF ORANGE CAROTENOID PROTEIN ARE CRUCIAL FOR CAROTENOID TRANSFER.

**Jagadish P. Hazra**, Indian Institute of Science Education and Research Mohali  
91-Plat  
DECIPHERING THE MECHANISM OF FORCE DISSEMINATION THROUGH TIP-LINKS IN HEARING.

**Bence Hegyi**, University of California, Davis, United States  
491-Pos, B266  
DIABETIC HYPERGLYCEMIA REGULATES POTASSIUM CHANNELS AND ARRHYTHMIAS IN THE HEART VIA AUTONOMOUS CAMKII ACTIVATION BY O-LINKED GLYCOSYLATION.

**Stephanie S.M.H. Hoehn**, University of Cambridge, United Kingdom  
99-Plat  
MECHANICS OF CELL SHEET FOLDING - EMBRYONIC INVERSION IN THE GREEN ALGAE VOLVOX.

**Adam A. Jabak**, Bridgewater State University, United States  
690-Pos, B465  
INVESTIGATING HOW CHIRALITY OF A THREADING BINUCLEAR RUTHENIUM COMPLEX AFFECTS THE DNA THREADING INTERCALATION USING OPTICAL TWEEZERS.

**Robert C. Klipp**, University of Colorado School of Medicine, United States  
548-Pos, B323  
STOMATIN DEPENDENT REGULATION OF THE ACID SENSING ION CHANNELS.

**Aravind Kshatri**, Universidad de La Laguna, Spain  
523-Pos, B298  
DIFFERENTIAL REGULATION OF BK CHANNELS BY FRAGILE X MENTAL RETARDATION PROTEIN.

**Harish Kumar**, National Centre for Biological Sciences, India  
142-Plat  
UNDERSTANDING THE MOLECULAR PARAMETERS DETERMINING THE PATHOLOGICAL PROPERTIES OF AMYLOID FIBRILS.

**Byung Ho Lee**, Sungkwunkwan University, South Korea  
382-Pos, B157  
A NEW DNA INVERSION MECHANISM: RECOMBINATION OF THE DNA FOLDBACK INTERCOIL STRUCTURE.

**Chantelle L. Leveille**, University of Washington, United States  
396-Pos, B171  
THE ROLE OF ERGOSTEROL IN PHASE SEPARATION OF YEAST VACUOLE MEMBRANES.

**Ao Li**, Binghamton University – State University of New York, United States  
105-Plat  
CHARACTERISTIC CONFORMATIONS OF PSEUDOMONAS QUINOLONE SIGNAL INTERACTING WITH BACTERIAL OUTER MEMBRANE.

**Worawan B. Limpitikul**, Johns Hopkins University, United States  
553-Pos, B328  
PROBING L-TYPE CHANNEL CALCIUM-DEPENDENT INACTIVATION -- A BILOBAL MODEL OF CALMODULATION.

**Chris Lindsay**, University of Oxford, United Kingdom  
210-Plat  
MODELLING THE ATP BINDING SITE OF RYR2 TO RATIONALISE LIGAND-INDUCED GATING BEHAVIOUR.

**Anupa Majumdar**, Indian Institute of Science Education and Research Mohali  
139-Plat  
PROXIMITY RULERS IN AMYLOIDS AND LIQUID DROPLETS OF INTRINSICALLY DISORDERED PROTEINS.

**Deniz Meneksedag-Erol**, University of Toronto Mississauga, Canada  
74-Plat  
UNCOVERING THE MOLECULAR BASIS FOR THE CLINICAL N642H MUTATION IN STAT5B USING ATOMISTIC MOLECULAR SIMULATIONS.

**Hamed Meshkin**, Purdue University, United States  
231-Pos, B6  
ATOMIC SIMULATIONS OF TRP-CAGE FOLDING BY UMBRELLA SAMPLING USING Q FUNCTION AS REACTION COORDINATE.

**Louisa Mezache**, Ohio State University, United States  
159-Plat  
VEGF-INDUCED VASCULAR LEAK PROMOTES ATRIAL FIBRILLATION BY DISRUPTING INTERCALATED DISC NANODOMAINS.

**Alexander E. Mosier**, Rensselaer Polytechnic Institute, United States  
321-Pos, B96  
UNVEILING THE IMPACT OF THE NEGATIVE ARM OF THE CIRCADIAN CLOCK ON OUTPUT IN NEUROSPORA CRASSA.

**Buyan Pan**, University of Pennsylvania, United States  
325-Pos, B100  
INVESTIGATING THE EFFECT OF ALPHA-SYNUCLEIN POST-TRANSLATIONAL MODIFICATIONS ON SYNAPTIC VESICLE TRAFFICKING.

**Andrea Papale**, SISSA, Italy  
349-Pos, B124  
MICRORHEOLOGY OF INTERPHASE NUCLEI: A COMPUTER SIMULATION STUDY.

**Nabina Paudyal**, University of Texas Health Science Center at Houston, United States  
527-Pos, B302  
STUDY OF A HETEROMERIC KAINATE RECEPTOR GLUK2/K5 BY PROBING SINGLE-MOLECULE FRET.

**Suchi M.D.C. Perera**, University of Arizona, United States  
268-Pos, B43  
STRUCTURAL FLUCTUATIONS IN RHODOPSIN ACTIVATION REVEALED BY NEUTRON SCATTERING.

**Nihit Pokhrel**, University of Washington, United States  
713-Pos, B488  
USING COMMITTOR AND ITS DISTRIBUTION TO ASSESS THE CONVERGENCE OF FREE ENERGY CALCULATIONS.

**Elias M. Puchner**, University of Minnesota, United States  
677-Pos, B452  
QUANTITATIVE AND MOTION-CORRECTED SUPER-RESOLUTION IMAGING OF ENDOSOME DYNAMICS IN LIVING CELLS.

**Vatsal Purohit**, Purdue University, United States  
88-Plat  
TIME-RESOLVED CRYSTALLOGRAPHY MEASUREMENTS ELUCIDATING THE MECHANISM OF BACTERIAL HMG-COA REDUCTASE.

**Vani S. Ravichandran**, University of Michigan, United States  
148-Plat  
PROTEIN KINASE C-MEDIATED CARDIAC TROPONIN I S43/45 PHOSPHORYLATION CAUSES CONTRACTILE DYSFUNCTION IN HUMAN HEART FAILURE AND IN RODENTS.

**Erika Riederer**, Oregon Health and Science University, United States  
251-Pos, B26  
INVESTIGATION OF EXTRACELLULAR GATE MOVEMENT IN A GLUTAMATE HOMOLOGUE.

**Nirakar Sahoo**, University of Texas Rio Grande Valley, United States  
82-Plat  
MODULATION OF KV10.1 POTASSIUM CHANNEL FUNCTION BY INTRACELLULAR HEME.

**Premila P. Samuel Mohan Dass**, Rutgers University, United States  
322-Pos, B97  
RESOLVING THE TRANSITION STATES OF HUMAN HEMOGLOBIN ASSEMBLY THROUGH A COMBINATION OF SPECTROSCOPIC STUDIES AND ALL-ATOM MOLECULAR DYNAMICS SIMULATIONS.

**Nicolae Sapoval**, University of Chicago, United States  
238-Pos, B13  
A NEW OPEN STRUCTURE OF THE INSULIN DEGRADING ENZYME PROVIDES INSIGHTS INTO THE CONFORMATIONAL TRANSITION OF THE MOLECULE.

**Nicoletta Savalli**, University of California, Los Angeles, United States  
551-Pos, B326  
A MUTATION LINKED TO MALIGNANT HYPERTHERMIA IN THE SKELETAL CAV1.1 CHANNEL STABILIZES THE RESTING STATE OF VOLTAGE SENSOR I AND IMPAIRS CHANNEL ACTIVATION.

**Yiseul Shin**, Florida State University, United States  
289-Pos, B64  
CHARACTERIZATION OF THE EXTRA-MEMBRANE DOMAINS OF CRGA IN LIPID BILAYERS USING SOLID STATE NMR.

**Ashley Simpson**, Bay Path University, United States  
324-Pos, B99  
SGEF GEF ACTIVITY AND ITS REGULATION BY SCRIBBLE AND DLG1.

**Louis G. Smith**, University of Rochester, United States  
705-Pos, B480  
EXPLORING HYDROGEN BOND GEOMETRY IN RNA WITH F-SAPT.

**Joseph Jose Thottacherry**, National Centre for Biological Sciences, India  
469-Pos, B244  
MECHANOCHEMICAL FEEDBACK CONTROL OF DYNAMIN INDEPENDENT ENDOCYTOSIS MODULATES MEMBRANE TENSION IN ADHERENT CELLS.

**Veronica S. Valadares**, Federal University of Minas Gerais, Brazil  
186-Plat  
CHARACTERIZATION OF CONFORMATIONAL DIVERSITY, STABILITY, AND CATALYTIC ACTIVITY OF TCMN, AN ENZYME INVOLVED IN ANTIBIOTIC BIOSYNTHESIS.

**Crystal M. Vander Zanden**, University of New Mexico, United States  
224-Plat  
SYNCHROTRON X-RAY SCATTERING STUDIES TO DETERMINE STRUCTURE OF AMYLOID BETA INTERACTIONS WITH LIPID MEMBRANES.

**Natalie Weber**, Hannover Medical School, Germany  
582-Pos, B357  
IN HUMAN EMBRYONIC STEM CELL-DERIVED CARDIOMYOCYTES TWITCH KINETICS, ACTION POTENTIAL PARAMETERS AND MYH-mRNA FRACTIONS ARE INDEPENDENT OF THE EXPRESSED MYOSIN HEAVY CHAIN ISOFORM.

**Xiyu Yi**, University of California, Los Angeles, United States  
655-Pos, B430  
CUSP ARTIFACTS IN HIGH ORDER SUPERRESOLUTION OPTICAL FLUCTUATION IMAGING (SOFI).

**Jiho Yoo**, Duke University, United States  
267-Pos, B42  
CRYO-EM STRUCTURE OF A MITOCHONDRIAL CALCIUM UNIporter.

**Yanyu Zhu**, University of Wisconsin-Madison, United States  
680-Pos, B455  
RIGIDIFICATION OF THE E. COLI CYTOPLASM BY THE HUMAN ANTIMICROBIAL PEPTIDE LL-37 REVEALED BY SUPERRESOLUTION FLUORESCENCE MICROSCOPY.

## Monday, March 4

**Wilson R. Adams**, Vanderbilt University, United States  
1356-Pos, B458  
PROBING THE BIOPHYSICAL MECHANISMS OF INFRARED NEURAL STIMULATION WITH NONLINEAR RAMAN IMAGING.

**Nicholas S. Anthony**, Italian Institute of Technology  
1382-Pos, B484  
LABEL FREE MICROSCOPY WITH PTYCHOGRAPHY.

**Nagendra Athreya**, University of Illinois Urbana-Champaign, United States  
1441-Pos, B543  
DETECTION AND MAPPING OF dsDNA BREAKS USING GRAPHENE NANOPore TRANSISTOR.

**Manuela A. Ayee**, Dordt College, United States  
820-Plat  
DYSLIPIDEMIA INDUCED ENDOTHELIAL STIFFENING IS ACCOMPANIED BY INCREASED MEMBRANE TENSION.

**Ivana Ban**, University of Zagreb, Croatia  
1250-Pos, B352  
PIVOTING OF MICROTUBULES DRIVEN BY MINUS END DIRECTED MOTORS LEADS TO THEIR ALIGNMENT TO FORM AN INTERPOLAR BUNDLE.

**Suman Chakrabarty**, National Chemical Laboratory, India  
807-Plat  
A THERMODYNAMIC VIEW OF DYNAMIC ALLOSTERY IN A PDZ DOMAIN PROTEIN.

**Srirupa Chakraborty**, Los Alamos National Laboratory, United States  
825-Plat  
STRUCTURAL TOPOLOGY OF GLYCOPROTEIN SURFACE NETWORKS USING HIGH THROUGHPUT ATOMISTIC MODELING AND GRAPH THEORY.

**Vanessa Checchetto**, University of Padua, Italy  
1239-Pos, B341  
PROBING KV1.3 INTERACTOME WITH PROXIMITY-DEPENDENT BIOTINYLATION.

**Eleonora Di Zanni**, National Research Council, Italy  
856-Plat  
INVESTIGATING FUNCTIONAL CONSEQUENCES OF NOVEL DISEASE-CAUSING MUTATIONS OF CLCN7 GENE.

**Elizabeth L. Evans**, University of Leeds, United Kingdom  
1205-Pos, B307  
HAEMATOLOGICAL CHARACTERISATION OF MICE WITH PIEZO1 GAIN-OF-FUNCTION MUTATION.

**Claire E. Evensen**, University of Wisconsin-Madison, United States  
1041-Pos, B143  
CHARACTERIZING TRANSIENT INTERMEDIATES IN PRODUCTIVE RNAP TRANSCRIPTION INITIATION.

**Natalia Fili**, University of Kent, United Kingdom  
880-Plat  
NOVEL TALES ABOUT THE MYOSIN VI TAIL.

**Steven D. E. Fried**, University of Arizona, United States  
1024-Pos, B126  
G-PROTEIN-COUPLED RECEPTOR ACTIVATION MEDIATED BY INTERNAL HYDRATION.

**Yunhui Ge**, Temple University, United States  
955-Pos, B57  
USING COMPUTATIONAL MODELING TO UNDERSTAND THE BINDING MECHANISM OF DESIGNED CYCLIC  $\beta$ -HAIRPIN TO MDM2.

**Zhaleh Ghaemi**, University of Illinois Urbana-Champaign, United States  
826-Plat  
A COMPUTATIONAL HUMAN WHOLE-CELL MODEL REVEALS THE EFFECTS OF SPATIAL ORGANIZATION ON RNA SPLICING.

**Gabriella T. Heller**, University of Cambridge, United Kingdom  
889-Plat  
PROBING SPECIFICITY IN DISORDERED PROTEIN INTERACTIONS WITH SMALL MOLECULES USING INTEGRATIVE METHODS.

**HONEY PRIYA JAMES**, Indian Institute of Technology Bombay  
1079-Pos, B181  
EFFECT OF CHITOSAN ON MECHANICAL PROPERTIES OF LIPID BILAYERS USING MICROPIPETTE ASPIRATION.

**Sina Jazani**, Arizona State University, United States  
1388-Pos, B490  
AN ALTERNATIVE FRAMEWORK FOR FLUORESCENCE CORRELATION SPECTROSCOPY.

**Shinhye Jeon**, Baruch College – The City University of New York, United States  
1341-Pos, B443  
LOSS OF MGR2P DESTABILIZES THE TIM23 CHANNEL AND REDUCES MITOCHONDRIAL EMISSION OF REACTIVE OXYGEN SPECIES.

**Drake Jensen**, Washington University in St. Louis, United States  
1043-Pos, B145  
REGULATION OF MYCOBACTERIAL RNA POLYMERASE PROMOTER ESCAPE KINETICS BY TRANSCRIPTION FACTORS CARD AND RBPA.

**Abir Kabbani**, University of Michigan, United States  
819-Plat  
THE IMPORTANCE OF GLYCOLIPID CROSSLINKING IN ALTERING THE MEMBRANE CURVATURE.

**Reema Kathuria**, Indian Institute of Science Education and Research  
1106-Pos, B208  
IMPLICATION OF CHOLESTEROL IN REGULATING THE MEMBRANE-INTERACTION MECHANISM OF VIBRIO CHOLERAEE CYTOLYSIN, A BETA-BARREL PORE-FORMING TOXIN.

**Justine Keth**, University of New Mexico, United States  
1152-Pos, B254  
SPATIOTEMPORAL DYNAMICS OF RON AND EGFR CROSSTALK AT THE PLASMA MEMBRANE.

**Soyeon Kim**, University Of Akron, United States  
1011-Pos, B113  
INVESTIGATING THE ACTIVATION MECHANISM ALTERATION OF RECEPTOR TYROSINE KINASE MUTANTS.

**Oisín King**, Imperial College London, United Kingdom  
759-Plat  
ENDOTHELIAL CELL REGULATION OF EXCITATION-CONTRACTION COUPLING IN INDUCED PLURIPOTENT STEM CELL DERIVED MYOCARDIUM.

**Di Lang**, University of Wisconsin-Madison, United States  
1150-Pos, B252  
DISRUPTION OF CAVEOLAR MICRODOMAINS CREATES “HOT SPOTS” FOR ATRIAL ECTOPY AND ARRHYTHMOGENESIS IN HEART FAILURE MICE.

**Zeno Lavagnino**, IRCCS Ospedale San Raffaele, Italy  
1171-Pos, B273  
THE ROLE OF DOPAMINE IN PANCREATIC  $\alpha$ -CELLS CALCIUM HETEROGENEITY AND SYNCHRONIZATION MEASURED BY LIGHT-SHEET MICROSCOPY.

**Taehyung Chris Lee**, University of Toronto, Canada  
994-Pos, B96  
DYNAMIC INTERACTIONS BETWEEN AN INTRINSICALLY DISORDERED PROTEIN AND ITS BINDING PARTNERS PROBED BY MULTIPARAMETER SINGLE-MOLECULE FLUORESCENCE.

**Yi-Hsuan Lin**, University of Toronto, Canada  
979-Pos, B81  
POLYMER THEORY FOR SEQUENCE-SPECIFIC PHASE SEPARATION BEHAVIORS OF CHARGED INTRINSICALLY DISORDERED PROTEINS.

**Axel Loewe**, Karlsruhe Institute of Technology, Germany  
1148-Pos, B250  
SINUS BRADYCARDIA DUE TO ELECTROLYTE CHANGES AS A POTENTIAL PATHOMECHANISM OF SUDDEN CARDIAC DEATH IN HEMODIALYSIS PATIENTS.

**Charlotte Lorenz**, Forschungszentrum Juelich, Germany  
786-Plat  
ASSEMBLY MECHANISM OF FARNESYLATED HGBP1 STUDIED BY TIME-RESOLVED SAXS AND ELECTRON MICROSCOPY.

**Joseph A. Lyons**, Aarhus University, Denmark  
844-Plat  
STRUCTURAL INSIGHTS INTO THE FUNCTION AND AUTO-REGULATION OF LIPID FLIPPASES.

**Alexandria N. Miller**, Memorial Sloan Kettering Cancer Center, United States  
791-Plat  
CRYO-EM STRUCTURES REVEAL MECHANISMS OF ACTIVATION AND INACTIVATION IN BESTROPHIN CHANNELS.

**Julia Miller**, Cornell University, United States  
840-Plat  
A MULTIDRUG AND TOXIN EFFLUX (MATE) TRANSPORTER INVOLVED IN ALUMINUM RESISTANCE IS MODULATED BY A CBL5/CIPK2 CALCIUM SENSOR/PROTEIN KINASE COMPLEX.

**Shriyaa Mittal**, University of Illinois, United States  
908-Pos, B10  
SIMULATION GUIDED DESIGN OF SPECTROSCOPY EXPERIMENTS VIA MAXIMIZING KINETIC INFORMATION GAIN.

**Morgan E. Morris**, Medical University of South Carolina, United States  
1339-Pos, B441  
MITOCHONDRIAL MEMBRANE POTENTIAL HETEROGENEITY IN CANCER CELLS IS INDEPENDENT OF THE CELL CYCLE AND INFLUENCES RESPONSE TO HYPERPOLARIZING AGENTS.

**Riley Payne**, University of Pennsylvania, United States  
1329-Pos, B431  
THE MCU INHIBITOR DS16570511 HAS OFF-TARGET EFFECTS ON MITOCHONDRIAL MEMBRANE POTENTIAL.

**Jacqueline Pelham**, Rensselaer Polytechnic Institute, United States  
981-Pos, B83  
CHARACTERIZING TIME-OF-DAY CONFORMATIONAL CHANGES IN THE IDP FREQUENCY AT THE HEART OF THE CIRCADIAN CLOCK IN *N. CRASSA* USING THE CRAFTY PROTOCOL.

**Joseph D. Powers**, University of Washington, United States  
1305-Pos, B407  
PREDICTING AND PREVENTING MYOCARDIAL REMODELING IN A MURINE MODEL OF DILATED CARDIOMYOPATHY.

**Alessio Prunotto**, École Polytechnique Fédérale de Lausanne, Switzerland  
1016-Pos, B118  
MOLECULAR SIMULATIONS GIVE INSIGHTS INTO THE NDM-1/ MEMBRANE INTERACTION THAT CAUSES RISE OF A SUPER-BACTERIUM.

**Ishara Ratnayake**, South Dakota School of Mines and Technology, United States  
1275-Pos, B377  
TOWARDS AN UNDERSTANDING OF KIDNEY DISEASES ASSOCIATED WITH INHIBITION OF NOTCH SIGNALING PATHWAY BY TRANSMISSION ELECTRON MICROSCOPY.

**William M. Rosencrans**, Colgate University, United States  
1324-Pos, B426  
EFFECT OF STEROIDS ON MITOCHONDRIAL METABOLITE CHANNEL FUNCTION AND LIPID MEMBRANE PROPERTIES.

**Mark D. Rustad**, University of Minnesota, United States  
1402-Pos, B504  
ELECTRON PARAMAGNETIC RESONANCE ELUCIDATES THE STRUCTURAL MECHANISM BY WHICH SERCA IS ACTIVATED BY DWORF.

**Luis Santiago**, California State University Northridge, United States  
1161-Pos, B263  
MECHANISMS OF G PROTEIN-SELECTIVITY IN MUSCARINIC ACETYLCHOLINE RECEPTOR FAMILY.

**Santhanam Shanmughapriya**, Temple University, United States  
770-Plat  
MOLECULAR LINK BETWEEN MCU AND MRS2P CHANNELS FOR MITOCHONDRIAL ION HOMEOSTASIS AND ENERGY METABOLISM.

**Yu-Ling Shih**, Academia Sinica, Taiwan  
1070-Pos, B172  
ACTIVE TRANSPORT OF MEMBRANE COMPONENTS BY DYNAMIC MIN PROTEIN WAVES.

**Parijat Sil**, National Centre for Biological Sciences, India  
1023-Pos, B125  
DYNAMIC ACTIN MEDIATED NANOCLUSTERING OF CD44 REGULATES ITS MESO-SCALE ORGANIZATION AT THE PLASMA MEMBRANE.

**Larissa Socrier**, Lehigh University, United States  
1129-Pos, B231  
A NOVEL NITRONE-TROLOX CONJUGATE INHIBITS MEMBRANE LIPID OXIDATION THROUGH SYNERGISTIC ANTIOXIDANT EFFECTS.

**Shwetha Srinivasan**, Massachusetts Institute of Technology, United States  
1372-Pos, B474  
EXPLORING CONFORMATIONAL DYNAMICS IN EGFR USING SINGLE-MOLECULE SPECTROSCOPY.

**Maiwase Tembo**, University of Pittsburgh, United States  
1104-Pos, B206  
PIP2 POTENTIATES THE CA<sup>2+</sup>-ACTIVATED CL<sup>-</sup> CHANNEL TMEM16A IN XENOPUS LAEVIS OOCYTES.

**Joseph Tibbs**, University of Northern Iowa, United States  
1242-Pos, B344  
A DYNAMIC TIME STEP METHOD IN CYTOSKELETAL SIMULATIONS.

**Noah Trebesch**, University of Illinois Urbana-Champaign, United States  
1413-Pos, B515  
INCORPORATING PROTEINS INTO GEOMETRICALLY COMPLEX, CELL-SCALE MEMBRANE MODELS FOR MOLECULAR DYNAMICS SIMULATIONS.

**Erkan Tuncay**, Ankara University, Turkey  
1238-Pos, B340  
SIRTUINS POSITIVELY REGULATE KATP CHANNELS, WHICH CONTRIBUTES TO THEIR CARDIOPROTECTIVE ROLE.

**Sanket Walujkar**, Ohio State University, United States  
1194-Pos, B296  
MOLECULAR DYNAMICS SIMULATIONS OF TMC1 HOMOLOGY MODELS.

**Jinan Wang**, University of Kansas, United States  
870-Plat  
MECHANISM OF SPECIFIC G PROTEIN COUPLING TO ADENOSINE RECEPTORS.

**Vered Wineman-Fisher**, University of South Florida, United States  
1412-Pos, B514  
ION-HYDROXYL INTERACTIONS: FROM HIGH-LEVEL QUANTUM BENCHMARKS TO TRANSFERABLE POLARIZABLE FORCE FIELDS.

**Xinxin Woodward**, Wayne State University, United States  
1110-Pos, B212  
SINGLE-LIPID SORTING AND DYNAMICS AT MEMBRANE CURVATURE SITES: THE EFFECTS OF FLUORESCENCE LABELING, COMPOSITION, PHASE, AND TEMPERATURE.

**Kristian M. Zapata**, Baruch College – The City University of New York, United States  
1316-Pos, B418  
OPTOGENETIC REGULATION OF MITOCHONDRIAL FUNCTION AND SYNAPTIC PLASTICITY IN VIVO.

**Ziliang Zhao**, Max Planck Institute of Colloids and Interfaces, Germany  
1123-Pos, B225  
NANOTUBES TRANSFORM INTO DOUBLE-MEMBRANE SHEETS AT THE INTERFACE BETWEEN TWO AQUEOUS POLYMER SOLUTIONS.

## Tuesday, March 5

**Lauren E. Ammerman**, Southern Methodist University, United States  
2155-Pos, B518  
EXPLORATIONS OF DRUG TRANSPORT BY P-GLYCOPROTEIN USING MOLECULAR DYNAMICS ENABLED BY HIGH RESOLUTION CRYSTAL STRUCTURES.

**Subhas C. Bera**, Tata Institute of Fundamental Research Hyderabad, India  
1737-Pos, B100  
DETERMINATION OF MICROSCOPIC PARAMETERS OF AMYLOID AGGREGATION BY MONITORING REAL-TIME GROWTH USING TIRF MICROSCOPY.

**Cathrine C. Bergh**, Royal Institute of Technology, Sweden  
1955-Pos, B318  
UNDERSTANDING THE CONFORMATIONAL DYNAMICS OF A PENTAMERIC LIGAND-GATED ION CHANNEL THROUGH MARKOV STATE MODELING.

**Marek Brodzki**, University of Wroclaw, Poland  
1935-Pos, B298  
LOOP G OF THE GABAAR ORTHOSTERIC BINDING SITE IS INVOLVED BOTH IN BINDING AND GATING PROCESSES.

**Brian L. Cannon**, Loyola University Chicago, United States  
1767-Pos, B130  
THE EFFECT OF INTRAstrand BASE-STACKING INTERACTIONS ON THE ENERGETICS AND STRUCTURAL DYNAMICS OF DNA INTERNAL LOOPS.

**John Canty**, University of California Berkeley, United States  
2020-Pos, B383  
CARGO ADAPTORS REGULATE THE MECHANICAL PROPERTIES OF MAMMALIAN DYNEIN-DYNACTIN.



**Chapin E. Cavender**, University of Rochester, United States  
1746-Pos, B109  
DEVELOPING AN ACCURATE ALL-ATOM FIXED-CHARGE FORCE FIELD FOR RNA WITH IMPLICITLY POLARIZED CHARGES.

**Philip Charles**, Rensselaer Polytechnic Institute, United States  
2070-Pos, B433  
ELUCIDATING THE ROLE OF ZINC-BACTERIOCHLOROPHYLL A' IN THE PRIMARY PHOTOCHEMISTRY OF CHLOROACIDOBACTERIUM THERMOPHILUM REACTION CENTERS.

**Jeong-Mo Choi**, Washington University in St Louis, United States  
1727-Pos, B90  
INTERNAL STRUCTURE OF NETWORK FLUID CONDENSATES FORMED BY LIQUID-LIQUID PHASE SEPARATION OF A MULTIVALENT OLIGOMERIC PROTEIN AND A DISORDERED LINEAR PEPTIDE.

**Jared Collette**, University of Melbourne, Australia  
2046-Pos, B409  
THE FEEDBACK BETWEEN CELLULAR MECHANICS AND CHEMICAL SIGNALLING DURING CYTOSKELETAL REMODELLING.

**Anh Cong**, University of Minnesota Duluth, United States  
2079-Pos, B442  
METABOLIC-RESPONSE ASSESSMENT OF MURINE BREAST CANCER CELLS IN 2D AND 3D CULTURES USING TWO-PHOTON FLUORESCENCE LIFETIME IMAGING MICROSCOPY OF INTRINSIC NAD(P)H.

**Willow Coyote-Maestas**, University of Minnesota, United States  
1709-Pos, B72  
DIFFERENTIAL DOMAIN INSERTION PERMISSIBILITY IS A MEASURE OF ENGINEERABLE ALLOSTERIC CAPACITY IN ION CHANNELS.

**Simli Dey**, Tata Institute of Fundamental Research, India  
2102-Pos, B465  
A RECEPTOR-INDEPENDENT LIPID MEMBRANE-MEDIATED PATHWAY FOR SEROTONIN ACTION.

**Natasha Dudzinski**, Yale University, United States  
1547-Plat  
INVESTIGATING MEMBRANE TENSION DYNAMICS IN THE NEURONAL PRESYNAPTIC TERMINAL.

**Lourdes Figueroa**, Rush University Medical Center, United States  
1898-Pos, B261  
TRIGGERED CALCIUM EVENTS REVEAL ELECTROPHYSIOLOGICAL ALTERATIONS IN A COHORT OF PATIENTS SUSCEPTIBLE TO MALIGNANT HYPERTHERMIA.

**Cristina García Mouton**, Complutense University of Madrid, Spain  
1835-Pos, B198  
HUMAN PICOBIRNAVIRUS CAPSIDS AS POTENTIAL NANOCARRIERS FOR DRUG DELIVERY WITHIN PULMONARY SURFACTANT CONTEXTS.

**Justin J. Griffin**, University of Utah, United States  
2206-Pos, B569  
INDEX-MATCHED MICROFLUIDIC CELL ARRAY FOR HIGH THROUGHPUT SINGLE CELL OPTICAL ANALYSIS.

**Kapish Gupta**, National University of Singapore  
1869-Pos, B232  
BILE CANALICULI CONTRACTILITY IS REGULATED BY CANALICULAR PRESSURE SENSING VIA PIEZO1.

**George Heath**, Weill Cornell Medical College, United States  
1483-Plat  
CLC ANTIPORTER DIMERIZATION DYNAMICS REVEALED BY NOVEL DEVELOPMENTS IN HIGH-SPEED AFM.

**Clara Herrera-Arozamena**, National Research Council, Spain  
1951-Pos, B314  
STRUCTURE-ACTIVITY RELATIONSHIP OF POTENT PHOTO-SWITCHABLE NEUROMUSCULAR INHIBITORS.

**Malte Hilsch**, Humboldt University, Germany  
2118-Pos, B481  
BINDING OF HANTAVIRUS TO ITS HOST CELL - A SINGLE VIRUS FORCE SPECTROSCOPY STUDY.

**Hope Holt**, University of South Carolina, United States  
2109-Pos, B472  
BINDING AND TRANSPORT OF AMYLOID- $\beta$  BY P-GLYCOPROTEIN: A NOVEL THERAPEUTIC TARGET IN ALZHEIMER'S DISEASE.

**Jonathan P. Hulse**, University of New Mexico, United States  
2193-Pos, B556  
EVALUATING PHOTOOXIDATION OF PHOSPHOLIPID MEMBRANES BY A NOVEL SWITCHABLE PHOTOLENSER.

**Shashank Jariwala**, University of Michigan, United States  
2013-Pos, B376  
DYNAMICAL EFFECTS OF KIF1A MUTATIONS IN NEURODEVELOPMENTAL DISORDERS.

**Darren N. Kahan**, University of Chicago, United States  
1731-Pos, B94  
MOLECULAR FACTORS UNDERLYING STRESS-TRIGGERED PHASE-SEPARATION OF PAB1.

**Arti Kataria**, Indian Institute of Technology Delhi, India  
1643-Pos, B6  
RATIONAL TARGETING AND TESTING OF MYCOBACTERIAL L-ASPARAGINASE, ESSENTIAL FOR SURVIVAL OF MTB INSIDE HOSTS.

**Maria L. Khan**, Cabrini University, United States  
1912-Pos, B275  
THE ROLE OF UBIQUITIN-PROTEASOME SYSTEM (UPS)-ASSOCIATED GENES IN THE PRESERVATION OF CARDIAC AND MUSCLE FUNCTION IN DROSOPHILA MELANOGASTER.

**Srinivasan Krishnan**, Boyce Thompson Institute, United States  
1974-Pos, B337  
STRUCTURE FUNCTION STUDIES OF A PLANT NON SELECTIVE CATION CHANNEL INVOLVED IN DROUGH TOLERANCE.

**Emre Kusakci**, University of California Berkeley, United States  
2031-Pos, B394  
THE REGULATORY ROLE OF LIS1 ON THE MECHANICS OF DYNEIN MOTILITY.

**Daniel Lauster**, Humboldt University, Germany  
2113-Pos, B476  
HOOKING ON VIRAL GLYCOPROTEINS WITH SINGLE MOLECULE FORCE SPECTROSCOPY TO STUDY SINGLE AND MULTIPLE BOND FORMATIONS.

**GeonHui Lee**, Korea University  
2043-Pos, B406  
DETERMINATION OF FIBROBLAST POLARIZATION UNDER THE  
COMBINATION OF PHYSICAL, MOLECULAR, AND GENETIC CUES.

**Victoria T. Lim**, University of California, Irvine, United States  
2132-Pos, B495  
COMPUTATIONAL INSIGHTS ON SMALL MOLECULE BINDING TO THE HV1  
PROTON CHANNEL.

**Thomas Löhr**, University of Cambridge, United Kingdom  
2158-Pos, B521  
STRUCTURE AND DYNAMICS OF ALZHEIMER'S ASSOCIATED AMYLOID-  
BETA PEPTIDE.

**Philip A. Mang'are**, Masinde Muliro University of Science & Technology  
and Egerton University, Kenya  
2217-Pos, B580  
ANALYSIS OF THE ACOUSTIC PROPAGATION PARAMETERS OF THE  
NATURAL SOUNDS OF DELPHINAPTERUS LEUCAS AND ODORRANA  
TORMOTA FUNDAMENTAL IN THE STARTLE OF THE FEMALE ANOPHELES  
GAMBIAE.

**Rebecca Martinez-Moreno**, University of Girona, Spain  
1932-Pos, B295  
CARDIAC SODIUM CURRENT IS SEVERELY IMPAIRED IN INDUCED  
PLURIPOTENT STEM CELL-DERIVED CARDIOMYOCYTES FROM BRUGADA  
SYNDROME PATIENTS.

**Hanieh Mazloom-Farsibaf**, University of New Mexico, United States  
1710-Pos, B73  
BAYESIAN ESTIMATION OF THE DIFFUSION CONSTANT FOR MEMBRANE  
PROTEIN DYNAMICS IN AN ARBITRARY LANDSCAPE OF OBSTRUCTING  
BOUNDARIES.

**Megan R. McCarthy**, University of Minnesota Twin Cities, United States  
1889-Pos, B252  
STRUCTURAL DYNAMICS OF CALMODULIN IN REGULATION OF RYR  
CALCIUM RELEASE CHANNELS.

**Madison Nohner**, University of Minnesota Duluth, United States  
1681-Pos, B44  
UNFOLDING TRANSITIONS AND INTERDOMAIN COUPLING IN HUMAN  
DYSTROPHIN SPECTRIN REPEATS.

**Alper D. Ozkan**, Western University of Health Sciences, United States  
1872-Pos, B235  
FORCE-DEPENDENT CONFORMATIONAL CHANGES IN THE  
MECHANOSENSITIVE PIEZO1 CHANNEL.

**Amelia Palermo**, The Scripps Research Institute, United States  
1519-Plat  
A NETWORK OF ENDOGENOUS METABOLITES MODULATES  
PROGRAMMED DEATH-LIGAND 1 (PD-L1) EXPRESSION IN MONOCYTIC  
LEUKEMIA.

**George A. Pantelopulos**, Boston University, United States  
1852-Pos, B215  
PROTEIN PARTITIONING TO LIPID DOMAINS IN ALL-ATOM MD  
SIMULATION.

**Yasiru R. Perera**, Mississippi State University, United States  
2215-Pos, B578  
THE ADSORPTION KINETICS OF BIOMOLECULES ON TO PEGYLATED GOLD  
NANOPARTICLES.

**Matthew C. Pharris**, Purdue University, United States  
2106-Pos, B469  
CALCIUM FREQUENCY SETS THE LOCATION OF CALMODULIN-  
DEPENDENT ENZYME ACTIVATION IN DENDRITIC SPINES.

**Zachary D. Piro**, University of Wisconsin, United States  
1861-Pos, B224  
REGION-SPECIFIC STRETCH-INDUCED DISRUPTION OF CAVEOLAE  
DECREASES EXPRESSION OF MECHANOSENSITIVE CHLORIDE CHANNELS  
AND STIMULATES FIBROGENESIS PROMOTING ARRHYTHMOGENIC  
ATRIAL ECTOPY IN FAILING MICE.

**Atul Kaushik Rangadurai**, Duke University, United States  
1779-Pos, B142  
WATSON-CRICK LIKE MISMATCHES IN REPLICATION FIDELITY.

**Robyn T. Rebbeck**, University of Minnesota, United States  
1882-Pos, B245  
HIGH-THROUGHPUT SCREENING YIELDS ALLOSTERIC INHIBITORS OF  
LEAKY RYRS FOR THERAPEUTIC DEVELOPMENT.

**Alexa M. Salsbury**, Virginia Tech, United States  
1785-Pos, B148  
POLARIZABLE MOLECULAR DYNAMICS SIMULATIONS OF C-KIT  
ONCOGENE PROMOTER G-QUADRUPLEXES OF DISTINCT  
CONFORMATIONS.

**Achinta Sannigrahi**, Indian Institute of Chemical Biology  
1850-Pos, B213  
AN INTERPLAY BETWEEN KMP-11 INDUCED PHASE ALTERATION OF  
MACROPHAGE MEMBRANE AND IMMUNE SUPPRESSION DEFINES THE  
MOLECULAR MECHANISM OF LEISHMANIASIS.

**Yahor Savich**, University of Minnesota, United States  
2010-Pos, B373  
MYOSIN ORIENTATION IN A MUSCLE FIBER USING BIFUNCTIONAL SPIN  
LABELS WITH 4 DEGREES ANGULAR RESOLUTION.

**Noah A. Schenk**, University of Michigan, United States  
1549-Plat  
TWO POPULATIONS OF INSULIN GRANULES WITH DISTINCT FUSION  
PROPERTIES ARE MAINTAINED BY ABC TRANSPORTERS ABCG1 AND  
ABCA1.

**Sonja Schmid**, Delft University of Technology, Netherlands  
1691-Pos, B54  
HIGH BANDWIDTH SENSING OF SINGLE PROTEIN DYNAMICS USING  
NANOPORES AND DNA ORIGAMI.

**Falk Schneider**, University of Oxford, United Kingdom  
1615-Plat  
MEASURING HINDERED DIFFUSION DYNAMICS IN LIVE CELL PLASMA  
MEMBRANES WITH CONFOCAL AND SUPER-RESOLUTION IMAGING.

**Maddie R. Shay**, University of Alabama, United States  
1645-Pos, B8  
STRUCTURAL CHARACTERIZATION OF FOSM FROM MYCOBACTERIUM  
ABSCESSUS.

**Elizabeth M. Smith**, University of Minnesota, United States  
2165-Pos, B528  
DEVELOPMENT AND OPTIMIZATION OF THE Y-FAST:FLUOROGEN SYSTEM  
FOR SUPER-RESOLUTION IMAGING.

**Antonia Stuebler**, Texas Tech Health Science Center, United States  
1941-Pos, B304  
A COMPARISON BETWEEN HOMOMERIC AND HETEROMERIC 5-HT<sub>3</sub> RECEPTORS IN RESPONSE TO THE ANTIDEPRESSANT BUPROPION.

**Carmen Suay Corredera**, Spanish National Center for Cardiovascular Research  
2112-Pos, B475  
CALIBRATION-INDEPENDENT ATOMIC FORCE MICROSCOPY.

**Rasheed Sule**, University of California Davis, United States  
2089-Pos, B452  
EFFECTS OF IBUPROFEN ON MICE LIVER PROTEASOME.

**Jane Thibeault**, Rensselaer Polytechnic Institute, United States  
1586-Plat  
HYPERSTABLE PROTEINS IN THE GUT MICROBIOTA: AN EXAMINATION OF THE BACTERIUM BACTEROIDES FRAGILIS.

**Ananya Tripathi**, University of Minnesota, United States  
1911-Pos, B274  
EFFECTS OF ACTIN-BINDING COMPOUNDS ON THE ATPASE ACTIVITY OF MYOSIN FROM SKELETAL AND CARDIAC MUSCLE.

**Sushree Tripathy**, University at Buffalo, United States  
1948-Pos, B311  
STRUCTURE MEETS FUNCTION: AGONIST ACTIONS AT NEUROTRANSMITTER BINDING SITES.

**David M. Wahl**, University of Southern Indiana, United States  
2160-Pos, B523  
MOLECULAR DYNAMICS INVESTIGATION OF THE PHYSICAL BINDING OF THE NNK DIAZONIUM ION TO EXON 5 OF TP53.

**Asriel Walker**, Wellesley College, United States  
2123-Pos, B486  
UTILIZING ATOMIC FORCE MICROSCOPY TO EXPLORE THE BIOPHYSICAL CHEMISTRY OF THE BACTERIAL PREDATOR BDELLOVIBRIO BACTERIOVORUS.

**Cecilia Wallin**, Stockholm University, Sweden  
1510-Plat  
THE NEURONAL TAU PROTEIN BLOCKS IN VITRO FIBRILLATION OF THE AMYLOID- $\beta$  (A $\beta$ ) PEPTIDE.

**Qiaochu Wang**, University of Texas Health Science Center, United States  
1899-Pos, B262  
THE INTERPLAY BETWEEN NAADP AND PI(3,5)P<sub>2</sub> IN THE ACTIVATION OF LYSOSOMAL TWO-PORE CHANNEL 2.

**Zhihui Wang**, Houston Methodist Research Institute, United States  
1591-Plat  
MULTISCALE MODELING OF DUCTAL CARCINOMA IN SITU.

**Gabriella Wheeler**, Clemson University, United States  
2095-Pos, B458  
VELOCITY AND POSITION EFFECTS IN EYE TRACKING.

**Yan Yan**, Emory University, United States  
1575-Plat  
SUPERCOILING MAKES PROTEIN-MEDIATED LOOPING OF DNA TETHERS DETERMINISTIC.

**Chen-Ching Yuan**, University of Washington, United States  
1998-Pos, B361  
TIME-RESOLVED X-RAY STUDIES OF SKELETAL MUSCLE FROM A DUCHENE MUSCULAR DYSTROPHY RAT MODEL.

## Wednesday, March 6

**Bryce E. Ackermann**, University of California San Diego, United States  
2400-Pos, B72  
CHARACTERIZING HP1-DRIVEN CHROMATIN COMPACTION USING NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY.

**Kseniia Afitska**, Institute of Organic Chemistry and Biochemistry Prague, Czech Republic  
2438-Pos, B110  
STRUCTURAL OPTIMIZATION OF  $\alpha$ -SYNUCLEIN FIBRIL GROWTH INHIBITORS.

**Daisy Alvarado**, St. John's University, United States  
2456-Pos, B128  
MULTISCALE INVESTIGATION OF MONOMERIC ALPHA-SYNUCLEIN STRUCTURE AND AGGREGATION.

**Shruti Arya**, University of California Santa Barbara, United States  
2436-Pos, B108  
TERMINAL CAPPING OF AMYLOIDOGENIC TAU FRAGMENTS MODULATES THEIR FIBRILLATION PROPENSITY.

**Shrabasti Bhattacharya**, Tata Institute of Fundamental Research, India  
2415-Pos, B87  
SALT BRIDGES IN UBIQUITIN DETERMINE THE PROTEIN CONFORMATIONAL FLEXIBILITY.

**Alessandro Borgia**, University of Zurich, Switzerland  
2243-Plat  
HIGHLY DISORDERED 10:1 COMPLEX OF TWO ANTI-APOPTOTIC, CHROMATIN-REMODELLING INTRINSICALLY DISORDERED PROTEINS.

**Mazdak M. Bradberry**, University of Wisconsin-Madison, United States  
2608-Pos, B280  
PIP<sub>2</sub> DRIVES CALCIUM-INDEPENDENT ACTIVATION OF TANDEM C<sub>2</sub>-DOMAIN CALCIUM SENSORS.

**Tyler J. Brittain**, James Madison University, United States  
2380-Pos, B52  
CONTROL OF PROTEIN SELF-ASSEMBLY WITH WATER-SOLUBLE PORPHYRINS.

**Angela C. Brown**, Lehigh University, United States  
2553-Pos, B225  
MECHANISM OF CATECHIN-MEDIATED INHIBITION OF RTX TOXIN ACTIVITY.

**Kelly E. Du Pont**, Colorado State University, United States  
2424-Pos, B96  
MOLECULAR ANALYSIS OF DENGUE NS3 HELICASE FUNCTION.

**Yann Fichou**, University of California Santa Barbara, United States  
2455-Pos, B127  
TAU AMYLOID AGGREGATES: THE CHOICE OF PATHWAYS MAKES THE DIFFERENCE.

**Miriam Garcia Avila**, National Autonomous University of Mexico  
2655-Pos, B327  
SELECTIVITY AND CHARACTERIZATION OF THE PERMEANT ION EFFECT IN  
THE RAPID TRANSITIONS ON THE PORE OF TRPV1 CHANNEL.

**Rikhia Ghosh**, Max Planck Institute of Colloids and Interfaces, Germany  
2530-Pos, B202  
BUDDING AND FISSION OF VESICLES INDUCED BY SMALL SOLUTE  
MOLECULES.

**Eleonora Gianti**, Temple University, United States  
2658-Pos, B330  
ACTIVATION OF TRPV1 BY LIPIDS: CAN LIPID TAILS BRIDGE THE GAP  
BETWEEN THE VANILLOID BINDING SITE AND THE PERIPHERAL CAVITIES?

**Syed Saif Hasan**, Purdue University, United States  
2858-Pos, B530  
STRUCTURAL INSIGHTS INTO ENTRY AND ANTIBODY NEUTRALIZATION  
OF EASTERN EQUINE ENCEPHALITIS VIRUS.

**Dalia Hassan**, St. John's University, United States  
2340-Pos, B12  
MOLECULAR DYNAMICS STUDIES OF DYNAMIN OLIGOMERS IN  
SOLUTION.

**Chenyu Huang**, Johns Hopkins University, United States  
2300-Plat  
IMPROVEMENT OF MATURATION STATE OF HUMAN INDUCED  
PLURIPOTENT STEM CELL-DERIVED 3D CARDIAC MICROTISSUES BY  
DEFINED CHEMICAL FACTORS.

**Christian C. Hunley**, University of Texas at San Antonio, United States  
2767-Pos, B439  
THE MISSED ROLE OF CYTOSKELETAL FILAMENTS IN INFORMATION  
PROCESSING.

**Ameya P. Jalihal**, University of Michigan, United States  
2268-Plat  
MULTIMERIC PROTEINS REVERSIBLY FORM CONDENSATES UPON  
OSMOTIC COMPRESSION.

**Sankar Jana**, University of St. Andrews, United Kingdom  
2801-Pos, B473  
TWIN-FRET: A NEW MOLECULAR RULER FOR BIOMOLECULES.

**Calem Kenward**, Dalhousie University, Canada  
2336-Pos, B8  
LINKING THE SEQUENCE, ANTI-TUMOR FUNCTION, AND SHARED  
STRUCTURAL FEATURES OF CLASS IB HYDROPHOBINS.

**Ayush Krishnamoorti**, The Kincaid School, United States  
2751-Pos, B423  
CLC CONFORMATIONAL LANDSCAPE AS STUDIED BY SMFRET.

**Austin E. Y. T. Lefebvre**, University of California Irvine, United States  
2727-Pos, B399  
A NON-INVASIVE METABOLIC INVESTIGATION OF BREAST CANCER  
INVASION.

**Jeremy M. G. Leung**, Occidental College, United States  
2534-Pos, B206  
COMPUTATIONAL MECHANICAL STUDIES OF E. COLI TYPE-1 PILI  
ADHESION WITH HOMOGENEOUS SURFACES.

**Samira Mali**, University of Illinois at Chicago, United States  
2784-Pos, B456  
ROLES OF NUCLEAR CONFINEMENT, EXCLUDED VOLUME, AND  
PERSISTENCE ON TAD FORMATIONS, CHROMOSOME TERRITORIES, AND  
CHROMATIN-NUCLEAR ENVELOPE INTERACTIONS.

**Chloe Martens**, King's College London, United Kingdom  
2755-Pos, B427  
DIRECT PROTEIN-LIPID INTERACTIONS SHAPE THE CONFORMATIONAL  
LANDSCAPE OF SECONDARY TRANSPORTERS.

**Tina R. Matin**, Weill Cornell Medicine, United States  
2762-Pos, B434  
MILLISECOND TIME RESOLUTION BY HS-AFM LINE SCANNING OF FAST  
GLTPH DYNAMICS.

**James W. McCormick**, University of Texas Southwestern Medical Center,  
United States  
2412-Pos, B84  
DETERMINING THE INTERNAL ALLOSTERIC ARCHITECTURE OF DHFR  
WITH TOTAL SATURATION MUTAGENESIS.

**Mehrnaz Mojtabavi**, Northeastern University, United States  
2874-Pos, B546  
STABLE HYBRID NANOPORES FOR BIOMOLECULE SENSING.

**Jonathan M. Musila**, University of Pennsylvania, United States  
2447-Pos, B119  
STRUCTURAL EVALUATION OF AROMATIC RESIDUES IN  $\alpha$ -SYN AND THEIR  
ROLE IN GLYCAN BINDING AND CELLULAR UPTAKE.

**Gabriel Ortega**, University of California Santa Barbara, United States  
2298-Plat  
UNDERSTANDING THE BIOPHYSICS OF PROTEIN-SURFACE INTERACTIONS.

**Sally C. Pias**, New Mexico Institute of Mining and Technology, United  
States  
2837-Pos, B509  
EXTENDING THE AMBER LIPID FRAMEWORK FOR ATOMISTIC MODELING  
OF ORGANIC-LIPID CONJUGATES.

**Bharat Reddy**, University of Chicago, United States  
2273-Plat  
HIGH-RESOLUTION STRUCTURES OF MSCS IN A LIPID BILAYER:  
REINTERPRETING "FORCE FROM LIPIDS" ACTIVATION IN  
MECHANOSENSITIVE CHANNELS.

**Saumya Saurabh**, Stanford University, United States  
2270-Plat  
DISSECTION OF PROTEIN FUNCTION WITHIN A BACTERIAL  
BIOMOLECULAR CONDENSATE BY IN VITRO RECONSTITUTION.

**Gustavo Scanavachi**, University of São Paulo, Brazil  
2393-Pos, B65  
UNVEILING THE ROLE OF SURFACTANTS ON AMYLOID-LIKE PROTEIN  
SELF-ASSEMBLING.

**Taylor N. Segally**, Indiana University – Purdue University Indianapolis,  
United States  
2344-Pos, B16  
DIFFERENTIATING STRUCTURAL CHANGES OF GLYCOPROTEINS IN  
SOLUTION USING SMALL ANGLE SCATTERING ANALYSIS.

**Azam Shafieenezhad**, Indiana University – Purdue University  
Indianapolis, United States  
2518-Pos, B190  
MEASUREMENTS OF LIPID VESICLE CHARGE IN SOLUTIONS OF  
ZWITTERIONS.

**Kyungsoo Shin**, Dalhousie University, United States  
2348-Pos, B20  
STRUCTURE AND FUNCTION OF HUMAN VITRONECTIN, A KEY  
MEDIATOR OF HOST-PATHOGEN INTERACTIONS.

**Linjia Su**, Florida International University, United States  
2386-Pos, B58  
TIGHT BINDING OF NATURAL POLYPHENOLS TO THE INTRINSICALLY  
DISORDERED MAMMALIAN HIGH MOBILITY GROUP PROTEIN AT-HOOK  
2.

**Elisa Venturi**, University of Oxford, United Kingdom  
2586-Pos, B258  
COOPERATIVE GATING AMONG ION-CHANNEL SPECIES IN JUNCTIONAL  
SARCOPLASMIC RETICULUM.

**Nipuna Weerasinghe**, University of Arizona, United States  
2290-Plat  
RHODOPSIN HYDRATION DYNAMICS STUDIED BY SOLID-STATE  
DEUTERIUM NMR SPECTROSCOPY.

**Kiera B. Wilhelm**, University of California Berkeley, United States  
2631-Pos, B303  
A MEMBRANE-ACTIVATED, UNIVERSAL T-CELL RECEPTOR AGONIST.

**Katherine L. Wozniak**, University of Pittsburgh, United States  
2604-Pos, B276  
EXTRACELLULAR ZINC CONTRIBUTES TO THE SLOW POLYSPERMY BLOCK.

**Lisha Yang**, University of Nevada Reno, United States  
2668-Pos, B340  
BIOPHYSICAL PROPERTIES OF THE ELECTROPERMEABILIZATION-  
INDUCED MEMBRANE CONDUCTANCE IN PATCH CLAMPED ADRENAL  
CHROMAFFIN CELLS.

**Youngki You**, University of Houston, United States  
2567-Pos, B239  
LIPID MEMBRANE INFLUENCES INTERACTION BETWEEN THE C1 DOMAIN  
OF MUNC13-1 AND THE ACTIVATOR.

**Vesna Zivanovic**, Humboldt University, Germany  
2803-Pos, B475  
CHARACTERIZATION OF LIPIDS IN LEISHMANIA INFECTED CELLS BY SERS  
MICROSCOPY.

**Lejla Zubcevic**, Duke University, United States  
2659-Pos, B331  
CONFORMATIONAL ENSEMBLE OF THE HUMAN TRPV3 ION CHANNEL.

## Ancillary Meetings

Saturday, March 2, 9:00 AM–1:00 PM  
**Society of General Physiologists Winter Council Meeting**  
Room 333

Sunday, March 3, 5:30 PM–6:30 PM  
**Korean Biophysicists Meeting**  
Room 318/319/320

Sunday, March 3, 6:00 PM–8:00 PM  
**Biophysics Austria Mixer**  
Room 321/322/323

Sunday, March 3, 6:00 PM–8:00 PM  
**Biophysical Society of Canada Mixer**  
Pratt Street Ale House  
206 W. Pratt Street, Baltimore MD 21201, USA

Tuesday, March 5, 8:00 PM–10:00 PM  
**SOBLA (The Society for Latinoamerican Biophysicists) Meeting**  
Room 327/328/329

# Notes

Friday, March 1, 2019

Daily Program Summary

All rooms are located in the Baltimore Convention Center unless noted otherwise.

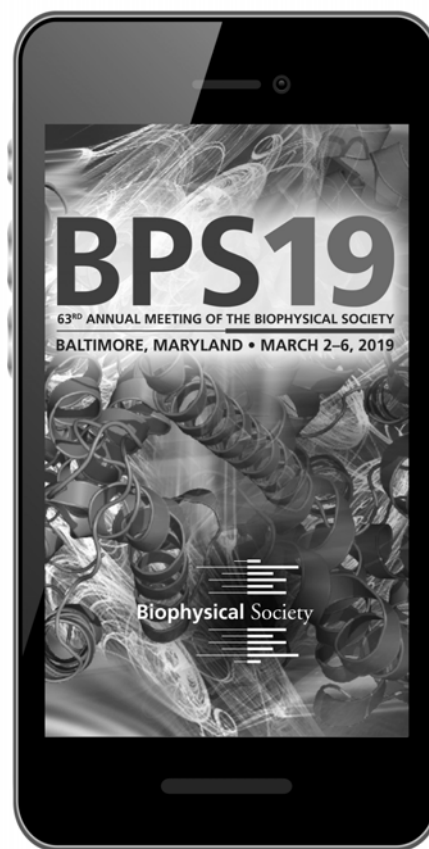
Table with 3 columns: Time, Activity, and Location. Rows include Exhibitor Registration, Drug Discovery for Ion Channels XIX Satellite Meeting, Working Towards Federating Structural Models and Data Satellite Meeting, Registration, New Council Orientation, and Joint Council Reception, Dinner, and Meeting.

FRIDAY

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# Friday, March 1

## Exhibitor Registration

8:00 AM - 5:00 PM, CHARLES STREET LOBBY

## Drug Discovery for Ion Channels XIX Satellite Meeting

8:00 AM - 5:00 PM, ROOM 303

*Sponsored by Sophion Bioscience; Nanion Technologies; Metrion Biosciences; SB Drug Discovery; and Evotec AG*

Ion channels are an important class of therapeutic drug targets, and mutations in ion channel genes are found to be responsible for an increasing number of diseases. While conventional electrophysiological techniques permit the most detailed and direct study of ion channel function, they are limited due to the manual nature of the method and their low throughput. Because of this, ion channels remain an underrepresented target class for drug discovery. The advent of higher throughput automated electrophysiology systems has begun to change the face of ion channel drug discovery. Since the inaugural "Drug Discovery for Ion Channels" satellite meeting, there have been many advances in ion channel drug discovery including new instrumentation and techniques. This year's meeting will highlight presentations from users of automated electrophysiology instrumentation as well as other speakers in the field of ion channel drug discovery, including several academic speakers.

**8:00 AM REGISTRATION**

**8:45 AM WELCOME AND OPENING REMARKS**  
Niels Fertig

**SESSION I**  
Chair: David Dalrymple

**9:00 AM**  
NPY, HCN1 AND STRESS RESILIENCE.  
Keynote Speaker: William Colmers

**9:45 AM**  
USE OF AUTOMATED PATCH CLAMP PLATFORMS TO SUPPORT ION CHANNEL DRUG DISCOVERY. **Stephen Hess**

**10:15 AM**  
SUCCESSFUL DEVELOPMENT OF STATE-DEPENDENT VOLTAGE-GATED ION CHANNEL MODULATORS WITH IN VIVO EFFICACY USING AUTOMATED PATCH CLAMP ASSAYS FOR PRIMARY TARGET POTENCY, SPECIES AND GENE FAMILY SELECTIVITY, AND CARDIAC SAFETY. **Marc Rogers**

**10:45 AM COFFEE BREAK**

**SESSION II**  
Chair: Stephen Hess

**11:15 AM**  
PROTX-II INHIBITS NAV1.7 THROUGH AN ELECTROSTATIC GATING MODULATION MECHANISM. **Tianbo Li**

**11:45 AM**  
TARGET BASED SCREENING ON NAV CHANNELS IN SPIKING HEK CELLS, USING OPTICAL STIMULATION AND RECORDING. **Hongkang Zhang**

**12:15 PM**  
ASSESSMENT OF DIVERSE AND FOCUSED LIBRARIES FOR ION CHANNEL SCREENING. **David Dalrymple**

**12:45 PM LUNCH (PROVIDED)**

**SESSION III**  
Chair: Marc Rogers

**1:45 PM**  
STIMULATING WITH LIGHT.  
Keynote Speaker: Pancho Bezanilla

**2:30 PM**  
NOVEL SMALL MOLECULE NAV CHANNEL BLOCKERS SELECTIVELY TARGETING NOCICEPTORS FOR THE TREATMENT OF COUGH, PAIN AND ITCH. **James Ellis**

**3:00 PM**  
KNOTTIN-ANTIBODY FUSION PROTEINS (KNOTBODIES): A NOVEL BIOLOGICS CLASS TARGETING KV1.3 (AUTOIMMUNITY), NAV1.7 (CHRONIC PAIN) AND ASIC1A (STROKE). **Aneesh Karatt-Vellatt**

**3:30 PM COFFEE BREAK**

**SESSION IV**  
Chair: James Ellis

**4:00 PM**  
PHARMACOLOGY OF VOLTAGE SENSOR TARGETING NAV1.6 INHIBITORS.  
**Sam Goodchild**

**4:30 PM**  
APPLICATION OF HIGH-THROUGHPUT AUTOMATED PATCH-CLAMP TECHNIQUES TO STUDY ION CHANNEL FUNCTION IN CULTURED PRIMARY RAT CORTICAL AND HYPOTHALAMIC NEURONS. **Fern Toh**

**5:10 PM CLOSING REMARKS**  
Thomas Binzer

## Working Towards Federating Structural Models and Data Satellite Meeting

8:30 AM - 6:00 PM, ROOM 301/302

Structural characterization of complex biomolecular systems increasingly relies on novel integrative modeling methods that combine data from various experimental and computational techniques. This Workshop will focus on an initiative to create an interoperating network of structural biology model and data repositories to enable the archiving of integrative structural models and associated experimental data. This effort follows the recommendations of the wwPDB Hybrid/Integrative Methods Task Force (<https://www.wwpdb.org/task/hybrid>).

The goals of the Workshop are to:

- Outline the issues involved in developing and maintaining data standards in the different communities
- Outline the issues involved in efficient standards based data exchange among the network of structural biology model and data repositories
- Make a plan for how best to address the recommendations for data standards and data exchange
- Create a process for sustained communication among different communities
- Prepare for writing a white paper summarizing the outcome of the Workshop

As a wwPDB activity, our goal is to facilitate the continued development and usage of the current PDB-Dev repository for integrative models (<https://pdb-dev.wwpdb.org>), so that the integrative structures archived in PDB-Dev can ultimately become part of the PDB. To do this, we need to define the mechanisms by which all experimental methods used by inte-



grative modeling can be federated with the PDB. This workshop will help create a path to achieve this goal.

**8:30 AM**                    **REGISTRATION**

**8:45 AM**                    **INTRODUCTION**  
**Helen Berman**

**9:00 AM**  
STATUS REPORT ON INTEGRATIVE MODEL ARCHIVING. **Brinda Vallat**

**9:15 AM**  
PANEL ON MODEL REPRESENTATION, VISUALIZATION, AND VALIDATION.

**Chair: Andrej Sali**

**Participants: Alexandre Bonvin, Frank DiMaio, Gerhard Hummer, Jens Meiler, Emad Tajkhorshid**

**10:45 AM**                    **COFFEE BREAK**

**11:00 AM**  
PANEL ON COMMUNITY DATA STANDARDS.

**Chair: Jill Trehwella**

**Participants: Cathy Lawson, Gaetano Montelione, Juri Rappsilber, Alex Leitner, Thomas Prisner, David Schriemer, Claus Seidel, Dmitri Svergun, John Westbrook**

**1:00 PM**                    **LUNCH**

**1:40 PM**  
VISION FOR THE PDB IN 2021. **Stephen K. Burley**

**2:00 PM**  
BREAKOUT DISCUSSION GROUP.  
1. Standards  
2. Data Exchange  
3. Requirements for Validating Data and Models

**4:00 PM**  
REPORT WRITING

**5:00 PM**  
REPORT OUT TO FULL GROUP AND CONCLUSION FOR OPEN REGISTRANTS.

## **Registration**

**3:00 PM - 5:00 PM, CHARLES STREET LOBBY**

## **New Council Orientation**

**3:30 PM - 4:30 PM, HILTON, PEALE C**

## **Joint Council Reception, Dinner, and Meeting**

**5:00 PM - 9:00 PM, HILTON, PEALE A/B**

# Saturday, March 2, 2019

## Daily Program Summary

All rooms are located in the *Baltimore Convention Center* unless noted otherwise.

8:00 AM–6:30 PM	Registration/Exhibitor Registration	Charles Street Lobby
8:30 AM–11:30 AM	Joint Council Meeting	Hilton, Peale A/B
9:00 AM–12:00 PM	Biophysics Between the Lines: Creating Quantitative Resources for Biology Courses	Room 330
9:00 AM–12:40 PM	Bioengineering Subgroup	Room 327/328/329
9:00 AM–1:00 PM	Society of General Physiologists Winter Council Meeting	Room 333
9:00 AM–6:00 PM	Bioenergetics, Mitochondria & Metabolism Subgroup	Room 324/325/326
9:30 AM–5:20 PM	Mechanobiology Subgroup	Room 321/322/323
10:30 AM–3:00 PM	Molecular Biophysics Subgroup	Ballroom II
10:30 AM–6:15 PM	Intrinsically Disordered Proteins Subgroup	Ballroom IV
12:00 PM–6:05 PM	Biopolymers in Vivo Subgroup	Room 301/302/303
12:30 PM–6:00 PM	Nanoscale Biophysics Subgroup	Room 316/317
1:00 PM–5:30 PM	Biological Fluorescence Subgroup	Room 309/310
1:00 PM–6:00 PM	Membrane Structure & Function Subgroup	Ballroom I
1:00 PM–6:15 PM	Cell Biophysics Subgroup	Room 307/308
1:00 PM–6:15 PM	Motility & Cytoskeleton Subgroup	Room 318/319/320
1:00 PM–9:30 PM	Membrane Biophysics Subgroup	Room 314/315
1:00 PM–10:00 PM	Exocytosis & Endocytosis Subgroup	Room 331/332
1:25 PM–5:30 PM	Membrane Transport Subgroup	Ballroom III
2:00 PM–4:00 PM	Science Communications Workshop with AAAS	Room 330
3:00 PM–4:00 PM	Career Development Center Workshop: Leveraging LinkedIn in the PhD Job Search: Networking, Informational Interviews, and More	Exhibit Hall A
3:00 PM–5:00 PM	Undergraduate Mixer and Poster Award Competition	Ballroom Foyer
5:00 PM–6:00 PM	First-Time Attendee Drop By	Ballroom Foyer
5:00 PM–7:00 PM	Opening Mixer	Ballroom Foyer
6:00 PM–7:30 PM	Travel Awardee Reception	Exhibit Hall
6:00 PM–10:00 PM	Poster Viewing	Exhibit Hall C
7:00 PM–10:00 PM	Cryo-EM Subgroup	Ballroom III

# Saturday, March 2

## Registration/Exhibitor Registration

8:00 AM - 6:30 PM, CHARLES STREET LOBBY

## Joint Council Meeting

8:30 AM - 11:30 AM, HILTON, PEALE A/B

## Biophysics Between the Lines: Creating Quantitative Resources for Biology Courses

9:00 AM - 12:00 PM, ROOM 330

### Speakers

Patricia Soto Becerra, Creighton University  
Gina M. Seprebon, Bay Path University  
Bertrand Garcia-Moreno, Johns Hopkins University  
Jenny Ross, University of Massachusetts Amherst

## Bioengineering Subgroup

9:00 AM - 12:40 PM, ROOM 327/328/329

### Subgroup Chair

Amir Farnoud, Ohio University

9:00 AM OPENING REMARKS

NO ABSTRACT 9:10 AM

NANOPARTICLE-SUPPORTED LIPID BILAYERS: A PLATFORM FOR INTERROGATING LIPID-PROTEIN INTERACTIONS AT HIGHLY CURVED SURFACES. **Ka Yee Lee**

1-SUBG 9:40 AM

GOLGI-ON-A-CHIP FOR THE CELL-FREE BIO-NANOMANUFACTURING OF PROTEIN THERAPEUTICS. **Susan Daniel**, Alicia Aquino, Matthew DeLisa, Thapakorn Jaroentomeechai, Han-Yuan Liu, Zachary Manzer, Ferra Pinnock, Rohit R. Singh

2-SUBG 10:10 AM

UTILIZING THE SYNERGISTIC POWER OF MOLECULAR THEORY AND MOLECULAR SIMULATION TO SOLVE BIOENGINEERING PROBLEMS.

**Mark Uline**

10:40 AM BREAK

10:55 AM BUSINESS MEETING

3-SUBG 11:10 AM

UPSTREAM MIGRATION OF AMOEBOID CELLS: DYNAMICS AND MEMORY. **Daniel Hammer**

NO ABSTRACT 11:40 AM

IMMUNOENGINEERING IN REGENERATIVE MEDICINE. **Jennifer Elisseff**

12:10 PM STUDENT/POSTDOC TALK

12:30 PM CLOSING REMARKS

## Society of General Physiologists Winter Council Meeting

9:00 AM - 1:00 PM, ROOM 333

## Bioenergetics, Mitochondria & Metabolism Subgroup

9:00 AM - 6:00 PM, ROOM 324/325/326

### Subgroup Co-Chairs

Elizabeth Jonas, Yale University  
George Porter, University of Rochester

9:00 AM MORNING INTRODUCTION  
WILLIAM CRAMER & KARIN BUSCH

NO ABSTRACT 9:10 AM  
NEW MECHANISTIC INSIGHTS FROM CRYOEM STRUCTURES OF ATP SYNTHASES. **Werner Kühlbrandt**

4-SUBG 9:40 AM  
A REQUIREMENT FOR CARDIOLIPIN IN THE ORGANIZATION AND FUNCTION OF MITOCHONDRIAL SUPERCOMPLEXES. **William Dowhan**, Eugenia Mileykovskaya, Venkata Mallampalli, Guizhen Fan, Matthew L. Baker, Irina I. Serysheva

5-SUBG 10:10 AM  
RCF1 AND RCF2: CENTRAL ROLE IN CYTOCHROME C OXIDASE ENZYMOLOGY AND SUPPORT OF THE PROTON MOTIVE FORCE.  
**Rosemary A. Stuart**

10:40 AM BREAK

6-SUBG 10:55 AM  
STRUCTURE OF THE ALTERNATIVE COMPLEX III IN A SUPERCOMPLEX WITH CYTOCHROME OXIDASE. **Chang Sun**, Samir Benlekbir, Padmaja Venkatakrishnan, Yuhang Wang, Sangjin Hong, Jonathan P. Hosler, Emad Tajkhorshid, John Rubinstein, **Robert B. Gennis**

7-SUBG 11:25 AM  
QUINONE DIFFUSION IN PHOTOSYNTHETIC MEMBRANES: CHALLENGES CAUSED BY COMPLEX MEMBRANE ARCHITECTURES. **Helmut Kirchhoff**

11:55 AM LUNCH BREAK

1:20 PM YOUNG BIOENERGETICS AWARD

1:35 PM AFTERNOON INTRODUCTION  
ELENA DEDKOVA

8-SUBG 1:45 PM  
KETOGENIC DIET: EVIDENCE FOR METABOLIC CONTROL OF NEURONAL EXCITABILITY AND SEIZURES. **Carl Stafstrom**

9-SUBG 2:15 PM  
MULTI-DIMENSIONAL ROLES OF KETONE BODIES IN FUEL METABOLISM, SIGNALING, AND THERAPEUTICS. **Peter Crawford**

10-SUBG 2:45 PM  
KETONE BODIES AS A THERAPEUTIC STRATEGY FOR HEART FAILURE.  
**Daniel Kelly**

3:15 PM BREAK

11-SUBG 3:30 PM  
NOVEL KETONE MONOESTER FOR HUMAN ENDURANCE EXERCISE.  
**Kieran Clarke**

NO ABSTRACT 4:00 PM  
KETOGENIC DIET REDUCES MIDLIFE MORTALITY AND IMPROVES MEMORY IN AGING MICE. **Eric Verdin**

12-SUBG 4:30 PM  
KETONE BODIES AND THEIR POLYMERS IN HEART FAILURE AND TYPE 2 DIABETES: LESSONS LEARNED FROM THE KETONE ESTER DIET. **Phung N. Thai**, Lusine Demirkhanyan, M. Todd King, Eleonora Zakharian, Richard Veech, Saul Schaefer, Donald M. Bers, **Elena N. Dedkova**

5:00 PM BUSINESS MEETING

7:00 PM SUBGROUP DINNER

## Mechanobiology Subgroup

9:30 AM - 5:20 PM, ROOM 321/322/323

### Subgroup Chair

*Kristian Franze, Cambridge University, United Kingdom*

9:30 AM OPENING REMARKS

13-SUBG 9:35 AM  
NORMALIZING TRANSFORMED CANCER CELLS WITH RIGIDITY SENSING.  
Michael Sheetz

10:05 AM STUDENT TALK

10:20 AM STUDENT TALK

NO ABSTRACT 10:35 AM  
PHYSICAL ROLE OF HYALURONAN GLYCOCALYX IN CELL ADHESION AND  
MIGRATION. Jennifer E. Curtis, Shlomi Cohen, Patrick Chang, Patrycja  
Kotowska, Rebecca Keate, Peter Achi, Jessica Faubel, Wenbin Wei, Andres  
J. Garcia

11:05 AM BREAK

14-SUBG 11:20 AM  
WORK AND DISSIPATION IN THE CELL CYTOSKELETON. Michael Murrell,  
Shiladitya Banerjee, Visar Ajeti, Pasha Tabatabai, Andrew Fleszar, Michael  
Staddon, Daniel Seara, Christian Suarez, Sulaiman Muhammad, Dapeng  
Bi, David Kovar

11:50 AM STUDENT TALK

NO ABSTRACT 12:05 PM  
STRESS FIBERS AND THE CELL CORTEX FORM AN INTEGRATED  
CONTRACTILE NETWORK. Manuel Théry

12:35 PM LUNCH BREAK

NO ABSTRACT 2:00 PM  
INTEGRIN-MEDIATED MECHANO-SENSATION IN INNATE IMMUNITY.  
Clare Waterman

2:30 PM STUDENT TALK

2:45 PM STUDENT TALK

15-SUBG 3:00 PM  
CELL AND EMBRYO-SCALE MECHANISMS DRIVING EPITHELIAL FOLDING.  
Matteo Rauzi

3:30 PM BREAK

16-SUBG 3:45 PM  
FLUID FLOWS SHAPING MORPHOLOGY. Karen Alim

4:15 PM STUDENT TALK

4:30 PM JOURNAL PANEL

5:00 PM CLOSING REMARKS

5:05 PM BUSINESS MEETING

## Molecular Biophysics Subgroup

10:30 AM - 3:00 PM, BALLROOM II

### Subgroup Chair

*Maria Spies, University of Iowa*

10:30 AM OPENING REMARKS

NO ABSTRACT 10:40 AM  
REAL-TIME MONITORING OF MULTIVALENT DNA RREPAIR COMPLEXES IN  
ACTION. Terence Strick

11:10 AM STUDENT/POSTDOC TALK

17-SUBG 11:35 AM  
THE EFFECT OF NUCLEOSOME CONFORMATION ON HISTONE TAIL  
BINDING AND SPECIFICITY. Emma A. Morrison, Samuel Bowerman, Jeff  
Wereszczynski, Catherine Musselman

12:05 PM BREAK

12:15 PM BUSINESS MEETING

18-SUBG 12:35 PM  
DYNAMIC PROTEINS AND INTERACTIONS DRIVING HOMOLOGOUS RE-  
COMBINATION: A BRCA2-CENTRIC VIEW. Claire Wyman

1:05 PM SELECTED ABSTRACT

1:30 PM SELECTED ABSTRACT

19-SUBG 2:00 PM  
RECONSTRUCTING 1D FREE-ENERGY LANDSCAPES OF DIVERSE  
BIO-MOLECULAR SYSTEMS USING AFM. Thomas T. Perkins

2:30 PM CLOSING REMARKS

## Intrinsically Disordered Proteins Subgroup

10:30 AM - 6:15 PM, BALLROOM IV

### Subgroup Chair

*Tanja Mittag, St. Jude Children's Research Hospital*

10:30 AM BUSINESS MEETING

1:00 PM OPENING REMARKS

NO ABSTRACT 1:10 PM  
TARDIGRADE PROTEINS & DESICCATION TOLERANCE. Gary J. Pielak

20-SUBG 1:40 PM  
IDENTIFYING SEQUENCE-DETERMINANTS OF PROTEIN LIQUID-LIQUID  
PHASE SEPARATION. Jeetain Mittal

NO ABSTRACT 2:10 PM  
AGGREGATION AND OACERVATION OF THE TAU PEPTIDE. Joan-Emma  
Shea

2:40 PM POSTDOC AWARDS ANNOUNCEMENT

2:45 PM POSTDOC TALK

3:05 PM BREAK

NO ABSTRACT 3:45 PM  
ANTAGONIZING ABERRANT PHASE SEPARATION OF RNA-BINDING  
PROTEINS CONNECTED TO ALS/FTD. James Shorter

21-SUBG 4:15 PM  
MODULATING ALPHA-SYNUCLEIN AGGREGATION THROUGH IDP-IDP  
INTERACTIONS. Jean Baum

4:45 PM POSTDOC TALK

NO ABSTRACT 5:05 PM  
RECONSTITUTED POSTSYNAPTIC DENSITY AS A MOLECULAR PLATFORM  
FOR UNDERSTANDING SYNAPSE FORMATION AND PLASTICITY. Mingjie  
Zhang

22-SUBG 5:35 PM  
IDPS ENABLE SUBSTRATE SPECIFICITY OF PROTEIN PHOSPHATASES.  
Wolfgang Peti

6:05 PM CLOSING REMARKS

## Biopolymers in Vivo Subgroup

12:00 PM - 6:05 PM, ROOM 301/302/303

### Subgroup Chair

*Simon Ebbinghaus, Technische Universität Braunschweig, Germany*

12:00 PM BUSINESS MEETING

1:00 PM OPENING REMARKS

NO ABSTRACT 1:05 PM

INTERACTOME EXPLORATION REVEALS NEW INSIGHT ON STRUCTURE-FUNCTION RELATIONSHIPS. **Jim Bruce**

1:50 PM JUNIOR FACULTY AWARD WINNER

23-SUBG 2:20 PM

ILLUMINATING THE BLACK BOX OF DNA-PROTEIN INTERACTIONS. **Mark C. Leake**

2:50 PM STUDENT / POSTDOC TALK

24-SUBG 3:05 PM

CONFORMATIONAL DYNAMICS OF A BACTERIAL ACTIN FILAMENT PREDICT IN VIVO FILAMENT LENGTH. **Kerwyn C. Huang**

3:35 PM BREAK

25-SUBG 4:00 PM

PROTEOME AGGREGATION PATTERNS UNDER PROTEOSTASIS STRESS AS SIGNATURES FOR UNDERSTANDING HUNTINGTON'S DISEASE. **Danny M. Hatters**

4:30 PM STUDENT / POSTDOC TALK

26-SUBG 4:45 PM

PROTEIN PHASE SEPARATION AND EMERGENT MATERIAL PROPERTIES. **Shana Elbaum-Garfinkle**

27-SUBG 5:15 PM

BIOMOLECULAR CONDENSATES AT BACTERIAL CELL POLES FUNCTION TO DRIVE SPATIALLY RESTRICTED SIGNAL PROPAGATION. **Lucy Shapiro**

6:00 PM ADJOURNMENT

## Nanoscale Biophysics Subgroup

12:30 PM - 6:00 PM, ROOM 316/317

### Subgroup Chair

*Keir Neuman, NIH*

12:30 PM OPENING REMARKS

NO ABSTRACT 12:35 PM

SUPER-RESOLUTION IMAGING OF TRANSCRIPTION IN LIVE MAMMALIAN CELLS. **Ibrahim Cissé**

28-SUBG 1:05 PM

NANODISCS AND FREE-STANDING BILAYERS FOR SINGLE-MOLECULE STUDIES AT THE LIPID MEMBRANE. **Marie-Eve Aubin-Tam**

29-SUBG 1:35 PM

VISUALISING SELF-ASSEMBLY OF PORE FORMING PROTEINS ON THEIR TARGET MEMBRANES. **Bart Hoogenboom**

30-SUBG 2:05 PM

HIGH-THROUGHPUT SUPER-RESOLUTION MICROSCOPY FOR REVEALING MOLECULAR ARCHITECTURE. **Suliana Manley**

2:35 PM BREAK

3:05 PM STUDENT TALK

3:20 PM STUDENT TALK

3:35 PM STUDENT TALK

31-SUBG 3:50 PM

SINGLE-MOLECULE INVESTIGATIONS OF STRUCTURE-ACTIVITY RELATIONSHIPS GUIDING NUCLEIC ACID INTERACTIONS, IN CELL-LIKE CONDITIONS. **Sabrina Leslie**

NO ABSTRACT 4:20 PM

WEIGHING SINGLE MOLECULES WITH LIGHT. **Philip Kukura**

NO ABSTRACT 4:50 PM

BIOMOLECULAR ANALYSIS WITH DNA PROBES. **Peng Yin**

5:20 PM BUSINESS MEETING

## Biological Fluorescence Subgroup

1:00 PM - 5:30 PM, ROOM 309/310

### Subgroup Chair

*Paul Wiseman, McGill University, Canada*

1:00 PM OPENING REMARKS

32-SUBG 1:05 PM

THE COMING OF AGE: FLUORESCENCE INVESTIGATIONS OF THE EARLY CHILDHOOD OF HIV PARTICLES. **Don C. Lamb**

33-SUBG 1:35 PM

SUPER-RESOLUTION MICROSCOPY WITH DNA MOLECULES: TOWARDS LOCALIZOMICS. **Ralf Jungmann**

NO ABSTRACT 2:05 PM

MULTIMODAL MICROSCOPY REVEALS STIFFNESS-DEPENDENT NANOSCALE REMODELING OF DIFFERENT ACTIN MODULES DURING CELL PROTRUSION. **Alessandra Cambi**

34-SUBG 2:35 PM

VISUALIZING TRANSLATION DYNAMICS OF SINGLE MRNAS IN LIVE CELLS. **Malgorzata J. Latallo, Shaopeng Wang, Shuying Sun, Bin Wu**

3:05 PM BREAK

3:15 PM BUSINESS MEETING

35-SUBG 3:25 PM

BUILDING BRIGHTER FLUOROPHORES FOR ADVANCED BIOLOGICAL IMAGING. **Luke D. Lavis**

36-SUBG 3:55 PM

HIGH SPEED 3D IN-VIVO FLUORESCENCE MICROSCOPY. **Elizabeth Hillman**

4:25 PM RAPID FIRE STUDENT TALKS

4:45 PM YOUNG FLUORESCENCE INVESTIGATOR AWARD & LECTURE

5:00 PM GREGORIO WEBER AWARD & LECTURE

5:15 PM CLOSING REMARKS

## Membrane Structure & Function Subgroup

1:00 PM - 6:00 PM, BALLROOM I

### Subgroup Chair

*Ilya Levental, University of Texas Health Science Center at Houston*

1:00 PM OPENING REMARKS

**NO ABSTRACT 1:05 PM**

NANOPARTICLE-SUPPORTED LIPID BILAYERS: A PLATFORM FOR INTER-ROGATING LIPID-PROTEIN INTERACTIONS AT HIGHLY CURVED SURFACES.

Jay Groves

**37-SUBG 1:35 PM**PORE-SPANNING MEMBRANES: A VERSATILE TOOL TO INVESTIGATE DYNAMIC PROCESSES OF LIPID BILAYERS. **Claudia Steinem****38-SUBG 2:05 PM**DECIPHERING NANOMETER-SCALE LIPID STRUCTURE AND PHYSICS TO MODEL MEMBRANE RESHAPING. **Alex Sodt**, Kayla Sapp, Mitchell Dorrell, Andrew H. Beaven**NO ABSTRACT 2:35 PM****JUNIOR FACULTY PRESENTATION**

GENETICALLY ENCODED MEMBRANE PROPERTY SENSORS INTER-ROGATE CELLULAR MEMBRANES WITH REMARKABLE SENSITIVITY.

**Robert Ernst****2:50 PM BREAK****NO ABSTRACT 3:15 PM****JUNIOR FACULTY PRESENTATION**CELLULAR FUNCTIONS FOR MEMBRANE VISCOSITY REVEALED BY LIPID ENGINEERING EFFORTS. **Itay Budin****39-SUBG 3:30 PM**SIGNAL TRANSDUCTION BY METASTABLE MOLECULAR COMPLEXES: FINDINGS BY SINGLE-MOLECULE TRACKING. **Akihiro Kusumi****40-SUBG 4:00 PM**USING DEUTERIUM NMR TO STUDY STEROLS AND PHOSPOLIPIDS- IS IT JUST A PHASE?. **Jenifer L. Thewalt****41-SUBG 4:30 PM**NANOPHOTONIC TOOLS TO RESOLVE NANOSCALE DYNAMICS ON BIOLOGICAL MEMBRANES. **Maria Garcia-Parajo****NO ABSTRACT 5:00 PM****THOMAS E. THOMPSON AWARD LECTURE**

BIOLOGICAL HETEROGENEITY, A PHENOTYPIC TRAIT THAT WE HARVESTED TO INVESTIGATE MEMBRANES AND MEMBRANE PROTEINS.

**Dimitrios Stamou****5:40 PM BUSINESS MEETING**

### Cell Biophysics Subgroup

**1:00 PM - 6:15 PM, ROOM 307/308****Subgroup Chair***Jie Xiao, Johns Hopkins University School of Medicine***NO ABSTRACT 1:00 PM**UNSUPERVISED STATISTICAL LEARNING OF THE STRUCTURAL AND KINETIC ELEMENTS IN MULTI-RESOLUTION DYNAMICS. **Haw Yang**, Shuhui Yin, Hao Li**42-SUBG 1:30 PM**HIGH FREQUENCY ACTIVE MICRORHEOLOGY REVEALS MISMATCH IN 3D TUMOR INTRACELLULAR AND EXTRACELLULAR MATRIX VISCOELASTICITY. **Kandice Tanner****NO ABSTRACT 2:00 PM**EVOLUTIONARY SELF-ORGANIZATION: LESSONS FROM THE YEAST POLARIZATION MACHINERY. **Liedewij Laan****NO ABSTRACT 2:30 PM**TiO<sub>2</sub> NANOPARTICLE-CELL INTERACTIONS: IMPORTANCE OF THE PROTEIN CORONA. **Christine Payne****3:00 PM STUDENT/POSTDOC TALK****3:15 PM BREAK****NO ABSTRACT 3:45 PM**GENOME WIDE SINGLE CELL BIOPHYSICS. **Johan Elf****NO ABSTRACT 4:15 PM**MICROSCOPY-BASED PROTEOMICS. **Jung-Chi Liao****NO ABSTRACT 4:45 PM**IMAGING CELLULAR RNAs AT SINGLE MOLECULE RESOLUTION WITH FLUORESCENT RNA-MANGO APTAMERS. **David Rueda****5:15 PM STUDENT/POSTDOC TALK****5:30 PM STUDENT/POSTDOC TALK****5:45 PM BUSINESS MEETING**

### Motility & Cytoskeleton Subgroup

**1:00 PM - 6:15 PM, ROOM 318/319/320****Subgroup Co-Chairs***William Hancock, Pennsylvania State University**Neil Kad, University of Kent, United Kingdom***1:00 PM OPENING REMARKS****43-SUBG 1:05 PM**CYTOSKELETAL DYNAMICS DURING POLARIZED GROWTH. **Magdalena Bezanilla**, Shu-Zon Wu, Carlisle Bascom, Moe Yamada, Xiaohang Chang**44-SUBG 1:30 PM**DISSECTING THE SELF ORGANIZING MECHANISMS DETERMINING BACTERIAL SHAPE USING OPTICAL APPROACHES. **Ethan C. Garner****1:55 PM RAPID FIRE STUDENT TALKS****NO ABSTRACT 2:00 PM**SENSING SOUND OVER A LIFETIME: HOW MYOSIN MOTORS CONTINUALLY SHAPE THE STEREOCILIA CYTOSKELETON. **Jonathan Bird****2:25 PM STUDENT/POSTDOC TALK****2:40 PM BREAK****45-SUBG 3:00 PM**RE-DESIGN OF LINEAR MOLECULAR MOTORS. Ryota Ibusuki, Akane Furuta, Kazuhiro Oiwa, Hiroaki Kojima, **Ken'ya Furuta****46-SUBG 3:25 PM**NOVEL OPTICAL TWEEZERS PROBES: HOW KINESIN MOTORS GET TO THE MICROTUBULE END. **Erik Schaeffer****3:50 PM RAPID FIRE STUDENT TALKS****47-SUBG 3:55 PM**A MYOSIN II NANOMACHINE MIMICKING THE STRIATED MUSCLE. **Pasquale Bianco**, Irene Pertici, Lorenzo Bongini, Giulio Bianchi, Dan Cojoc, Miklós S. Kellermayer, Vincenzo Lombardi**4:20 PM STUDENT/POSTDOC TALK****4:35 PM BUSINESS MEETING****48-SUBG 5:15 PM**LESSONS FROM THE ACTIN-MYOSIN II FAMILY; DOCKING, MECHANOCHEMISTRY AND MYOPATHIES. **Mike Geeves**

## Membrane Biophysics Subgroup

1:00 PM – 9:30 PM, ROOM 314/315

### Subgroup Chair

Andrew Plested, *Leibniz Institute for Molecular Pharmacology, Germany*

1:00 PM OPENING REMARKS

49-SUBG 1:05 PM

COMPARTMENTALIZED DENDRITIC SIGNALING IN THE RETINA.

Jeffrey S. Diamond

NO ABSTRACT 1:35 PM

MECHANISMS OF LOCAL AND GLOBAL SYNAPTIC SIGNALLING IN OLFACTORY BULB GRANULE CELL DENDRITES. Veronica Egger

50-SUBG 2:05 PM

DENDRITIC, CELLULAR AND CIRCUIT MECHANISMS OF SPATIAL REPRESENTATIONS. Christoph Schmidt-Hieber

51-SUBG 2:35 PM

T-TYPE CA<sup>2+</sup> CHANNELS AND LAYER II MEDIAL ENTORHINAL CORTICAL STELLATE CELL EXCITABILITY. Aleksandra Topczewska, Talfan Evans, Wendy Pratt, Neil Burgess, Annette C. Dolphin, Mala Shah

3:05 PM BREAK

3:20 PM BUSINESS MEETING

52-SUBG 3:50 PM

CONTEXT AND COMPLEXITY: HOW IONIC CONDUCTANCES INTERACT TO CONTROL NEURONAL FIRING. Bruce Bean

53-SUBG 4:20 PM

NEURONAL MECHANISMS UNDERLYING HCN1-DEPENDENT MOTOR BEHAVIOR DEFICITS. Marlies Oostland

54-SUBG 4:50 PM

DENDRITIC INTEGRATION AND VISUAL COMPUTATION IN RETINAL AMACRINE CELLS. Z. Jimmy Zhou

5:20 PM CLOSING REMARKS

6:30 PM COLE AWARD RECEPTION & DINNER

## Exocytosis & Endocytosis Subgroup

1:00 PM – 10:00 PM, ROOM 331/332

### Subgroup Chair

Amy Lee, *University of Iowa*

1:00 PM INTRODUCTORY REMARKS

1:05 PM STUDENT/POSTDOC TALK

1:20 PM STUDENT/POSTDOC TALK

1:35 PM STUDENT/POSTDOC TALK

1:50 PM STUDENT/POSTDOC TALK

55-SUBG 2:05 PM

REGULATION OF VESICLE ACIDIFICATION AT THE NEURONAL SYNAPSE. Ira Milosevic

2:40 PM BREAK

56-SUBG 2:55 PM

DYNAMIC CONTROL OF VESICLE PRIMING IN SYNAPTIC SHORT-TERM PLASTICITY. Nils Brose

57-SUBG 3:30 PM

IMAGING THE NANOSCALE STRUCTURE OF ENDOCYTOSIS WITH CORRELATIVE SUPER-RESOLUTION LIGHT AND ELECTRON MICROSCOPY.

Justin W. Taraska, Kem A. Sochacki

4:05 PM BUSINESS MEETING

NO ABSTRACT 4:30 PM

SIR BERNARD KATZ AWARD LECTURE - DIVERSE FUNCTIONS OF THE SYNAPTOTAGMINS. Ed Chapman

5:45 PM CLOSING REMARKS & ADJOURNMENT

7:00 PM EXOENDO SUBGROUP DINNER

## Membrane Transport Subgroup

1:25 PM - 5:30 PM, BALLROOM III

### Subgroup Chair

Susan Rempe, *Sandia National Laboratories*

1:25 PM OPENING REMARKS

NO ABSTRACT 1:30 PM

A STRANGE PORE TO HANDLE A STRANGE ION. Chris Miller

58-SUBG 2:00 PM

THE KDPFABC COMPLEX: WHAT HAPPENS WHEN A P-TYPE ATPASE HIJACKS AN ION CHANNEL. Charlott Stock, Lisa Hielkema, Igor Tascon, Dorith Wunnicke, Gert Oostergetel, Inga Haenelt, Cristina Paulino

2:30 PM STUDENT TALK

59-SUBG 2:50 PM

DYNAMICS OF CO-TRANSLATIONAL MEMBRANE INTEGRATION. Thomas F. Miller

3:20 PM BREAK

NO ABSTRACT 3:30 PM

MECHANISM OF LIGAND-GATING IN POTASSIUM CHANNELS. Crina Nimigean

4:00 PM STUDENT TALK

NO ABSTRACT 4:20 PM

INHIBITOR BINDING TO HUMAN SGLT SUGAR TRANSPORTERS. Michael Grabe

5:00 PM BUSINESS MEETING

## Science Communications Workshop with AAAS

2:00 PM - 4:00 PM, ROOM 330

Science communication plays an increasingly important role in society. Communication skills are critical in educating the public on the importance of research and are important career advancement skills. We will be joined by AAAS's Center for Public Engagement for a two-hour, interactive communications workshop. Limit 100 people. Pre-registration was encouraged. Walk-ins accepted on a space-available basis.

## Career Development Center Workshop

Leveraging LinkedIn in the PhD Job Search: Networking, Informational Interviews, and More

3:00 PM - 4:00 PM, EXHIBIT HALL A

You've done some exploration and identified some interesting possibilities as the next step after grad school or your postdoc, but is it enough to convince you that research in industry, medical science liaison, data science, etc. is right for you? More importantly, do you know enough to craft a persuasive story about why you're a credible and compelling candidate?

This presentation provides specific examples of how you build out your knowledge of a new, potential career field, and forge valuable connections that can facilitate your successful transition out of academia using LinkedIn, professional societies, informational interviews, and more.

## Undergraduate Mixer and Poster Award Competition

**3:00 PM - 5:00 PM, BALLROOM FOYER**

If you're an undergraduate student, plan on attending this social and scientific mixer! Come meet other undergraduates and learn about their research projects. For undergraduate students who will be presenting during the standard scientific sessions, the mixer provides an opportunity to hone presentation skills before the general poster session begins. Undergraduates listed as co-authors on posters are welcome to practice their poster presentation skills in a less formal setting, even if not listed as the presenting author. Additionally, undergrads presenting as first or second author on a poster may participate in the Undergraduate Poster Award Competition and be recognized for their work. Three students will be selected for a \$100 award and recognized by the BPS meeting attendees prior to the 2019 Biophysical Society Lecture. Winners will be selected based on the quality and scientific merit of their research, knowledge of the research problem, contribution to the project, and overall presentation of the poster.

Pre-registration was required to participate in the competition. No onsite registration.

## First-Time Attendee Drop By

**5:00 PM - 6:00 PM, BALLROOM FOYER**

Learn to navigate the meeting! If this is your first time attending a BPS Annual Meeting, you may find it helpful to speak to Society staff and committee members who can help you get the most out of your time at the BPS 2019 Baltimore Annual Meeting.

## Opening Mixer

**5:00 PM - 7:00 PM, BALLROOM FOYER**

All registered attendees are welcome to attend this reception. Cash bar and light refreshments will be offered.

## Travel Awardee Reception

**6:00 PM - 7:30 PM, EXHIBIT HALL**

During this reception, students, postdocs, and early and mid-career scientists will be honored and presented with their travel awards by the chairs of the Education, Inclusion and Diversity, Membership, and Professional Opportunities for Women Committees.

### Speaker:

Yves De Koninck, Université Laval

## Poster Viewing

**6:00 PM - 10:00 PM, EXHIBIT HALL C**

## Cryo-EM Subgroup

**7:00 PM - 10:00 PM, BALLROOM III**

### Subgroup Chair

*Jenny Hinshaw, NIH*

**7:00 PM**

**OPENING REMARKS**

**60-SUBG**

**7:05 PM**

MOLECULAR VIEWS INTO CELLULAR FUNCTION BY *IN SITU* CRYO-ELECTRON TOMOGRAPHY. **Julia Mahamid**

**61-SUBG**

**7:30 PM**

CRYOET OF SINGLE PARTICLE CRYOEM GRIDS REVEALS WIDESPREAD, BUT REDUCIBLE, PARTICLE ADSORPTION TO THE AIR-WATER INTERFACE. **Alex J. Noble**, Venkata P. Dandey, Hui Wei, Julia Brasch, Jillian Chase, Priyamvada Acharya, Yong Zi Tan, Zhening Zhang, Laura Y. Kim, Giovanna Scapin, Micah Rapp, Edward T. Eng, William J. Rice, Anchi Cheng, Carl J. Negro

**62-SUBG**

**7:55 PM**

STREAMLINING WORKFLOWS FOR STRUCTURE DETERMINATION BY SINGLE PARTICLE CRYO-EM. **Alberto Bartesaghi**

**8:20 PM**

**BUSINESS MEETING**

**NO ABSTRACT**

**8:35 PM**

STARMAP: ROSETTA REFINEMENT CONTROLLED FROM CHIMERAX. **Thomas Marlovits**

**63-SUBG**

**9:00 PM**

THROUGHPUT AND RESOLUTION WITH A NEXT GENERATION DIRECT DETECTOR. **Scott M. Stagg**, Joshua H. Mendez

**64-SUBG**

**9:25 PM**

NEW DEVELOPMENTS IN THE CISTEM SOFTWARE PACKAGE. **Tim Grant**, Alexis Rohou, Nikolaus Grigorieff



# Sunday, March 3, 2019

## Daily Program Summary

All rooms are located in the *Baltimore Convention Center* unless noted otherwise.

7:00 AM–9:00 AM	Editorial Board Boot Camp	Room 331
7:30 AM–8:30 AM	Postdoctoral Breakfast	Room 324/325/326
7:30 AM–5:00 PM	Registration/Exhibitor Registration	Charles Street Lobby
8:00 AM–10:00 AM	Poster Viewing	Exhibit Hall C
8:15 AM–10:15 AM	<p><b>Symposium: Biological Systems Single Molecule at the Time</b>  <b>Chair:</b> <i>Ben Schuler, University of Zürich, Switzerland</i></p> <p>THE MECHANISM OF DYNEIN DIRECTIONALITY. <i>Ahmet Yildiz</i>            IN SITU IMAGING OF TRANSCRIPTOME AND GENOME IN SINGLE CELLS. <i>Xiaowei Zhuang</i>            ENDOGENOUSLY ENCODED RIBOSOMAL RNA SEQUENCE VARIATION WITHIN THE ASSEMBLE RIBOSOME CAN REGULATE STRESS RESPONSE GENE EXPRESSION AND PHENOTYPE. <i>Scott C. Blanchard</i>            PROBING THE DYNAMICS AND INTERACTIONS OF DISORDERED PROTEINS WITH SINGLE-MOLECULE SPECTROSCOPY. <i>Ben Schuler</i></p>	Ballroom I
8:15 AM–10:15 AM	<p><b>Symposium: Proton-Coupling Bioenergetics</b>  <b>Chair:</b> <i>Liz Carpenter, SGC, University of Oxford, United Kingdom</i></p> <p>THE PROTON/ELECTRON COUPLING MECHANISM OF CYTOCHROME C OXIDASE. <i>Peter R. Rich</i>            HOW THE C-SUBUNIT STOICHIOMETRY OF F1F0 ATP SYNTHASE CONTROLS BIO-ENERGETIC THERMODYNAMIC EFFICIENCY. <i>Todd P. Silverstein</i>            ADAPTIVE IMMUNITY SHAPED BY LARGE MULTIPROTEIN MEMBRANE COMPLEXES. <i>Robert Tampé</i>            MITOCHONDRIAL ABC TRANSPORTERS. <i>Liz Carpenter</i></p>	Ballroom II
8:15 AM–10:15 AM	Platform: Molecular Dynamics I	Ballroom III
8:15 AM–10:15 AM	Platform: Voltage-gated K Channels	Ballroom IV
8:15 AM–10:15 AM	Platform: Protein Structure and Conformation I	Room 307/308
8:15 AM–10:15 AM	Platform: Cell Mechanics, Mechanosensing, and Motility	Room 309/310
8:15 AM–10:15 AM	Platform: Membrane Physical Chemistry I	Room 314/315
8:15 AM–10:15 AM	Platform: DNA Structure, Dynamics, and Function	Room 316/317
8:30 AM–10:30 AM	CID Committee Meeting	Room 333
9:00 AM–10:00 AM	Career Development Center Workshop: Networking for Nerds: How to Create Your Dream Career	Exhibit Hall A
9:30 AM–11:00 AM	Exhibitor Presentation: Mizar Imaging Tilt–High-Resolution Light Sheet Imaging	Room 303
10:00 AM–5:00 PM	Exhibits	Exhibit Hall
10:15 AM–11:00 AM	Coffee Break	Exhibit Hall
10:30 AM–12:00 PM	Exhibitor Presentation: HORIBA Scientific Unique Fluorescence Molecular Fingerprinting in Action: What Can CCD Detection Do for You?	Room 301
10:30 AM–11:30 AM	Career Development Center Workshop: Green Cards for Scientific Researchers: How to Win Your EB-1A/NIW Case! with Getson & Schatz, PC	Exhibit Hall A

10:45 AM–12:45 PM	<b>Symposium: Proteins: Exploring Sequence Space via Computation and Experiment</b> Chair: <i>Polly Fordyce, Stanford University</i>	Ballroom I
	ENGINEERING AND EVOLUTION OF ALLOSTERIC COMMUNICATION. <i>Kimberly A. Reynolds</i> HOW DO PROTEINS EVOLVE. <i>Daniel Tawfik</i> HYPERVARIABLE PROTEINS IN MICROBES. <i>Eugene Koonin</i> BRINGING ENZYMOLOGY INTO THE GENOMIC ERA: DEVELOPING AND DEPLOYING NEW TOOLS TO QUANTITATIVELY MAP FUNCTIONAL CONNECTIONS THROUGHOUT AN ENZYME. <i>Polly M. Fordyce</i>	
10:45 AM–12:45 PM	<b>Symposium: Glutamate Receptors</b> Chair: <i>Maria Kurnikova, Carnegie Mellon University</i>	Ballroom II
	OPTICAL CONTROL AND REPORT OF AMPA RECEPTOR ACTIVATION. <i>Andrew Plested</i> ALLOSTERIC DYNAMICS AND DRUGGABILITY OF AMPA RECEPTORS. <i>Ivet Bahar</i> THE EUKARYOTIC SPECIFIC M4 SEGMENTS ARE ALLOSTERIC CONDUITS FOR NMDA RECEPTOR SIGNALING. <i>Lonnie Wollmuth</i> AFTER THE STRUCTURE COMES THE DYNAMICS: MOLECULAR MODELING OF GLUTAMATE RECEPTORS REVEALS LONG-RANGE ALLOSTERIC COUPLING BETWEEN LIGAND BINDING SITE AND CHANNEL GATE. <i>Maria G. Kurnikova</i>	
10:45 AM–12:45 PM	<b>Platform: Optical Microscopy and Superresolution Imaging I</b>	Ballroom III
10:45 AM–12:45 PM	<b>Platform: Membrane Proteins I</b>	Ballroom IV
10:45 AM–12:45 PM	<b>Platform: Intrinsically Disordered Proteins (IDP) and Aggregates I</b>	Room 307/308
10:45 AM–12:45 PM	<b>Platform: Cardiac Muscle Mechanics, Structure, and Regulation I</b>	Room 309/310
10:45 AM–12:45 PM	<b>Platform: Excitation-Contraction Coupling/Cardiac and Skeletal Muscle Electrophysiology I</b>	Room 314/315
10:45 AM–12:45 PM	<b>Platform: Micro- and Nanotechnology</b>	Room 316/317
11:15 AM–3:00 PM	Exploring Careers in Biophysics Day	Room 321/322/323
11:30 AM–1:00 PM	Undergraduate Student Pizza “Breakfast”	Room 321/322/323
11:30 AM–1:00 PM	Exhibitor Presentation: Leica Microsystems Leica SP8 FALCON: A New Way to Generate Fluorescence Lifetime Images at Confocal Speed	Room 303
12:00 PM–1:00 PM	Career Development Center Workshop: Demystifying the Academic Job Search I: Understanding the Search Process from the Perspective of Search Committees and Decoding Job Announcements	Exhibit Hall A
12:15 PM–2:15 PM	Public Affairs Committee Meeting	Room 333
1:00 PM–2:30 PM	The World Outside the Lab: Many Ways to Use Your PhD Skills	Room 318/319/320
1:00 PM–3:00 PM	Education & Career Opportunities Fair	Exhibit Hall C
1:30 PM–3:00 PM	Exhibitor Presentation: Carl Zeiss Microscopy LLC ZEISS Elyra 7 with Lattice SIM, a New Platform for Fast and Gentle 3D Superresolution Microscopy	Room 303
1:45 PM–3:00 PM	Snack Break	Exhibit Hall
1:45 PM–3:45 PM	Poster Presentations and Late Posters	Exhibit Hall
2:00 PM–3:30 PM	Teaching Science Like We Do Science	Room 321/322/323
2:30 PM–3:30 PM	Career Development Center Workshop: The Industry Interview: What you need to do before, during, and after to get the job	Exhibit Hall A
2:30 PM–4:00 PM	Brexit & Science: Consequences for Research Funding and Immigration Flows	Room 327/328/329
3:30 PM–5:00 PM	Early Careers Committee Meeting	Room 333
3:30 PM–5:00 PM	Exhibitor Presentation: Wyatt Technology Corporation From Proteins to Exosomes: Tools for Essential Biophysical QC, Characterization, and Isolation	Room 303
4:00 PM–5:00 PM	Career Development Center Workshop: Nailing the Job Talk, or Erudition Ain’t Enough	Exhibit Hall A

4:00 PM–6:00 PM	<b>Symposium: Integrative Modeling from Macromolecules to Cell</b> <b>Chair:</b> <i>Zaida Ann Luthey-Schulten, University of Illinois at Urbana-Champaign</i>	Ballroom I
	MAPPING THE SPATIAL ORGANIZATION OF GENOMES THROUGH DATA INTEGRATION. <i>Frank Alber</i> MULTISCALE MODELING OF BIOMOLECULAR PROCESSES BY COMBINING EXPERIMENT AND SIMULATION. <i>Cecilia Clementi</i> DEALING WITH DYNAMICS AND DISORDER BY COMBINING SIMULATION AND EXPERIMENT. <i>Gerhard Hummer</i> TOWARDS SIMULATING BACTERIAL AND EUKARYOTIC CELLS: INTEGRATION OF EXPERIMENT AND THEORY. <i>Zaida Ann Luthey-Schulten</i>	
4:00 PM–6:00 PM	<b>Symposium: Cytoskeleton</b> <b>Chair:</b> <i>Sabine Petry, Princeton University</i>	Ballroom II
	PHASE SEPARATION OF TPX2 ENHANCES AND SPATIALLY BIASES MICROTUBULE NUCLEATION. <i>Sabine Petry</i> REGULATION OF BIDIRECTIONAL MOTILITY OF KINESIN-5 MOTORS. <i>Leah Gheber</i> REGULATION OF MYOSIN MOTORS - FROM SINGLE MOLECULES TO FUNCTIONAL ENSEMBLES. <i>Claudia Veigel</i> THE MYOSIN MESA AND HYPERTROPHIC CARDIOMYOPATHY: MUTATIONS TO MECHANISMS TO THERAPIES. <i>James Spudich</i>	
4:00 PM–6:00 PM	<b>Platform: Ligand-gated Channels</b>	Ballroom III
4:00 PM–6:00 PM	<b>Platform: Protein Folding, Pathways, and Stability</b>	Ballroom IV
4:00 PM–6:00 PM	<b>Platform: Spectroscopy and Single-Molecule Fluorescence</b>	Room 307/308
4:00 PM–6:00 PM	<b>Platform: Protein-Lipid Interactions: Channels/Structures</b>	Room 309/310
4:00 PM–6:00 PM	<b>Platform: Intracellular Calcium Signaling, Sparks and Waves</b>	Room 314/315
4:00 PM–6:00 PM	<b>Platform: Membrane Active Peptides and Toxins</b>	Room 316/317
5:00 PM–7:00 PM	PI to PI: A Wine & Cheese Mixer	Room 324/325/326
5:30 PM–6:30 PM	Korean Biophysicists Meeting	Room 318/319/320
5:30 PM–7:00 PM	<b>Exhibitor Presentation: ELEMENTS SRL</b> <b>Portable and Cost-Effective Low-Noise Amplifiers for Electrophysiology and Nanopore Applications</b>	Room 303
6:00 PM–6:30 PM	Dinner Meet-Ups	Society Booth/Charles Street Lobby
6:00 PM–8:00 PM	Biophysics Austria Mixer	Room 321/322/323
6:00 PM–8:00 PM	Biophysical Society of Canada Mixer	Pratt Street Ale House
6:00 PM–9:00 PM	Student Research Achievement Award (SRAA) Poster Competition	Exhibit Hall C
6:00 PM–10:00 PM	<i>Biophysical Journal</i> Editorial Board Dinner	Center Club

# Sunday, March 3

## Editorial Board Boot Camp

7:00 AM - 9:00 AM, ROOM 331

## Postdoctoral Breakfast

7:30 AM - 8:30 AM, ROOM 324/325/326

This breakfast presents an opportunity for postdoctoral Annual Meeting attendees to meet and discuss the issues they face in their current career stage. Panelists this year are married couples with independent careers, and will focus the discussion on work-life balance challenges. Limited to the first 100 attendees.

### Speakers

Diane Bovenkamp, BrightFocus Foundation  
D. Brian Foster, Johns Hopkins University, School of Medicine  
Sunita Patel-Hett, Pfizer, Inc.  
Erik Hett, MERCK Exploratory Sciences Center

## Registration/Exhibitor Registration

7:30 AM - 5:00 PM, CHARLES STREET LOBBY

## Poster Viewing

8:00 AM - 10:00 AM, EXHIBIT HALL C

## Symposium

### Biological Systems Single Molecule at the Time

8:15 AM - 10:15 AM, BALLROOM I

#### Chair

*Ben Schuler, University of Zürich, Switzerland*

**65-SYMP** 8:15 AM

THE MECHANISM OF DYNEIN DIRECTIONALITY. **Ahmet Yildiz**

**66-SYMP** 8:45 AM

IN SITU IMAGING OF TRANSCRIPTOME AND GENOME IN SINGLE CELLS. **Xiaowei Zhuang**

**67-SYMP** 9:15 AM

ENDOGENOUSLY ENCODED RIBOSOMAL RNA SEQUENCE VARIATION WITHIN THE ASSEMBLE RIBOSOME CAN REGULATE STRESS RESPONSE GENE EXPRESSION AND PHENOTYPE. **Scott C. Blanchard**, Chad M. Kurylo, Matt M. Parks, Manuel F. Juetter, Boris Zinshteyn, Roger B. Altman, Theresa C. Vincent, Michael R. Wasserman, Jose L. Alejo Amaya, Daniel S. Terry

**68-SYMP** 9:45 AM

PROBING THE DYNAMICS AND INTERACTIONS OF DISORDERED PROTEINS WITH SINGLE-MOLECULE SPECTROSCOPY. **Ben Schuler**

## Symposium

### Proton-Coupling Bioenergetics

8:15 AM - 10:15 AM, BALLROOM II

#### Chair

*Liz Carpenter, SGC, University of Oxford, United Kingdom*

**69-SYMP** 8:15 AM

THE PROTON/ELECTRON COUPLING MECHANISM OF CYTOCHROME C OXIDASE. **Peter R. Rich**, Vivek Sharma

**70-SYMP** 8:45 AM

HOW THE C-SUBUNIT STOICHIOMETRY OF  $F_1F_0$  ATP SYNTHASE CONTROLS BIO-ENERGETIC THERMODYNAMIC EFFICIENCY. **Todd P. Silverstein**

**71-SYMP** 9:15 AM

ADAPTIVE IMMUNITY SHAPED BY LARGE MULTIPROTEIN MEMBRANE COMPLEXES. **Robert Tampé**

**No Abstract** 9:45 AM

MITOCHONDRIAL ABC TRANSPORTERS. **Liz Carpenter**

## Platform

### Molecular Dynamics I

8:15 AM - 10:15 AM, BALLROOM III

#### Co-Chairs

*Anna Pavlova, Georgia Tech*

*Jonathan Essex, University of Southampton, United Kingdom*

**72-PLAT** 8:15 AM

TRANSLATIONAL APPLICATIONS OF PROTEIN STRUCTURE SIMULATION: PREDICTING PHENOTYPE OF MISSENSE VARIANTS. **Matthew D. McCoy**, Subha Madhavan, Sridhar Nimmagadda, Dmitri Klimov, Mohsin S. Jafri

**73-PLAT** 8:30 AM

MECHANISM OF PASSENGER CLEAVAGE IN AUTOTRANSPORTER ESPP EXPLORED WITH QM/MM MOLECULAR DYNAMICS SIMULATION.

**Anna Pavlova**, James C. Gumpart

**74-PLAT** 8:45 AM

**TRAVEL AWARDEE**

UNCOVERING THE MOLECULAR BASIS FOR THE CLINICAL N642H MUTATION IN STAT5B USING ATOMISTIC MOLECULAR SIMULATIONS.

**Deniz Meneksedag-Erol**, Elvin D. de Araujo, Fettah Erdogan, Hyuk-Soo Seo, Sirano Dhe-Paganon, Patrick T. Gunning, Sarah Rauscher

**75-PLAT** 9:00 AM

MODELING VIBRATIONAL STARK EFFECTS USING POLARIZABLE FORCE FIELDS: KSI AS AN EXEMPLAR. **Jonathan W. Essex**, Richard T. Bradshaw, Stephen D. Fried

**9:15 AM** Flash talks

**76-PLAT** 9:30 AM

CONFORMATIONAL FLEXIBILITY OF THE HIV VIF PROTEIN COMPLEX.

**K. Aurelia Ball**, Lieza M. Chan, David Stanley, Elise Tierney, Sampriti Thapa, Hai M. Ta, Lily Burton, Jennifer M. Binning, Matthew P. Jacobson, John D. Gross

**77-PLAT** 9:45 AM

MOLECULAR MECHANISM OF POTENT CAPSID-TARGETING ANTIRETROVIRAL DRUGS. **Sruthi Murlidaran**, Juan R. Perilla

**78-PLAT** 10:00 AM

MOLECULAR DYNAMICS SIMULATIONS OF AN ENTIRE HIV VIRION. Tyler Reddy, **Juan R. Perilla**

## Platform

### Voltage-gated K Channels

8:15 AM - 10:15 AM, BALLROOM IV

#### Co-Chairs

*Benoit Roux, University of Chicago*

*Lucie Delemotte, KTH Royal Institute of Technology, Sweden*

**79-PLAT** 8:15 AM

ATOMIC-LEVEL CHARACTERIZATION OF C-TYPE INACTIVATION FOR VOLTAGE-GATED POTASSIUM CHANNELS SHAKER AND HERG. **Jing Li**, Young Hoon Koh, Ahmed Rohaim, Eduardo Perozo, Benoit Roux

**80-PLAT 8:30 AM**  
C-TYPE INACTIVATION IN  $K_{v2.1}$  CHANNELS. **Carlos A. Villalba-Galea**, Takeharu Kawano, Diomedes E. Logothetis

**81-PLAT 8:45 AM**  
STRUCTURAL BASIS FOR ELECTROMECHANICAL COUPLING IN A HYPERPOLARIZATION-ACTIVATED ION CHANNEL. **Michael D. Clark**, Gustavo Contreras, Rong Shen, Eduardo Perozo

**82-PLAT 9:00 AM TRAVEL AWARDEE**  
MODULATION OF KV10.1 POTASSIUM CHANNEL FUNCTION BY INTRACELLULAR HEME. **Nirakar Sahoo**, Ina Coburger, Kefan Yang, Sandip M Swain, Guido Gessner, Reinhard Kappel, Diana Imhof, Toshinori Hoshi, Roland Schoenherr, Stefan H. Heinemann

**83-PLAT 9:15 AM**  
STRUCTURAL BASIS FOR LIPID-DEPENDENT GATING OF A VOLTAGE-GATED POTASSIUM CHANNEL. **Gaya P. Yadav**, Mahesh Chandak, Liang Shi, Hui Zheng, Qiu-Xing Jiang

**84-PLAT 9:30 AM**  
MOLECULAR DETERMINANTS OF GATING POLARITY IN HYPERPOLARIZATION-ACTIVATED HCN CHANNELS. **John Cowgill**, Vadim Klenchin, Claudia P. Alvarez Baron, Debanjan Tewari, Baron Chanda

**85-PLAT 9:45 AM**  
MOLECULAR SIMULATIONS OF ION PERMEATION, GATING AND SELECTIVITY IN  $K^+$  CHANNELS. **Wojciech Kopec**, Bert L. de Groot

**86-PLAT 10:00 AM**  
VOLTAGE-SENSING RESIDUES IN THE VOLTAGE SENSOR OF THE BK CHANNEL. **Willy R. Carrasquel-Ursulaez**, Ignacio Segura, Yenisleidy Lorenzo, Dario Basaez, Ramon Latorre

## Platform Protein Structure and Conformation I

**8:15 AM - 10:15 AM, ROOM 307/308**

**Co-Chairs**  
*Steven Whitten, Texas State University*  
*Vatsal Purohit, Purdue University*

**87-PLAT 8:15 AM**  
CONFORMATIONAL BIAS IN UNFOLDED PROTEINS STUDIED BY SEQUENCE REVERSAL. **Steven T. Whitten**, Lance R. English

**88-PLAT 8:30 AM TRAVEL AWARDEE**  
TIME-RESOLVED CRYSTALLOGRAPHY MEASUREMENTS ELUCIDATING THE MECHANISM OF BACTERIAL HMG-COA REDUCTASE. **Vatsal Purohit**, Calvin Steussy, Tim Schmidt, Chandra J. Critchelow, Tony Rosales, Cynthia Stauffacher, Paul Helquist, Olaf Weist

**89-PLAT 8:45 AM**  
UNDERSTANDING THE MOLECULAR UNDERPINNINGS OF COLLAGEN-PROTEIN INTERACTIONS IN HEALTHY AND PATHOLOGICAL STATES. **Cody L. Hoop**, Jie Zhu, Allysa Kemraj, David A. Case, Jean Baum

**90-PLAT 9:00 AM TRAVEL AWARDEE**  
STRUCTURAL INSIGHTS INTO MDN1, AN ~540 KDA AAA PROTEIN REQUIRED FOR RIBOSOME BIOGENESIS. **Zhen Chen**, Hiroshi Suzuki, Yuki Kobayashi, Ashley C. Wang, Frank DiMaio, Shigehiro A. Kawashima, Thomas Walz, Tarun M. Kapoor

**9:15 AM Flash talks**

**91-PLAT 9:30 AM TRAVEL AWARDEE**  
DECIPHERING THE MECHANISM OF FORCE DISSEMINATION THROUGH TIP-LINKS IN HEARING. **Jagadish P. Hazra**, Nisha Arora, Sabyasachi Rakshit

**92-PLAT 9:45 AM**  
STRUCTURE DETERMINATION OF ACTIVE FULL LENGTH HUMAN TASPASE1: TOWARDS NOVEL ANTI-CANCER THERAPEUTICS. **Jose M. Garcia, Nirupa Nagaratnam**, Rebecca Jernigan, Gihan Ketawala, Silvia Delker, Thomas Edwards, Derek Mendez, Chufeng Li, Nadia Zatsepin, Raimund Fromme, Liang Tong, Joel Schneider, James Hsieh, Andrew Flint, Petra Fromme

**93-PLAT 10:00 AM**  
ISOTOPICALLY EDITED VIBRATIONAL SPECTRA AND DYNAMICS FOR THREE-STRAND B-SHEET PEPTIDES. DFT SPECTRAL AND MD DYNAMICS SIMULATIONS. **Timothy A. Keiderling**, Heng Chi, Dan McElheny, David Scheerer, Mohammad Shahid Islam, Karin Hauser

## Platform Cell Mechanics, Mechanosensing, and Motility

**8:15 AM - 10:15 AM, ROOM 309/310**

**Co-Chairs**  
*Ritvik Vasan, University of California, San Diego*  
*Aurelia Honerkamp-Smith, Lehigh University*

**94-PLAT 8:15 AM**  
MICROTUBULE FUNCTION IN THE MECHANOSENSITIVE REGULATION OF CELL MIGRATION. Shailaja Seetharaman, Bertille Bance, **Sandrine Etienne-Manneville**

**95-PLAT 8:30 AM**  
CELL MIGRATION ON COMPLIANT SUBSTRATES REQUIRES ACTIN POLYMERIZATION BY THE ARP2/3 COMPLEX. **Devin B. Mair**, Matthew Perrone, Jin Zhu, Ceylin Elmasli, Seth H. Weinberg, Rong Li

**96-PLAT 8:45 AM**  
NUMERICAL INVESTIGATION OF LEUKOCYTE ROLLING, ADHESION AND BOND FORMATION ON SURFACE COATED WITH VARYING P-SELECTIN DENSITY. **Grishma S. Prabhukhot**, Rohan Banton, Charles D. Eggleton

**97-PLAT 9:00 AM**  
INFERRING CELL COLONY FORCES ACROSS TIME FROM TIGHT JUNCTION INTERSECTIONS IN HUMAN INDUCED PLURIPOTENT STEM CELLS. **Ritvik Vasan**, C David Williams, Mary M. Malekar, Padmini Rangamani

**9:15 AM Flash talks**

**98-PLAT 9:30 AM**  
RELATIONSHIP BETWEEN CELL FORCE, SHAPE, AND MOTION IN COLLECTIVE CELL MIGRATION. Aashrith Saraswathibhatla, **Jacob Notbohm**

**99-PLAT 9:45 AM TRAVEL AWARDEE**  
MECHANICS OF CELL SHEET FOLDING - EMBRYONIC INVERSION IN THE GREEN ALGAE VOLVOX. **Stephanie S.M.H. Hoehn**, Pierre A. Haas, Aurelia R. Honerkamp-Smith, Raymond E. Goldstein

**100-PLAT 10:00 AM**  
NUCLEAR RUPTURE AT SITES OF HIGH CURVATURE COMPROMISES RETENTION OF DNA REPAIR FACTORS. **Irena L. Ivanovska**, Yuntao Xia, Kuangzheng Zhu, Lucas Smith, Cory Alvey, Jerome Irianto, Charlotte Pfeifer, Jiazhen Ji, Dazhen Liu, Sangkyun Cho, Rachel Bennett, Andrea Liu, Roger A. Greenberg, Dennis E. Discher

## Platform Membrane Physical Chemistry I

8:15 AM - 10:15 AM, Room 314/315

### Co-Chairs

*Shelli Frey, Gettysburg College*

*Wade Zeno, University of Texas at Austin*

### 101-PLAT 8:15 AM

TUNING LENGTH SCALES OF A MODULATED PHASE IN MODEL AND CELL-DERIVED MEMBRANES. **Caitlin E. Cornell**, Allison D. Skinkle, Shushan He, Ilya Levental, Kandice R. Levental, Sarah L. Keller

### 102-PLAT 8:30 AM

TWISTING OF A MECHANOSENSITIVE MOLECULAR PROBE DETECTS LIPID ORDER IN MEMBRANES. **Giuseppe Licari**, Emad Tajkhorshid

### 103-PLAT 8:45 AM

HOMEOVISCIOUS ADAPTATION IN MAMMALIAN CELL MEMBRANES IN RESPONSE TO DIETARY LIPID PERTURBATIONS. **Kandice R. Levental**, Ilya Levental

### 104-PLAT 9:00 AM

LIQUID-CRYSTAL PHASE TRANSITIONS IN CELLULAR LIPID DROPLETS. **Julia Mahamid**

### 105-PLAT 9:15 AM

### TRAVEL AWARDEE

CHARACTERISTIC CONFORMATIONS OF PSEUDOMONAS QUINOLONE SIGNAL INTERACTING WITH BACTERIAL OUTER MEMBRANE. **Ao Li**, Jeffrey W. Schertzer, Xin Yong

### 106-PLAT 9:30 AM

MEASURING THE INTERACTION OF POLYGLUTAMINE PEPTIDES WITH LIPID MEMBRANES. Warren A. Campbell, Maxmore Chaibva, Xiang Gao, Ziliang Zhao, Justin Legleiter, **Shelli L. Frey**

### 107-PLAT 9:45 AM

A LINK BETWEEN PEPTIDE LIPIDATION AND MEMBRANE CURVATURE MODULUS. **John M. Sanderson**, Hannah M. Britt, Jackie A. Mosely

### 108-PLAT 10:00 AM

INTRINSICALLY DISORDERED PROTEINS SENSE MEMBRANE CURVATURE. **Wade F. Zeno**, Upayan Baul, Wilton T. Snead, Andre C.M. DeGroot, Liping Wang, Eileen M. Lafer, Dave Thirumalai, Jeanne C. Stachowiak

## Platform DNA Structure, Dynamics, and Function

8:15 AM - 10:15 AM, Room 316/317

### Co-Chairs

*Jieqiong Lou, University of Melbourne, Australia*

*Michele DiPierro, Rice University*

### 109-PLAT 8:15 AM

MSH4-MSH5 INDUCED DNA CONFORMATIONAL CHANGES PROVIDE INSIGHTS INTO ITS ROLE IN MEIOTIC RECOMBINATION. **Sudipta Lahiri**, Bharat Lakhani, Yan Li, Manju M. Hingorani, David L. Beveridge, Ishita Mukerji

### 110-PLAT 8:30 AM

FLUORESCENCE FLUCTUATION SPECTROSCOPY REVEALS DOUBLE STRAND BREAK RECRUITMENT OF 53BP1 DIMERS AND ASSEMBLY INTO HIGHER-ORDER OLIGOMERS AT THE DNA REPAIR LOCUS. **Jieqiong Lou**, Jee Khor, David Priest, Elizabeth Hinde

### 111-PLAT 8:45 AM

REPLICATION ORIGINS EXPOSED ON THE SURFACE OF A REPLICATION DOMAIN BY TRANSCRIPTION ELONGATION ARE PREFERENTIALLY FIRED FOR DNA REPLICATION. **Yongzheng Li**

### 112-PLAT 9:00 AM

ELUCIDATING COMPLIMENTARY BASE SPECIFICITY OF THYMINE DNA GLYCOSYLASE VIA POTENTIAL OF MEAN FORCE MOLECULAR DYNAMICS SIMULATIONS. **Ozge Yoluk**, Alexander C. Drohat, Alexander D. MacKerell

### 113-PLAT 9:15 AM

RNAP AS A MOVING BARRIER TO LOOP EXTRUSION.

**Aafke A. van den Berg**, Gordana Wutz, Roman R. Stocsits, Hugo Brandao, Georg Busslinger, Jan-Michael Peters, Leonid Mirny

### 114-PLAT 9:30 AM

SINGLE MOLECULE IMAGING OF CTCF AND COHESIN. DISSECTING THE DYNAMIC INTERPLAY BETWEEN CHROMATIN LOOP REGULATORS.

**Laura Caccianini**, Elphege P. Nora, Johannes Nuebler, Agnes LesSaux, Edith Heard, Leonid Mirny, Benoit Bruneau, Maxime Dahan

### 115-PLAT 9:45 AM

THE THREE-DIMENSIONAL ARCHITECTURE OF THE HUMAN GENOME: IT'S NUCLEAR PHYSICS! **Michele Di Pierro**

### 116-PLAT 10:00 AM

MEASURING THE PHYSICAL PROPERTIES OF DNA ON A GENOMIC SCALE.

**Aakash Basu**, Tunc Kayikcioglu, Thuy Ngo, Quicen Zhang, Basilio Cieza Huaman, Miroslav Hejna, Tomas Rube, Jun Song, Taekjip Ha

## CID Committee Meeting

8:30 AM - 10:30 AM, Room 333

## Career Development Center Workshop Networking for Nerds: How to Create Your Dream Career

9:00 AM - 10:00 AM, Exhibit Hall A

Wanna land your dream job? Get ready to network! Most jobs and other game-changing career opportunities are not advertised, and even if they are, there is usually a short-list of candidates already in mind. So how do you find out about and access the 90% of jobs and other opportunities that are "hidden"? In this workshop, we will focus on proven networking strategies and tactics to identify new opportunities, locate decision-makers within organizations, solidify your reputation and brand in the minds of those who hire, and gain access to hidden jobs and game-changing opportunities. Discover how networking and self-promotion can enable you to land or even create your dream job from scratch!

## Exhibitor Presentation

### Mizar Imaging

9:30 AM - 11:00 AM, Room 303

### TILT – HIGH-RESOLUTION LIGHT SHEET IMAGING

Mizar Imaging is proud to introduce the Tilt, the first high-resolution light sheet imaging system that is a simple add-on to most inverted microscopes. When installed on your microscope, the Tilt does not interfere with any existing modalities so you can easily add the Tilt to an inverted microscope, including a TIRF or Spinning Disc confocal microscope system, to add the ability to do long term live cell imaging with the lowest possible photobleaching and phototoxicity.

The Tilt is well-suited to image both larger organisms, such as *C. elegans*, *Drosophila*, *Danio rerio* and other similar model organisms as well as imaging high-resolution intracellular dynamics inside single cells. This remarkable diversity is realized because the Tilt can work with any objective on your microscope – from 20x through 150x. There is no limit to what you can do with the Tilt.

The key benefit of light sheet imaging is significantly reducing the photobleaching and phototoxicity of your sample. The Tilt is no exception.

When imaging with the Tilt, cells can be kept alive for hours and even days. This is aided by an optional incubation chamber for the Tilt, which allows for precise control of temperature (heating and cooling available), CO<sub>2</sub> and humidity.

The Tilt light-sheet imaging system is the ideal solution for long-term live-cell imaging of a wide array of samples with the added benefit of being a simple, low cost add-on to an existing inverted microscope.

**Speaker**

Chris Baumann, Sales and Product Manager, Mizar Imaging

**Exhibits**

10:00 AM - 5:00 PM, EXHIBIT HALL

**Coffee Break**

10:15 AM - 11:00 AM, EXHIBIT HALL

**Exhibitor Presentation**

**HORIBA Scientific**

10:30 AM - 12:00 PM, ROOM 301

**UNIQUE FLUORESCENCE MOLECULAR FINGERPRINTING IN ACTION: WHAT CAN CCD DETECTION DO FOR YOU?**

Fluorescence is a standard tool for the study of changes on the molecular level, but it is now also becoming an emerging technique for molecular fingerprinting and spectral kinetics. The Duetta™ 2-in-1 fluorescence and absorbance spectrometer from HORIBA Scientific is a unique and powerful benchtop instrument that provides so much more than standard PMT-based scanning benchtop fluorometers. CCD detection technology, and incorporated absorbance measurements, provide more data, with more accuracy, and in less time. In this presentation, HORIBA Scientific will demonstrate two of many methods for which Duetta is uniquely equipped to measure fluorescent samples. First, Duetta can measure protein binding and FRET over the full emission range (250-1100 nm), demonstrating the effects of both donor and acceptor spectra over time with true spectral kinetics. In addition, the method of measuring Absorbance-Transmittance Excitation Emission Matrices (A-TEEMs) gives information about the molecular fingerprint of a mixture for use in component analysis of mixtures. The use of the absorbance detector enables inner-filter effect correction, which can easily be overlooked using standard fluorometers.

Full Spectral Kinetics and FRET

Because Duetta uses a CCD detector for emission detection, kinetics over the entire emission spectrum (250-1100 nm) instead of only at one or two different emission wavelengths. We will demonstrate the binding of a small molecule, 1,8-anilino-naphthalene sulfonate (ANS), to bovine serum albumin protein (BSA) that shows both the decrease in donor emission (BSA) and the increase of the acceptor emission (ANS) as an example of FRET kinetics. The binding of ANS to hydrophobic pockets in BSA is a known phenomenon, but is typically only measured as a kinetics experiment at the ANS emission wavelength of 475 nm. Historically, concentration-dependent experiments where emission spectra are collected over a range of ANS or protein concentrations, or both, are used to show binding kinetics or FRET as well. Duetta easily measures both the donor BSA (tryptophan) emission as well as the acceptor ANS emission during binding and shows that energy transfer occurs over the full spectral range. This is a unique capability for a benchtop fluorometer in the field of biological fluorescence.

A-TEEM Molecular Fingerprinting

The use of fluorescence for molecular fingerprinting is a relatively new concept and just as exciting if not more so than spectral kinetics. In most applications, changes in fluorescence intensity, or wavelength, or both, correlate to changes in physical properties of a sample. A-TEEM is a method of measuring the full fluorescence contour plot of a sample at all

excitation wavelengths and all emission wavelengths. The matrix is then corrected for effects of high concentration (inner-filter effect) using the absorbance spectrum. The resulting A-TEEM gives an accurate profile of all emitting species and in turn, gives more information about the content of the sample in question, thus making it a better data set for chemometric and quantitative analysis. Solutions of tryptophan and 2-aminopurine, a fluorescent derivative of adenine, are used to demonstrate 1.) Effects of high absorbance/concentration on the fluorescence profile; and 2.) The A-TEEM profile for detection of multiple components.

**Speaker**

Karen Gall, Applications Scientist, HORIBA Scientific

**Career Development Center Workshop  
Green Cards for Scientific Researchers: How to  
Win Your EB-1A/NIW Case!  
with Getson & Schatz, PC**

10:30 AM - 11:30 AM, EXHIBIT HALL A

Brian Getson is a leading U.S. immigration lawyer who represents scientific researchers in applying for green cards in the EB-1A, EB-1B and NIW categories. Learn about the U.S. immigration process and how to maximize your chances of immigration success during this workshop. He will answer questions and provide free legal consultations after the presentation and throughout BPS 2019 in the Career Development Center.

**Symposium**

**Proteins: Exploring Sequence Space via  
Computation and Experiment**

10:45 AM - 12:45 PM, BALLROOM I

**Chair**

*Polly Fordyce, Stanford University*

**117-SYMP 10:45 AM**

ENGINEERING AND EVOLUTION OF ALLOSTERIC COMMUNICATION.  
**Kimberly A. Reynolds**

**No Abstract 11:15 AM**

HOW DO PROTEINS EVOLVE. **Daniel Tawfik**

**118-SYMP 11:45 AM**

HYPERVARIABLE PROTEINS IN MICROBES. **Eugene Koonin**

**119-SYMP 12:15 PM**

BRINGING ENZYMOLOGY INTO THE GENOMIC ERA: DEVELOPING AND DEPLOYING NEW TOOLS TO QUANTITATIVELY MAP FUNCTIONAL CONNECTIONS THROUGHOUT AN ENZYME. **Craig Markin, Daniel Mokhtari, Fanny Sunden, Dan Herschlag, Polly M. Fordyce**

**Symposium**

**Glutamate Receptors**

10:45 AM - 12:45 PM, BALLROOM II

**Chair**

*Maria Kurnikova, Carnegie Mellon University*

**120-SYMP 10:45 AM**

OPTICAL CONTROL AND REPORT OF AMPA RECEPTOR ACTIVATION.  
**Andrew Plested**

**No Abstract 11:15 AM**

ALLOSTERIC DYNAMICS AND DRUGGABILITY OF AMPA RECEPTORS.  
**Ivet Bahar**

**121-SYMP 11:45 AM**

THE EUKARYOTIC SPECIFIC M4 SEGMENTS ARE ALLOSTERIC CONDUITS FOR NMDA RECEPTOR SIGNALING. **Lonnie Wollmuth**

**122-SYMP** **12:15 PM**  
AFTER THE STRUCTURE COMES THE DYNAMICS: MOLECULAR MODELING OF GLUTAMATE RECEPTORS REVEALS LONG-RANGE ALLOSTERIC COUPLING BETWEEN LIGAND BINDING SITE AND CHANNEL GATE.  
**Maria G. Kurnikova**

## Platform Optical Microscopy and Superresolution Imaging I

**10:45 AM - 12:45 PM, BALLROOM III**

### Co-Chairs

*Andreas Gahlmann, University of Virginia*  
*Rachel Cinco, University of California, Irvine*

**123-PLAT** **10:45 AM**  
DNA INTERCALATORS TILT, WOBBLE AND TWIRL; ELUCIDATING THE STRUCTURE OF S-DNA. **Adam Backer**, Andreas S. Biebricher, Graeme A. King, Gijis J. L. Wuite, Iddo Heller, Erwin J. G. Peterman

**124-PLAT** **11:00 AM**  
NUCLEAR DEFORMATION WITH COMBINED AFM AND 3D MULTI-COLOR LIVE-CELL LINE BESSEL SHEET IMAGING. **Chad Hobson**, Evan F. Nelsen, Joe Hsiao, Andrew Stephens, E. Timothy O'Brien, Michael R. Falvo, Richard Superfine

**125-PLAT** **11:15 AM**  
MULTI-MODAL FLUORESCENCE CHARACTERIZATION OF CELL CYCLE PROGRESSION AND CYTOKINESIS. **Rachel Cinco**, Per Niklas Hedde, Leonel Malacrida, Michelle A. Digman, Enrico Gratton

**126-PLAT** **11:30 AM**  
ELIMINATING BACKGROUND NOISE FOR STED SUPER-RESOLUTION MICROSCOPY USING POLARIZATION SWITCHING. **Jong-Chan Lee**, Ye Ma, Kyu Young Han, Taekjip Ha

**127-PLAT** **11:45 AM**  
THE NUCLEAR PORE COMPLEX AS INTRINSIC REPORTER FOR ISOTROPIC EXPANSION MICROSCOPY. **Paolo Bianchini**, Luca Pesce, Marco Cozzolino, Luca Lanzano, Alberto Diaspro

**128-PLAT** **12:00 PM**  
MULTICOLOR SINGLE-PARTICLE RECONSTRUCTION OF PROTEIN COMPLEXES. **Christian Sieben**, Niccolò Banterle, Kyle M. Douglass, Pierre Gönczy, Suliana Manley

**129-PLAT** **12:15 PM**  
INTRACELLULAR ANALYSIS OF INDIVIDUAL CELLS AND ORGANELLES FOR BOTH OXYGEN CONCENTRATION/CONSUMPTION AND NADH FREE/BOUND REDOX STATE USING FLUORESCENCE LIFETIME IMAGING.  
**Rozhin Penjweini**, Alessio Andreoni, Anahit Gevorgyan, Dan L. Sackett, Jay R. Knutson

**130-PLAT** **12:30 PM**  
3D IMAGING OF SINGLE CELLS IN BACTERIAL BIOFILMS USING LATTICE LIGHT-SHEET MICROSCOPY. Mingxing Zhang, Ji Zhang, Jie Wang, Alecia M. Achimovich, Arslan A. Aziz, Jacqueline Corbitt, Scott T. Acton, **Andreas Gahlmann**

## Platform Membrane Proteins I

**10:45 AM - 12:45 PM, BALLROOM IV**

### Co-Chairs

*Ana-Nicoleta Bondar, Freie University, Berlin*  
*Anne Hinderliter, University of Minnesota, Duluth*

**131-PLAT** **10:45 AM**  
INVESTIGATING HOW MEMBRANE ELASTICITY IMPACTS MEMBRANE PROTEIN FOLDING. **Miranda L. Jacobs**, Neha P. Kamat

**132-PLAT** **11:00 AM**  
AN INNER ACTIVATION GATE CONTROLS TMEM16F PHOSPHOLIPIDS SCRAMBLING. **Trieu Le**, ZhiGuang Jia, Yang Zhang, Son C. Le, Jianhan Chen, Huanghe Yang

**133-PLAT** **11:15 AM**  
PREDICTION OF THE CLOSED CONFORMATION AND INSIGHTS INTO THE MECHANISM OF THE MEMBRANE ENZYME LPXR. **Graham M. Saunders**, Hannah E. Bruce Macdonald, Jonathan W. Essex, Syma Khalid

**134-PLAT** **11:30 AM**  
STUDYING CONFORMATION OF THE VOLTAGE-SENSOR DOMAIN (VSD) OF THE HUMAN KCNQ1 POTASSIUM ION CHANNEL IN PROTEOLIPOSOMES USING EPR SPECTROSCOPY. **Indra D. Sahu**, Gunjan Dixit, Warren Reynolds, Ben Harding, Colleen Jaycox, Fathima Dilhani Mohammed Faleel, Robert M. McCarrick, Charles R. Sanders, Gary A. Lorigan

**135-PLAT** **11:45 AM**  
CRYO-EM STRUCTURES REVEAL BILAYER REMODELING DURING CA<sup>2+</sup> ACTIVATION OF A TMEM16 SCRAMBLASE. **Maria Falzone**, Jan Rheinberger, Byoung-Cheol Lee, Thasin Peyear, Linda Sasset, Ashleigh Raczkowski, Edward Eng, Annarita Di Lorenzo, Olaf Anderson, Crina Nimigean, Alessio Accardi

**136-PLAT** **12:00 PM**  
UNCOVERING EUKARYOTIC GLYCOSYLATION MECHANISM BY CRYO-EM.  
**Lin Bai**, Huilin Li

**137-PLAT** **12:15 PM**  
FOLDING MECHANISM OF B-HELICAL PASSENGER DOMAINS FROM A BACTERIAL AUTOTRANSPORTER. Anthony Hazel, **Yui Tik Pang**, James C. Gumbart

**138-PLAT** **12:30 PM**  
MONITORING ROTATION DYNAMICS OF MEMBRANE PROTEIN IN LIVE CELLS. **Youngchan Park**, Sangwon Shin, Hyeonggyu Jin, Jiseong Park, Yeonki Hong, Hyunjoon Song, Daeha Seo

## Platform Intrinsically Disordered Proteins (IDP) and Aggregates I

**10:45 AM - 12:45 PM, ROOM 307/308**

### Co-Chairs

*Francesco Aprile, University of Cambridge, United Kingdom*  
*Cecily Campbell-Bezat, D.E. Shaw Research*

**139-PLAT** **10:45 AM** **TRAVEL AWARDEE**  
PROXIMITY RULERS IN AMYLOIDS AND LIQUID DROPLETS OF INTRINSICALLY DISORDERED PROTEINS. **Anupa Majumdar**, Debapriya Das, Priyanka Dogra, Shiny Maity, Samrat Mukhopadhyay

**140-PLAT** **11:00 AM**  
ATOMIC LEVEL CHARACTERIZATION OF AN ENSEMBLE OF AMYLOID BETA OLIGOMERS. **Cecily K. Campbell-Bezat**, Albert C. Pan, Daniel Jacobson, Shivam Verma, David E. Shaw

**141-PLAT** **11:15 AM**  
ORDERED AND DISORDERED SEGMENTS OF AMYLOID BETA DRIVE SEQUENTIAL STEPS OF THE TOXIC PATHWAY. Barun K. Maity, Anand Kant Das, Simli Dey, Ullhas Kaarathi Moorthi, Amandeep Kaur, Dayana Surendran, Rucha Pandit, Mamata Kallianpur, Bappaditya Chandra, Murlidharan Chandrakesan, Senthil Arumugam, **Sudipta Maiti**

**142-PLAT** **11:30 AM** **TRAVEL AWARDEE**  
UNDERSTANDING THE MOLECULAR PARAMETERS DETERMINING THE PATHOLOGICAL PROPERTIES OF AMYLOID FIBRILS. **Harish Kumar**, Jayant B. Udgaonkar

**11:45 AM** **Flash talks**



**143-PLAT 12:00 PM**  
 REDOX KINETICS OF THE AMYLOID-BETA-COPPER COMPLEX AND ITS BIOLOGICAL IMPLICATIONS. **Paul Girvan**, Xiangyu Teng, Nicholas J. Brooks, Geoffrey S. Baldwin, Liming Ying

**144-PLAT 12:15 PM**  
 MULTIPLE-PHOSPHORYLATION TO IDR IN THE CHROMATIN REMODELER FACT SHOWS AN 'ULTRASENSITIVE' RESPONSE IN ITS NUCLEOSOME BINDING. **Shin-ichi Tate**

**145-PLAT 12:30 PM**  
 TARGETING THE FORMATION OF AMYLOID OLIGOMERS USING RATIONALLY DESIGNED ANTIBODIES. **Francesco A. Aprile**, Pietro Sormanni, Michele Perni, Paolo Arosio, Sara Linse, Tuomas P. Knowles, Christopher M. Dobson, Michele Vendruscolo

## Platform Cardiac Muscle Mechanics, Structure, and Regulation I

10:45 AM - 12:45 PM, ROOM 309/310

### Co-Chairs

*Jesus Ovejero, King's College London, United Kingdom*  
*Vitold Galkin, Eastern Virginia Medical School*

**146-PLAT 10:45 AM**  
 ADVANCED MORPHO-FUNCTIONAL ANALYSIS ON VENTRICULAR AND ATRIAL TISSUE REVEALS CROSS-BRIDGE KINETICS ALTERATIONS AND SARCOMERE ENERGETIC IMPAIRMENT IN HCM PATIENTS. **Giulia Vitale**, Erica Lazzeri, Irene Costantini, Francesco Giardini, Giacomo Mazzamuto, Claudia Crocini, Nicoletta Piroddi, Beatrice Scellini, Manuel J Pioner, Cecilia Ferrantini, Chiara Tesi, Francesco S. Pavone, Leonardo Sacconi, Corrado Poggesi

**147-PLAT 11:00 AM**  
 TROPOMYOSIN CABLE FORMATION AND ITS INFLUENCE ON THE STRUCTURAL DYNAMICS OF TROPOMYOSIN. Farooq A. Kiani, William Lehman, Stefan Fischer, **Michael J. Rynkiewicz**

**148-PLAT 11:15 AM TRAVEL AWARDEE**  
 PROTEIN KINASE C-MEDIATED CARDIAC TROPONIN I S43/45 PHOSPHORYLATION CAUSES CONTRACTILE DYSFUNCTION IN HUMAN HEART FAILURE AND IN RODENTS. **Vani S. Ravichandran**, Tabea M. Schatz, Margaret V. Westfall

**149-PLAT 11:30 AM**  
 BETA-MYOSIN HEAVY CHAIN POST-TRANSLATIONAL MODIFICATIONS IN FAILING AND NON-FAILING HUMAN HEARTS. **Michelle S. Parvatiyar**, Rakesh K. Singh, Elizabeth A. Brundage, Bryan A. Whitson, Paul M.L. Jansen, Brandon J. Biesiadecki, J. Renato Pinto

**150-PLAT 11:45 AM**  
 A FAMILIAL DILATED CARDIOMYOPATHY MUTATION DECREASES MYOSIN GENERATED TENSION AT THE MOLECULAR LEVEL AND ALTERS MECHANOSENSING AT THE CELLULAR LEVEL. **Sarah R. Clippinger**, Paige E. Cloonan, Lina Greenberg, William Stump, Michael J. Greenberg

**151-PLAT 12:00 PM**  
 MYOCARDIAL SLICES - A NOVEL PLATFORM FOR *IN VITRO* BIOMECHANICAL STUDIES. **Fotios Pitoulis**, Samuel A. Watson, Eef Dries, Ifigeneia Bardi, Raquel Nunez-Toldra, Filippo Perbellini, Cesare M. Terracciano

**152-PLAT 12:15 PM**  
 LEVERAGING NATURAL CARDIOMYOCYTE VARIABILITY TO DISCOVER NOVEL GENES IN CANONICAL SIGNALING PATHWAYS. **Jeffery A. Clark**, Jonathan D. Weiss, Stuart G. Campbell

**153-PLAT 12:30 PM**  
 RECRUITMENT FROM MYOSIN OFF STATE STEEPENS ESPVR IN FINITE ELEMENT MODEL OF LEFT VENTRICLE. **Charles K. Mann**, Zhanqui Liu, Xiaoyan Zhang, Kenneth Campbell, Jonathan Wenk

## Platform Excitation-Contraction Coupling/Cardiac and Skeletal Muscle Electrophysiology I

10:45 AM - 12:45 PM, ROOM 314/315

### Co-Chairs

*Stephen Cannon, University of California, Los Angeles*  
*Guiling Zhao, University of Maryland School of Medicine*

**154-PLAT 10:45 AM**  
 OLIGOMERIZATION OF MICROPEPTIDES THAT REGULATE SERCA. **Deo R. Singh**, Ellen Cho, Michael Dalton, Marsha Pribadi, Catherine A. Makarewich, Eric N. Olson, Seth L. Robia

**155-PLAT 11:00 AM**  
 THE EFFECT OF THE SK CHANNEL INHIBITOR ICAGEN IN INTACT ATRIA AND ATRIAL CARDIOMYOCYTES. **Sara Dobi**, Godfrey L. Smith

**156-PLAT 11:15 AM**  
 THE MECHANISM OF CARDIOVASCULAR PATHOPHYSIOLOGY IN CANTU SYNDROME AND RESPONSE TO GLIBENCLAMIDE IN NOVEL KATP CHANNEL MUTANT MOUSE MODELS. **Conor McClenaghan**, Yan Huang, Carmen Halabi, Theresa Harter, Robert P. Mecham, Maria S. Remedi, Colin G. Nichols

**157-PLAT 11:30 AM**  
 OPTOGENETIC CURRENTS IN MYOFIBROBLASTS PRODUCE ACUTE CHANGES IN ELECTROPHYSIOLOGY OF COCULTURED CARDIOMYOCYTES. **Geran Kostecki**, Yu Shi, Dan Reich, Emilia Entcheva, Leslie Tung

**158-PLAT 11:45 AM**  
 BLOOD FLOW CONTROL BY ATP-SENSITIVE POTASSIUM CHANNEL IN HEART. **Guiling Zhao**, Humberto C. Joca, W. Jonathan Lederer

**159-PLAT 12:00 PM TRAVEL AWARDEE**  
 VEGF-INDUCED VASCULAR LEAK PROMOTES ATRIAL FIBRILLATION BY DISRUPTING INTERCALATED DISC NANODOMAINS. **Louisa Mezache**, Heather Struckman, Amara Greer-Short, Anna Phillips, Alex Martinson, Justin Thomas, Przemyslaw Radwanski, Thomas J. Hund, Rengasayee Veeraraghavan

**160-PLAT 12:15 PM**  
 RECOVERY FROM INTRACELLULAR ACIDOSIS TRIGGERS LOSS OF FORCE IN HYPOKALEMIC PERIODIC PARALYSIS. Wentao Mi, Fenfen Wu, Marbella Quinonez, Marino DiFranco, **Steve C. Cannon**

**161-PLAT 12:30 PM**  
 S-NITROSYLATION OF CX43 HEMICHANNELS PROMOTES CARDIAC ARRHYTHMIAS IN A DUCHENE MUSCULAR DYSTROPHY MOUSE MODEL. **Mauricio A. Lillo**, Eric Himelman, Lai-Hua Xie, Diego Fraidenaich, Jorge E. Contreras

## Platform Micro- and Nanotechnology

10:45 AM - 12:45 PM, ROOM 316/317

### Co-Chairs

*Kaipei Qiu, East China University of Science and Technology*  
*Rachael Knoblauch, University of Maryland Baltimore County*

**162-PLAT 10:45 AM**  
 POROUS ZERO-MODE WAVEGUIDES FOR PICOGRAM-LEVEL DNA SEQUENCING. Vivek S. Jadhav, David P. Hoogerheide, Jonas Korklach, **Meni Wanunu**

**163-PLAT 11:00 AM**  
 NURTURING NATURE FOR NANOTECHNOLOGY. **Michael Zwolak**

**164-PLAT 11:15 AM**  
 MEASURING THE CONFORMATION OF SINGLE STRANDED DNA USING A DNA ORIGAMI NANO-STRUCTURE. **Yuval Garini**, Efrat Roth, Arkady Bitler, Olga Girshevitz

**165-PLAT 11:30 AM**  
 NANOPORE DETECTION OF SURPRISING MOLARITY DEPENDENCE OF DNA KNOT COMPLEXITY. **Rajesh K. Sharma**, Liang Dai, Ishita Agrawal, Patrick S. Doyle, Slaven Garaj

**166-PLAT 11:45 AM**  
 NANOCARRIERS FOR MAGNETICALLY ACTUATED TARGETED DRUG DELIVERY. **Vrinda Sant**, Liping Wang, Grace Jang, Deependra Ban, Jay Seth, Sami Kazmi, Nirav R. Patel, Qingqing Yang, Joon Lee, Woraphong Janetanakit, Shanshan Wang, Brian Head, Gennadi Glinsky, Ratnesh Lal<sup>10</sup>

**167-PLAT 12:00 PM**  
 QUANTIFYING THE INFLUENCE OF NANOPARTICLE POLYDISPERSITY ON CELLULAR DELIVERED DOSE. **Stuart Johnston**, Matthew Faria, Edmund Crampin

**168-PLAT 12:15 PM**  
 REVEALING THE DYNAMICS OF SINGLE-MOLECULE REACTIONS IN A SINGLE-MOLECULE NANOREACTOR. **Kaipei Qiu**, Bo Yuan, Yi-Tao Long

**169-PLAT 12:30 PM**  
 DEVELOPMENT OF A NEW ANTIMICROBIAL PHOTOSENSITIZER FROM BROMINATED CARBON DOTS: METAL-ENHANCED PHOSPHORESCENCE AND SINGLET OXYGEN GENERATION. **Rachael Knoblauch**, Christopher D. Geddes

## Exploring Careers in Biophysics Day

**11:15 AM - 3:00 PM, ROOM 321/322/323**

This free day for Baltimore-area high school and college students at the BPS 63rd Annual Meeting kicks off with an Undergraduate Student Pizza "Breakfast" which will include a panel discussion on academic and career paths in biophysics. Come prepared to find out about the course of study that aspiring biophysicists undertake, what it means to be a biophysicist, and how biophysicists make important discoveries. Students will also receive information and advice on how to get the most out of attending the Annual Meeting. Attendees may attend any of the meeting's open sessions and activities for the full day, including the Education & Career Opportunities Fair where they can meet with representatives of, and learn about, opportunities from around the world. In addition, there will be some fun, interactive demos for students to learn about groundbreaking techniques in the field. Pre-registration was required. No onsite registration.

## Undergraduate Student Pizza "Breakfast"

**11:30 AM - 1:00 PM, ROOM 321/322/323**

This "breakfast" for undergraduate students offers a valuable networking and social opportunity to meet other students, Biophysical Society Committee members, and scientists at all career levels to discuss academic goals and questions, and to develop a biophysics career path. The Breakfast will include a panel discussion on academic and career paths in biophysics, with opportunities for questions and answers from the audience - come prepared to find out about the course of study that aspiring biophysicists undertake, what it means to be a biophysicist, and how biophysicists make important discoveries. Space for this session is limited to the first 100 attendees.

### Speakers

Elih Velázquez, Naval Medical Research Center  
 Logan Kaler, University of Maryland  
 Ashley Simpson, Bay Path University

## Exhibitor Presentation

### Leica Microsystems

**11:30 AM - 1:00 PM, ROOM 303**

#### LEICA SP8 FALCON: A NEW WAY TO GENERATE FLUORESCENCE LIFETIME IMAGES AT CONFOCAL SPEED

Functional imaging is a rapidly growing field, because understanding the function and interaction of molecules is the key to revealing the underlying biology. In this context, fluorescence lifetime imaging (FLIM) is a powerful tool, providing valuable information beyond spectral imaging. FLIM is immune to concentration artifacts and sensitive to molecular environment, but previous FLIM solutions were slow and difficult to implement, particularly for complex imaging workflows. Therefore, FLIM imaging has so far been limited to specialized laboratories and classical TCSPC has been unable to deliver the speeds needed to address most of the biological processes.

We present SP8 FALCON, the fast, intuitive and totally integrated all-Leica FLIM solution. SP8 FALCON delivers video-rate FLIM with pixel-by-pixel quantification, thanks to a unique combination of fast electronics, sensitive spectral hybrid detectors (Leica HyDs), and a novel concept for measuring time. Photon arrival times can now be recorded at count rates typical for standard confocal imaging. The system has ultra-short dead time, and powerful built-in algorithms take care of the data acquisition and analysis, while keeping accuracy and excellent data quality. This talk explains the technical implementations enabling this new level of performance and explains the new way to generate FLIM images.

SP8 FALCON with STED enables STED-FCS at high count rate and separation of multiple fluorophores spectrally overlapping with nanoscopic resolution.

SP8 DIVE (Leica multiphoton system) with spectrally tunable non-descanned detector (Leica 4Tune detector) combined with FALCON allows metabolic imaging, species separation and in vivo FLIM imaging.

The deep integration of SP8 FALCON into the Leica SP8 platform provides easy access to complex FLIM experiments, enabling fast FLIM-FRET, 3D- and 4D-imaging modes, high-content screening, and autofluorescence component separation.

## Career Development Center Workshop Demystifying the Academic Job Search I: Understanding the Search Process from the Perspective of Search Committees and Decoding Job Announcements

**12:00 PM - 1:00 PM, EXHIBIT HALL A**

What goes on inside search committees; the "black box" of the academic job search process? How are they constituted, what are their processes, and what do they look for when assessing applicants? Answers to these and other questions presented by Andrew Green, PhD a veteran of the academic job search and numerous search committees.

## Public Affairs Committee Meeting

**12:15 PM - 2:15 PM, ROOM 333**

## The World Outside the Lab Many Ways to Use Your PhD Skills

**1:00 PM - 2:30 PM, ROOM 318/319/320**

Have you ever wondered how you can apply the skills learned while working on your PhD in a career away from the bench? This panel will explore multiple career options that exist in government, industry, and

academia. Panelists with science backgrounds, now involved in a wide variety of careers, will share their personal experiences.

#### Speakers

Hermes Taylor-Weiner, 2018-2019 BPS Congressional Fellow  
Ann Marie Stanley, Drinker Biddle & Reath LLP  
Corinne Zeitler, NIH/NCI

### Education & Career Opportunities Fair

1:00 PM - 3:00 PM, EXHIBIT HALL C

This fair will provide the opportunities for candidates to meet with representatives from educational institutions as well as industry and government agencies. Students and postdoctoral candidates will be able to meet with representatives from colleges and universities with leading programs in biophysics. Attendees can connect with representatives from industry and agencies who will provide information about employment and funding opportunities at their institutions/companies. All those attending the meeting are encouraged to attend to learn about the variety of opportunities available and to talk one-on-one with representatives from participating organizations.

### Exhibitor Presentation Carl Zeiss Microscopy LLC

1:30 PM - 3:00 PM, ROOM 303

#### ZEISS ELYRA 7 WITH LATTICE SIM, A NEW PLATFORM FOR FAST AND GENTLE 3D SUPERRESOLUTION MICROSCOPY

Life sciences research often requires you to measure, quantify and understand the finest details and sub-cellular structures of the sample. Whether you are working with tissue, bacteria, organoids, neurons, living or fixed cells, ZEISS Elyra 7 takes your images beyond the diffraction limit of conventional microscopy to superresolution. Examine the fastest processes in living samples – in large fields of view, in 3D, over long time periods, and with multiple colors.

Lattice SIM enables fast imaging of 3D volumes with resolution down to 120 nm laterally and 300 nm axially. Due to higher light efficiency, the new Lattice SIM technology provides gentle superresolution imaging of living specimens at up to 255 frames per second. Using less light to illuminate the specimen means imaging longer with less bleaching of the sample. The novel Lattice SIM technology allows you to uncover new mechanistic details and quantify the finest subcellular structures in large fields of view.

ZEISS Elyra 7 can be expanded with single molecule localization microscopy (SMLM) for techniques such as PALM, dSTORM and PAINT. ZEISS Elyra 7's SMLM module delivers molecular resolution in large 3D volumes and powerful post-processing algorithms for quantification. Choose freely among labels when imaging with resolutions down to 20 nm laterally and 50 nm axially. Count molecules and come to understand, molecule-by-molecule, how individual proteins are arranged within a structural context.

ZEISS Elyra 7 is a flexible research grade live cell microscope from ZEISS. The new Apotome mode allows fast optical sectioning of 3D samples and total internal reflection microscopy provides live imaging capability for membrane and single molecule studies.

Join this workshop and learn how the newest member of the ZEISS imaging portfolio, ZEISS Elyra 7, can help your imaging experiments in completely new ways.

#### Speaker

Renée Dalrymple, Sales Development Manager, Carl Zeiss Microscopy LLC

### Snack Break

1:45 PM - 3:00 PM, EXHIBIT HALL

### Poster Presentations and Late Posters

1:45 PM - 3:45 PM, EXHIBIT HALL

### Teaching Science Like We Do Science

2:00 PM - 3:30 PM, ROOM 321/322/323

How do we know if our teaching is effective? This interactive, hands-on workshop focuses on practice-applicable, easy-to-use strategies and tools that educators at any level of biophysical science education can use to assess what their students take away from their teaching, and where they might make changes to their educational methods. Moderating and participating educators will have a chance to share their first-hand experiences in round table discussions and collaborate, regardless of the extent of previous knowledge, to construct their personal assessment toolbox. Participants will design an individualized action plan for aligning learning goals with suitable assessment techniques and instructional methods. We will use the means of learning evaluation to bringing biophysics education to life in the lab, the classroom and the community.

#### Speakers

Gundula Bosch, Johns Hopkins University  
Pedro Muino, St. Francis University

### Career Development Center Workshop The Industry Interview: What you need to do before, during, and after to get the job

2:30 PM - 3:30 PM, EXHIBIT HALL A

When does the interview begin? Much sooner than you think: it starts from the first point of contact you have with someone from the organization. And when does it end? Only when the offer is extended and accepted. Learn how to convert conversations and networking into interviews and interviews into job offers in this special presentation focusing on industry positions. Discover what you need to know and do throughout the interview process to demonstrate your value to the company and land the job. We will discuss common mistakes that job seekers make, and specific ways in which you can give yourself a competitive edge in the interview. Both academic and non-academic interviewing tactics will be addressed.

### Brexit & Science Consequences for Research Funding and Immigration Flows

2:30 PM - 4:00 PM, ROOM 327/328/329

In 2016, the United Kingdom surprised the world by voting to leave the European Union. But what does the Brexit referendum mean for the UK and EU scientific communities? Britain is scheduled to leave the European Union on March 29, 2019, and we expect this session will be extremely timely, as the contours of a Brexit Deal should be established at this point. We will host a panel of experts and on-the-ground researchers to discuss what Brexit means for the UK and EU science work force, research funding and international scientific exchange.

#### Speakers

Andrew Price, Head of Science and Innovation Network for the USA; Regional Manager, Americas, British Embassy, Washington DC  
Tony Watts, President, European Biophysical Societies' Association; Biochemistry Department, University of Oxford  
Matthias Wilmanns, European Molecular Biology Laboratory, Head of the Unit, Hamburg, Germany

### Early Careers Committee Meeting

3:30 PM - 5:00 PM, ROOM 333

## Exhibitor Presentation Wyatt Technology Corporation

3:30 PM - 5:00 PM, ROOM 303

### FROM PROTEINS TO EXOSOMES: TOOLS FOR ESSENTIAL BIOPHYSICAL QC, CHARACTERIZATION, AND ISOLATION

In this seminar we will present solutions for some of the key biophysical characterization challenges encountered in the course of biophysical research. The tools to overcome these challenges are based on:

- multi-angle light scattering (MALS) for determining absolute molar mass and size of macromolecules and nanoparticles from small peptides to vesicles;
- dynamic light scattering (DLS) for determining the hydrodynamic radii of particles from 0.2 to 5000 nm;
- asymmetric-flow field-flow fractionation (AF4) for separation and characterization of particle distributions from 1 nm to 10  $\mu$ m
- composition-gradient MALS (CG-MALS) for label-free analysis of biomolecular interactions to determine binding affinity and absolute stoichiometry in solution

The combination of these measurement techniques with each other and with other methods of automated sample preparation and delivery creates a powerful toolkit that is useful across many fields of experimental bioscience. The presentation will include applications to:

- quality control of proteins and other biomacromolecules to ensure reliable, repeatable studies of structure and interactions
- rapid optimization of crystallization conditions
- analysis of oligomeric state, protein-protein and protein-nucleic acid complexes
- understanding self-assembly, aggregation and fibril formation
- characterization of vesicle size and content, and high-resolution size-based isolation of exosomes and exomeres.

In addition to describing the principles and instrumentation of SEC-MALS, AF4-MALS, CG-MALS and DLS, we will perform a live demo of protein and buffer characterization by automated DLS in microwell plates.

#### Speaker

Eric Seymour, Senior Application Scientist, Wyatt Technology Corporation

## Career Development Center Workshop Nailing the Job Talk, or Erudition Ain't Enough

4:00 PM - 5:00 PM, EXHIBIT HALL A

Congratulations! You've made it to the finals and are suddenly facing the most important presentation of your life. Answers to your questions about how to structure your presentation, how much detail to include, what they are really looking for, etc.

## Symposium Integrative Modeling from Macromolecules to Cell

4:00 PM - 6:00 PM, BALLROOM I

#### Chair

Zaida Ann Luthey-Schulten, University of Illinois at Urbana-Champaign

#### 170-SYMP 4:00 PM

MAPPING THE SPATIAL ORGANIZATION OF GENOMES THROUGH DATA INTEGRATION. **Frank Alber**, Polles Guido, Hua Nan, Yildirim Asli, Zhan Yuxiang

#### 171-SYMP 4:30 PM

MULTISCALE MODELING OF BIOMOLECULAR PROCESSES BY COMBINING EXPERIMENT AND SIMULATION. **Cecilia Clementi**

#### 172-SYMP 5:00 PM

DEALING WITH DYNAMICS AND DISORDER BY COMBINING SIMULATION AND EXPERIMENT. **Gerhard Hummer**

#### 173-SYMP 5:30 PM

TOWARDS SIMULATING BACTERIAL AND EUKARYOTIC CELLS: INTEGRATION OF EXPERIMENT AND THEORY. **Zaida Ann Luthey-Schulten**

## Symposium Cytoskeleton

4:00 PM - 6:00 PM, BALLROOM II

#### Chair

Sabine Petry, Princeton University

#### 174-SYMP 4:00 PM

PHASE SEPARATION OF TPX2 ENHANCES AND SPATIALLY BIASES MICROTUBULE NUCLEATION. **Sabine Petry**

#### 175-SYMP 4:30 PM

REGULATION OF BIDIRECTIONAL MOTILITY OF KINESIN-5 MOTORS. **Leah Gheber**

#### 176-SYMP 5:00 PM

REGULATION OF MYOSIN MOTORS - FROM SINGLE MOLECULES TO FUNCTIONAL ENSEMBLES. **Claudia Veigel**

#### 177-SYMP 5:30 PM

THE MYOSIN MESA AND HYPERTROPHIC CARDIOMYOPATHY: MUTATIONS TO MECHANISMS TO THERAPIES. **James Spudich**

## Platform Ligand-gated Channels

4:00 PM - 6:00 PM, BALLROOM III

#### Co-Chairs

Sonja Minniberger, Leibniz-Forschungsinstitut für Molekulare Pharmakologie, Germany  
Mufeng Li, NINDS, NIH

#### 178-PLAT 4:00 PM

HIGH THROUGHPUT VALIDATION OF NON CANONICAL AMINO ACID INCORPORATION INTO ACID SENSING ION CHANNEL 1A. **Nina Braun**, Søren Friis, Weihua Tian, Eric P. Bennett, Jacob Andersen, Stephan A. Pless

#### 179-PLAT 4:15 PM

MEASURING DYNAMICS OF THE ACID-SENSING ION CHANNEL N-TERMINUS USING TRANSITION METAL ION FRET. **Megan Cullinan**, Prafulla Aryal, John Bankston

#### 180-PLAT 4:30 PM

A MECHANISM FOR DESENSITIZATION OF ALL THREE FUNCTIONAL MAMMALIAN ACID SENSING ION CHANNELS. **Yangyu Wu**, Zhuyuan Chen, **Cecilia Canessa**

#### 181-PLAT 4:45 PM

A CRITICAL MOBILE DIVALENT CATION SITE IN THE ATP-BINDING POCKET OF P2X3 RECEPTORS THAT CONTROLS CHANNEL GATING. **Mufeng Li**, Yao Wang, Shai D. Silberberg, Motoyuki Hattori, Kenton Swartz

#### 182-PLAT 5:00 PM

STRUCTURAL STUDIES OF MUTANTS OF THE NAK CHANNEL. **Sonja Minniberger**, Saeid Abdolvand, Han Sun, Andrew J. Plested

#### 183-PLAT 5:15 PM

ROLE OF NMDAR-BK COMPLEXES IN THE INTEGRATION OF SYNAPTIC INPUTS OF BARREL CORTEX PYRAMIDAL NEURONS. **Ricardo Gómez**, Laura E. Maglio, Alberto J. Gonzalez-Hernandez, Belinda Rivero-Perez, Teresa Giraldez

#### 184-PLAT 5:30 PM

PROBING STRUCTURAL STATES OF A PENTAMERIC LIGAND-GATED ION CHANNEL WITH SMALL ANGLE NEUTRON SCATTERING. **Marie Lycksell**, Nicolai T. Johansen, Rebecca J. Howard, Lise Arleth, Erik Lindahl

**185-PLAT 5:45 PM**  
CRYO-EM REVEALS TWO DISTINCT SEROTONIN-BOUND CONFORMATIONS OF FULL-LENGTH 5-HT<sub>3A</sub> RECEPTOR. **Sandip Basak**, Yvonne W. Gicheru, Shanlin Rao, Mark S. Sansom, Sudha Chakrapani

## Platform Protein Folding, Pathways, and Stability

4:00 PM - 6:00 PM, BALLROOM IV

### Co-Chairs

*Taras Pogorelov, University of Illinois at Urbana-Champaign*  
*Siwen Zhang, Rensselaer Polytechnic Institute*

**186-PLAT 4:00 PM TRAVEL AWARDEE**  
CHARACTERIZATION OF CONFORMATIONAL DIVERSITY, STABILITY, AND CATALYTIC ACTIVITY OF TCMN, AN ENZYME INVOLVED IN ANTIBIOTIC BIOSYNTHESIS. **Veronica S. Valadares**, Luan C. Martins, Lara G. R. V. M. Tannus, Adolfo H. Moraes, Elio A. Cino

**187-PLAT 4:15 PM**  
INVESTIGATING THE GENERALITY AND BIOPHYSICAL UNDERPINNINGS OF CONSENSUS PROTEIN STABILITY ENHANCEMENT. **Matthew Sterne**, Katherine W. Tripp, Doug Barrick

**188-PLAT 4:30 PM**  
PROTEIN-SOLVENT ATTRACTIVE INTERACTIONS DOMINATE THE INVERSE TEMPERATURE DEPENDENCE OF POLYPEPTIDE HYDRATION FREE ENERGIES. Tomar S. Tomar, Michael E. Paulaitis, Lawrence R. Pratt, **Dilip N. Asthagiri**

**189-PLAT 4:45 PM**  
MULTI-SCALE SIMULATIONS YIELD INSIGHT INTO PROTEIN DIFFUSION AND STABILITY IN CROWDED ENVIRONMENTS. **Stepan Timr**, Simone Melchionna, Philippe Derreumaux, Fabio Sterpone

**190-PLAT 5:00 PM**  
FAST PRESSURE JUMP REVEALS SITE-SPECIFIC PROTEIN DEHYDRATION-FOLDING DYNAMICS. Maxim B. Prigozhin, Yi Zhang, Klaus J. Schulten, Martin Gruebele, **Taras V. Pogorelov**

**191-PLAT 5:15 PM**  
SINGLE-MOLECULE FORCE SPECTROSCOPY AND MOLECULAR DYNAMICS SIMULATIONS REVEALS COMPLEX FOLDING LANDSCAPE AND ITS POTENTIAL ROLE IN AMYLOID FIBRIL FORMATION IN A PDZ DOMAIN. **Ha H. Truong**, Susan Marqusee

**192-PLAT 5:30 PM**  
PROBING PRESSURE EFFECTS ON CORE PACKING OF A REPEAT PROTEIN USING 13C NMR. **Siwen Zhang**, Scott McCallum, Catherine A. Royer

**193-PLAT 5:45 PM**  
CHAPERONE-GUIDED CO-TRANSLATIONAL FOLDING. Kaixian Liu, **Kevin Maciuba**, Christian M. Kaiser

## Platform Spectroscopy and Single-Molecule Fluorescence

4:00 PM - 6:00 PM, ROOM 307/308

### Co-Chairs

*Julia Widom, University of Oregon*  
*Hui-Ting Lee, Johns Hopkins University*

**194-PLAT 4:00 PM**  
FRET-FILTERED SPECTROSCOPY TO SIMULTANEOUSLY PROBE LOCAL AND GLOBAL CONFORMATIONS OF NUCLEIC ACIDS. **Julia R. Widom**

**195-PLAT 4:15 PM**  
TETHERLESS, PRECISE AND EXTENDED OBSERVATION OF SINGLE-MOLECULE FRET IN AN ANTI-BROWNIAN TRAP. **Hugh Wilson**, Quan Wang

**196-PLAT 4:30 PM**  
BAYESIAN NONPARAMETRICS FOR FLUORESCENCE METHODS. **Meysam Tavakoli**, Sina Jazani, Ioannis Sgouralis, Steve Presse

**197-PLAT 4:45 PM**  
DNA BASE DAMAGE AND CONSEQUENTIAL POINT MUTATION CONTROLS TELOMERE CONFORMATION AND ELABORATES TELOMERASE EXTENSION ACTIVITY. **Hui-Ting Lee**, Tapas Paul, Joshua Choe, Samantha Sanford, Patricia L. Opresko, Sua Myong

**198-PLAT 5:00 PM**  
G-QUADRUPLEX-HELICASE INTERACTIONS AND THE IMPACT OF SMALL MOLECULES. **Parastoo Maleki**, Hamza Balci

**199-PLAT 5:15 PM**  
CHROMATIN REMODELING INDUCED BY THE INVASION OF YEAST PIONEER TRANSCRIPTION FACTOR *RAP1* REVEALED BY SINGLE-MOLECULE FRET. **Anne-Marinette Cao**, Maxime Mivelaz, Iuliia Boichenko, Louise Bryan, Slawomir Kubik, David Shore, Beat Fierz

**200-PLAT 5:30 PM**  
SINGLE MOLECULE MEASUREMENTS REVEAL CONFORMATIONAL TRANSITIONS DURING DNA CLAMP LOADING AND UNLOADING. **SeungWon Lee**, Eunjin Ryu, Sukhyun Kang, Hajin Kim

**201-PLAT 5:45 PM**  
CONFORMATIONAL DYNAMICS RELATED TO MEMBRANE FUSION OBSERVED IN SINGLE VIRAL ENVELOPE GLYCOPROTEINS. Dibyendu Kumar Das, Natasha Durham, Angela Howard, **James B. Munro**

## Platform Protein-Lipid Interactions: Channels/Structures

4:00 PM - 6:00 PM, ROOM 309/310

### Co-Chairs

*Wayland Cheng, Washington University School of Medicine*  
*Ololade Fatunmbi, University of Pennsylvania*

**202-PLAT 4:00 PM**  
TOXIC AMYLOID TAPE: A NOVEL MIXED ANTIPARALLEL/PARALLEL BETA-SHEET STRUCTURE FORMED BY ABETA ON GM1 CLUSTERS. **Katsumi Matsuzaki**, Yuki Okada, Kaori Okubo, Keisuke Ikeda, Yoshiaki Yano, Masaru Hoshino, Yoshio Hayashi, Yoshiaki Kiso, Hikari Itoh-Watanabe, Akira Naito

**203-PLAT 4:15 PM**  
RECRUITMENT OF ACTIN-BINDING PROTEINS ON THE MEMBRANE INTERFACE: EFFECTS OF CHOLESTEROL ON PROTEIN/PIP<sub>2</sub> INTERACTIONS. **Ololade Fatunmbi**, Ryan Bradley, Robert Bucki, Paul Janmey, Ravi Radhakrishnan

**204-PLAT 4:30 PM**  
MOLECULAR MECHANISM OF VOLTAGE-GATED CA<sup>2+</sup> CHANNEL REGULATION BY MEMBRANE PIP<sub>2</sub>. **Cheon-Gyu Park**, Byung C. Suh

**205-PLAT 4:45 PM**  
PH INDUCED SWITCH BETWEEN DIFFERENT MODES OF CYTOCHROME C BINDING TO CARDIOLIPIN CONTAINING LIPOSOMES. **Bridget Milorey**, Reinhard Schweitzer-Stenner

**206-PLAT 5:00 PM**  
MOLECULAR DYNAMICS SIMULATIONS OF KIR2.2 AND CHOLESTEROL REVEAL STATE- AND CONCENTRATION-DEPENDENT BINDING SITES. **Nicolas Barbera**, Manuela A. Ayee, Belinda S. Akpa, Irena Levitan

**207-PLAT 5:15 PM**  
DIFFUSION IN NANOPORE CONNECTED BILAYER NETWORKS. **Manon Valet**, Léa-Laetitia Pontani, Élie Wandersman, Alexis Prevost

**208-PLAT 5:30 PM**  
MOLECULAR DYNAMICS SIMULATION AND PHOTO-CROSSLINKING REVEAL A SPECIFIC CHOLESTEROL BINDING SITE FOR THE METABOTROPIC GLUTAMATE RECEPTOR 2. **Markus Kurth**, Rainer Beck, Camilo A. Aponte-Santamaria, Britta Bruegger

**209-PLAT 5:45 PM**  
DIRECT LIPID BINDING IN A PENTAMERIC LIGAND-GATED ION CHANNEL ASSESSED BY NATIVE MASS SPECTROMETRY. **Wayland WL Cheng**

**Platform**  
**Intracellular Calcium Signaling,  
Sparks and Waves**

**4:00 PM - 6:00 PM, ROOM 314/315**

**Co-Chairs**

*Carol Heckman, Bowling Green State University*  
*David Ladd, University of Melbourne, Australia*

**210-PLAT 4:00 PM TRAVEL AWARDEE**  
MODELLING THE ATP BINDING SITE OF RYR2 TO RATIONALISE LIGAND-INDUCED GATING BEHAVIOUR. **Chris Lindsay**, Mano Sitsapesan, Wei Mun Chan, Elisa Venturi, William Welch, Maria Musgaard, Rebecca M. Sitsapesan

**211-PLAT 4:15 PM**  
A CRYO-EM BASED STUDY OF A MUTANT CARDIAC RYANODINE RECEPTOR (RYR2). **Kavita A. Iyer**, Ashok R. Nayak, Takashi Murayama, Nagomi Kurebayashi, Montserrat Samso

**212-PLAT 4:30 PM**  
DETECTING RYR CLUSTERS WITH CACLEAN: VALIDATION AND INFLUENCE OF SPATIAL HETEROGENEITY. **David Ladd**, Agne Tilunaite, H. Llewelyn Roderick, Christian Soeller, Edmund Crampin, Vijay Rajagopal

**213-PLAT 4:45 PM**  
FRET-BASED TRILATERATION RESOLVES DISTINCT STRUCTURAL STATES AND TRANSITIONS OF CALMODULIN BOUND TO RYR. **Bengt Svensson**, Robyn T. Rebbeck, Jingyan Zhang, Donald M. Bers, David D. Thomas, Razvan L. Cornea

**214-PLAT 5:00 PM**  
2D+T IMAGING OF CALCIUM SIGNALING MICRODOMAINS IN CARDIAC MYOCYTES. **Mouna Abdesslem**, Guillaume Gilbert, H Llewellyn Roderick, Karin R. Sipido

**215-PLAT 5:15 PM TRAVEL AWARDEE**  
CALCIUM SENSING AND CONFORMATIONAL REARRANGEMENTS IN STIM1, THE ER CALCIUM SENSOR. **Aparna Gudlur**, Ana E. Zeraik, Nupura Hirve, V Rajanikanth, Andrey A. Bobkov, Elizabeth A. Komives, Patrick G. Hogan

**216-PLAT 5:30 PM**  
ABNORMAL CALCIUM LEAK FROM CARDIAC SARCOPLASMIC RETICULUM: NEW INSIGHTS OFFERED BY STATISTICAL PHYSICS. **Anna Maltsev**, Michael D. Stern, Victor A. Maltsev

**217-PLAT 5:45 PM**  
FILOPODIA DYNAMICS ARE AFFECTED BY CATION FLUX THROUGH TRP CHANNELS. **Carol A. Heckman**, Marilyn L. Cayer, Omolade M. Ademuyiwa

**Platform**

**Membrane Active Peptides and Toxins**

**4:00 PM - 6:00 PM, ROOM 316/317**

**Co-Chairs**

*Myriam Cotten, College of William and Mary*  
*Georg Pabst, University of Graz, Austria*

**218-PLAT 4:00 PM**  
SYNERGISM OF MAGAININS IS NOT COUPLED TO THE FORMATION OF A WELL-DEFINED PEPTIDE PORE. Michael Pachler, Ivo Kabelka, Regina Leber, Ilse Letofsky-Papst, Karl Lohner, Robert Vacha, **Georg Pabst**

**219-PLAT 4:15 PM**  
COMBINING DESIGN STRATEGIES IN ENGINEERING MORE ACTIVE HYBRID ANTIMICROBIAL PEPTIDES. **Anne K. Buck**, Louise E. O. Darling, Donald E. Elmore

**220-PLAT 4:30 PM**  
HIGH-RESOLUTION STRUCTURES OF TWO METALLATED HOST DEFENSE PEPTIDES THAT FEATURE COPPER-DEPENDENT BACTERICIDAL AND CHEMOTACTIC EFFECTS: IMPORTANCE OF HISTIDINE FOR ANTI-INFECTION ACTION. **Myriam Cotten**, Alexander Greenwood, Steven Paredes, Yimin Miao, Yawei Xiong, Ella Mihailescu

**221-PLAT 4:45 PM**  
COMPARISON OF THE EFFECTS OF DAPTOMYCIN ON BACTERIAL AND MODEL MEMBRANES. **Ming-Tao Lee**, Pei-Yin Yang, Nicholas E. Charron, Meng-Hsuan Hsieh, Yu-Yung Chang, Wei-Chin Hung, Huey W. Huang

**222-PLAT 5:00 PM**  
LIFE AND DEATH IN A BACTERIAL BIOFILM UNDER ANTIBIOTIC ATTACK CHARACTERIZED BY FLUORESCENCE AND ATOMIC FORCE MICROSCOPY. **Catherine B. Volle**, Kanasha Overton, Helen Greer, Megan A. Ferguson, Eileen M. Spain, Megan E. Nunez

**223-PLAT 5:15 PM**  
INTERACTION OF ANTIMICROBIAL PEPTIDE LL-37 WITH LIPOPOLYSACCHARIDES. Michael Martynowycz, Amy Rice, Konstantin Andreev, Thathane M. Nobre Pavinatto, Jeff Wereszczynski, **David Gidalevitz**

**224-PLAT 5:30 PM TRAVEL AWARDEE**  
SYNCHROTRON X-RAY SCATTERING STUDIES TO DETERMINE STRUCTURE OF AMYLOID BETA INTERACTIONS WITH LIPID MEMBRANES. **Crystal M. Vander Zanden**, Jaroslaw P. Majewski, Erik B. Watkins, Eva Y. Chi

**225-PLAT 5:45 PM**  
CONFORMATIONAL DISORDER IS REQUIRED FOR TOXIN SECRETION, FOLDING AND CELL INTOXICATION. Darragh Patrick O'Brien, Dominique Durand, Sara Cannella, Alexis Voegelé, Patrice Vachette, Sébastien Brier, Daniel Ladant, **Alexandre Chenal**

**PI to PI**

**A Wine & Cheese Mixer**

**5:00 PM - 7:00 PM, ROOM 324/325/326**

You finally have a job working in biophysics, in industry or academia, with some funding and a lab, but you've realized that the career challenges continue. Come relax and network with your contemporaries and senior biophysicists over a beer or glass of wine. This event is a great chance to compare notes with colleagues and discuss one-on-one your unique solutions to issues that arise in the time between getting your job and getting your next promotion, including management of lab staff, getting your work published, and renewing your funding. Refreshments will be provided, with cash bar.

## Korean Biophysicists Meeting

5:30 PM - 6:30 PM, ROOM 318/319/320

### Exhibitor Presentation

#### ELEMENTS SRL

5:30 PM - 7:00 PM, ROOM 303

#### PORTABLE AND COST-EFFECTIVE LOW-NOISE AMPLIFIERS FOR ELECTROPHYSIOLOGY AND NANOPORE APPLICATIONS

Ultra-portable and cost-effective amplifier technology is now a reality accessible to any electrophysiology research lab, thanks to Elements microelectronic-based design of custom microchip (ASIC) using standard and low-cost CMOS processes.

Elements provides an integrative solid-state solution to measure currents in the picoampere (10-12 pA) range, with bandwidths up to hundreds of kHz, featuring very low noise recordings, signal digitalization thanks to the internal Analog-to-Digital converter, signal generator, digital data elaboration, and USB powered, all in a tiny form factor (i.e. 42x18x78 mm) or about the size of a point-and-shoot digital camera!

In this presentation, we will be featuring our latest electrophysiology product, the world's smallest integrated patch clamp amplifier, as well as a portable nanopore kit for protein detection using disposable glass nanopore chips.

During the event will be presented these two use cases:

1. ePatch amplifier was used to record the current of HCN channels transiently expressed in HEK293T cells, with the aim to test the effect of Lamotrigine, a widely used anticonvulsant drug, on the biophysical properties of the current. Data courtesy of Dr. A. Moroni - University of Milan - Italy and Dr. Bina Santoro - Columbia University - New York – USA
2. Portable Nanopore Reader: example of DNA fragment translocations through glass nanopore chips. Data courtesy of Dr. D. Niedzwiecki, Goeppert– USA

Attend this presentation to learn about:

- The advantages of using a versatile and compact nano-current amplifier technology,
- Portable nanopore solution for protein detection using disposable nanopore chips,
- How the world smallest and cheapest patch clamp amplifier is radically changing voltage-clamp measurements!

Complimentary Italian hors d'oeuvres and drinks will be served! Seating is limited. Be the first to RSVP by emailing [info@elements-ic.com](mailto:info@elements-ic.com) to receive a copy of the presentation and be entered in a raffle to receive a free 30-day trial of the ePatch or nanopore Kit amplifier!

#### Speakers

Federico Thei, CEO, ELEMENTS SRL  
Filippo Cona, Software Engineer, ELEMENTS SRL  
Alessandro Porro, Application Scientist, ELEMENTS SRL  
Serge Kaddoura, NanoscaleLABS

## Dinner Meet-Ups

6:00 PM - 6:30 PM, SOCIETY BOOTH/CHARLES STREET LOBBY

Interested in making new acquaintances and experiencing the cuisine of Baltimore? Meet at the Society Booth each evening, Sunday through Tuesday, at 6:00 PM where a BPS member will coordinate dinner at a local restaurant.

### Biophysics Austria Mixer

6:00 PM - 8:00 PM, ROOM 321/322/323

### Biophysical Society of Canada Mixer

6:00 PM - 8:00 PM, PRATT STREET ALE HOUSE

### Student Research Achievement Award (SRAA) Poster Competition

6:00 PM - 9:00 PM, EXHIBIT HALL C

This session features students who are presenting posters at the Meeting and have indicated at the time of abstract submission that they wish to participate in the competition. During the competition, students will give a five-to-seven minute oral presentation of their posters to one or more judges. Winners will be recognized on Monday evening prior to the Biophysical Society Lecture.

### Biophysical Journal Editorial Board Dinner

6:00 PM - 10:00 PM, CENTER CLUB

# SUNDAY POSTER SESSIONS

1:45 PM–3:45 PM, EXHIBIT HALL C

Below is the list of poster presentations for Sunday of abstracts submitted by October 1. The list of late abstracts scheduled for Sunday is available in the Program Addendum, and those posters can be viewed on boards beginning with LB.

Posters should be mounted beginning at 6:00 PM on Saturday and removed by 5:30 PM on Sunday evening. Posters will be on view until 10:00 PM the night before presentation. Poster numbers refer to the program order of abstracts as they appear in the online Abstracts Issue. Board numbers indicate where boards are located in the Exhibit Hall.

ODD-NUMBERED BOARDS 1:45 PM–2:45 PM | EVEN-NUMBERED BOARDS 2:45 PM–3:45 PM

Board Numbers	Category
B1–B34	Protein Structure and Conformation I
B35–B64	Membrane Protein Structures
B65–B81	Protein Structure, Prediction, and Design
B82–B99	Protein Assemblies I
B100–B119	Enzyme Function, Cofactors, and Post-translational Modifications
B120–B144	Chromatin and the Nucleoid
B145–B166	DNA Replication, Recombination, and Repair
B167–B192	Membrane Physical Chemistry I
B193–B214	Membrane Active Peptides and Toxins I
B215–B235	Membrane Structure I
B236–B248	Exocytosis and Endocytosis I
B249–B264	Excitation-Contraction Coupling I
B265–B280	Cardiac Smooth and Skeletal Muscle Electrophysiology I
B281–B298	Voltage-gated K Channels I
B299–B325	Ligand-gated Channels I
B326–B338	Voltage-gated Ca Channels
B339–B361	Cardiac Muscle Regulation
B362–B387	Cell Mechanics, Mechanosensing, and Motility I
B388–B391	Cytoskeletal-based Intracellular Transport
B392–B410	Membrane Pumps, Transporters, and Exchangers I
B411–B425	Cellular Signaling and Metabolic Networks
B426–B452	Optical Microscopy and Superresolution Imaging I
B453–B466	Single-Molecule Spectroscopy I
B467–B496	Molecular Dynamics I
B497–B517.1	Biosensors I

It is the responsibility of the poster presenters to remove print materials from the board after their presentations. Please do not leave materials or belongings under poster boards or in the poster area. Posters will not be collected or stored for pick-up at a later time. The Biophysical Society is not responsible for any articles left in the poster area.



## Protein Structure and Conformation I (Boards B1 - B34)

- 226-Pos**      **BOARD B1**  
A NEW AMINO ACID SIMILARITY MATRIX BASED ON SEQUENCE CORRELATIONS AND STRUCTURAL FEATURES YIELDS COMPLETE SEQUENCE-STRUCTURE CONGRUENCE. **Kejue Jia**
- 227-Pos**      **BOARD B2**  
STRUCTURAL MODELING OF THE REFLECTIN PROTEIN. **Dillion Fox**, Loukas Petridis, Jeremy Smith, Alison Sweeney
- 228-Pos**      **BOARD B3**  
MODELING ELECTROSTATIC FORCE IN PROTEIN-PROTEIN RECOGNITION. **Mihiri Shashikala Hewa Bosthanthirige**, Arghya Chakravorty, Emil Alexov
- 229-Pos**      **BOARD B4**  
COMPUTATIONAL INVESTIGATION OF THE EFFECT OF BACKBONE CHIRAL INVERSIONS ON POLYPEPTIDE STRUCTURE. **Gül H. Zerze**, Pablo Debenedetti, Frank Stillinger
- 230-Pos**      **BOARD B5**      **TRAVEL AWARDEE**  
MOLECULAR DYNAMICS SIMULATIONS OF GP120 AND GP41 OF HIV ENV PROVIDE INSIGHTS INTO STRAIN SPECIFICITY AND THE ROLE OF THE MEMBRANE ENVIRONMENT. Louis R. Hollingsworth IV, Justin A. Lemkul, Richard D. Gandour, David R. Bevan, **Anne M. Brown**
- 231-Pos**      **BOARD B6**      **TRAVEL AWARDEE**  
ATOMIC SIMULATIONS OF TRP-CAGE FOLDING BY UMBRELLA SAMPLING USING Q FUNCTION AS REACTION COORDINATE. **Hamed Meshkin**, Fangqiang Zhu
- 232-Pos**      **BOARD B7**  
MULTIPLE-WALKER CURVILINEAR-PATH UMBRELLA SAMPLING SIMULATIONS: TO TRACE PROTEIN-PROTEIN DISSOCIATION TRAJECTORIES AND COMPUTE POTENTIAL OF MEAN FORCE. **Dhananjay C. Joshi**, Jung-Hsin Lin
- 233-Pos**      **BOARD B8**  
ON RESTRAINTS IN END-POINT PROTEIN-LIGAND BINDING FREE ENERGY CALCULATIONS. William Menzer, **Bing Xie**, David D.L. Minh
- 234-Pos**      **BOARD B9**  
PROTEINS THAT TELL TIME. **Andy LiWang**
- 235-Pos**      **BOARD B10**  
MOLECULAR BASIS OF LIGAND SELECTIVITY IN AMINOGLYCOSIDE ACETYLTTRANSFERASES. Prashasti Kumar, Matthew J. Cuneo, Brinda Selvaraj, **Engin H. Serpersu**
- 236-Pos**      **BOARD B11**  
STRUCTURAL BASIS OF ENDOCRINE FGF RECOGNITION BY BETA-KLOTHO. **Sangwon Lee**
- 237-Pos**      **BOARD B12**      **TRAVEL AWARDEE**  
STRUCTURAL REARRANGEMENTS IN THE C-TERMINAL DOMAIN HOMOLOG OF ORANGE CAROTENOID PROTEIN ARE CRUCIAL FOR CAROTENOID TRANSFER. **Dvir Harris**, Adjele Wilson, Fernando Muzzopappa, Nikolai N. Sluchanko, Thomas Friedrich, Eugene G. Maksimov, Diana Kirilovsky, Noam Adir
- 238-Pos**      **BOARD B13**      **TRAVEL AWARDEE**  
A NEW OPEN STRUCTURE OF THE INSULIN DEGRADING ENZYME PROVIDES INSIGHTS INTO THE CONFORMATIONAL TRANSITION OF THE MOLECULE. **Nicolae Sapoval**, Esmael J. Haddadian, Wei Jen Tang
- 239-Pos**      **BOARD B14**  
STRUCTURE OF A NON-CANONICAL AND FLEXIBLE MIDDLE DOMAIN IN INNER-EAR PROTOCADHERIN-15. **Brandon L. Neel**, Carissa F. Klanseck, Marcos Sotomayor
- 240-Pos**      **BOARD B15**  
SELENIUM NMR SPECTROSCOPY: A VERSATILE PROBE FOR BIOLOGICAL MACROMOLECULES. **Sharon Rozovsky**
- 241-Pos**      **BOARD B16**  
TRANSIENT STRUCTURAL DISTORTION AND OLIGOMERIZATION OF THE CAPSID FORMING PROTEIN ARC IS ATTENUATED BY LIGAND BINDING. Lau Dalby Nielsen, Simon Erlendsson, **Kaare Teilum**
- 242-Pos**      **BOARD B17**  
THE EFFECT OF LITHIUM BINDING ON SECONDARY AND TERTIARY STRUCTURE, HYDROPHOBICITY, THERMODYNAMICS, AND INTERACTIONS WITH INTERACTING PARTNERS OF DREAM. **Samioł Azam**, Jaroslava Miksovska
- 243-Pos**      **BOARD B18**  
INVESTIGATING HOW PROTEIN MIXTURES INTERACT WITH GOLD NANOPARTICLES. **Rebecca A. Hill**, Katarina J. Boulet, Randika Perera, Mack B. Davidson, Nicholas C. Fitzkee
- 244-Pos**      **BOARD B19**  
ION-DEPENDENT BINDING-SITE CONFIGURATIONS IN EF-HAND PROTEINS MEASURED WITH ULTRAFAST INFRARED SPECTROSCOPY. Sean Edington, Thomas R. Middendorf, David Brent Halling, Richard W. Aldrich, **Carlos R. Baiz**
- 245-Pos**      **BOARD B20**  
ALKALINE CONFORMER OF HUMAN DIMERIC CYTOCHROME C. **Haotian Lei**, Bruce E. Bowler
- 246-Pos**      **BOARD B21**  
PRODUCTION AND CHARACTERIZATION OF HTLV-1-ENCODED MITOCHONDRIAL PROTEIN P13II. **Elka R. Georgieva**, Peter P. Borbat, Shuyang Zhang, Andrzej Rajca, Jack H. Freed
- 247-Pos**      **BOARD B22**  
HIGH CONCENTRATION OF INERT SOLUTES (FICOL 70 AND POLYETHYLENE GLYCOL 6000) STABILIZE THE NATIVE FORM OF CLARIAS GARIEPIANUS GST (CGGST). **Adedayo A. Fodeke**, Olusanjo I. Adewale, Temidayo Ogumoyole
- 248-Pos**      **BOARD B23**  
INVESTIGATING THE FUNCTION OF MUTL CONFORMATIONAL CHANGES IN MISMATCH REPAIR USING SMFRET. **Sharonda J. LeBlanc**, Pengyu Hao, Malikiya A. Hinds, Andi N. Morgan, Korene Gbozah, Keith R. Weninger, Dorothy A. Erie
- 249-Pos**      **BOARD B24**  
INHERENT FLEXIBILITY AND OLIGOMERIZATION OF CLIC5A AND CLIC6 - A COMPARATIVE STATIC AND DYNAMIC STRUCTURAL STUDY. Alisa Ferofontov, Milit Marom, Moshe Giladi, **Yoni Haitin**
- 250-Pos**      **BOARD B25**  
INTEGRATIVE METHODS FOR PROTEIN DYNAMICS AND AGGREGATION. **Carlo Camilloni**
- 251-Pos**      **BOARD B26**      **TRAVEL AWARDEE**  
INVESTIGATION OF EXTRACELLULAR GATE MOVEMENT IN A GLUTAMATE HOMOLOGUE. **Erika Riederer**, Francis Valiyaveetil

**252-Pos BOARD B27**  
SELF-ASSEMBLY OF THE TAU PROTEIN: FIBRIL FORMATION AND COMPLEX COACERVATION. **Joan Emma Shea**

**253-Pos BOARD B28**  
ENHANCED SAMPLING OF AMYLOID BETA-42 DIMER ENSEMBLE; A NOVEL APPROACH WITH CONFORMATIONAL SYMMETRY. **Levent Sari, Milo M. Lin**

**254-Pos BOARD B29**  
IDENTIFICATION AND STUDY OF POLYMORPHIC STRUCTURES OF HIERARCHICALLY TWISTED AMYLOID FIBRILS BY ATOMIC FORCE MICROSCOPE. **Sergey K. Sekatskii, Jiangtao Zhou, Giovanni Dietler**

**255-Pos BOARD B30**  
TETRATRICOPEPTIDES, A VERSATILE PROTEIN INTERACTION MOTIF. **Srihari Shankar, Jayaraman Sivaraman**

**256-Pos BOARD B31 TRAVEL AWARDEE**  
BIOPHYSICAL INSIGHTS INTO THE KRAS4B-FME-CALMODULIN INTERACTION. **Constance Agamasu, Rodolfo Ghirlando, Andrew Stephen**

**257-Pos BOARD B32**  
ELECTRIC FIELD MEDIATED DISRUPTION OF BETA AMYLOID; A POTENTIAL NON-INVASIVE THERAPY FOR ALZHEIMER'S DISEASE. **Jahnu Saikia, Vibin Ramakrishnan**

**258-Pos BOARD B33**  
KINETIC CHARACTERIZATION OF A NOVEL FOSFOMYCIN RESISTANCE ENZYME FROM MYCOBACTERIUM BOLLETTII. **Skye R. Travis, Madeline R. Shay, Matthew K. Thompson**

**259-Pos BOARD B34**  
DEVELOPMENT OF FAST PHOTOCHEMICAL OXIDATION OF PROTEINS FOR *IN VIVO* MODIFICATION IN *CAENORHABDITIS ELEGANS*. **Jessica A. Espino, Lisa M. Jones**

## Membrane Protein Structures (Boards B35 - B64)

**260-Pos BOARD B35**  
APPLICATION OF ELECTRON PARAMAGNETIC RESONANCE SPECTROSCOPY TO PROBE THE STRUCTURAL TOPOLOGY, DYNAMICS AND CONFORMATIONAL CHANGES OF S21 PINHOLIN PROTEIN. **Tanbir Ahammad, Daniel L. Drew, Sophia Rafferty, Indra D. Sahu, Robert McMarrick, Gary A. Lorigan**

**261-Pos BOARD B36**  
ASSESSING DEPTH-DEPENDENCE OF THE AZIDO VIBRATIONAL PROBE GROUP IN BILAYERS USING TRANSMEMBRANE PEPTIDES. **Yanyu Zhao**

**262-Pos BOARD B37**  
MAPPING THE TOPOLOGICAL CHANGE OF SARCOLIPIN UPON SARCOPLASMIC RETICULUM CA<sup>2+</sup>-ATPASE BINDING ALONG THE CA<sup>2+</sup>-TRANSPORT CYCLE BY SOLID-STATE NMR. **Songlin Wang, Gopinath Tata, Erik Larsen, Daniel Weber, Gianluigi Veglia**

**263-Pos BOARD B38**  
MAPPING THE EXTRACELLULAR LOOPS OF THE SEROTONIN TRANSPORTER USING CROSSLINKING-MASS SPECTROMETRY. **Elizabeth Castellano**

**264-Pos BOARD B39**  
CRYSTALLIZATION OF THE *E. COLI*/RIBOSE ABC IMPORTER COMPLEX. **Leang-Chung Choh, Satchal K. Erramilli, Nicholas Noinaj, Cynthia V. Stauffacher**

**265-Pos BOARD B40**  
DIMERIZATION OF HUMAN ADENOSINE A<sub>2A</sub> RECEPTOR - IMPACT OF THE C-TERMINUS. **Khanh D. Nguyen, Susanna Seppala, Michael Vigers, Nicole S. Schonenbach, Songi Han, Michelle A. O'Malley**

**266-Pos BOARD B41**  
STRUCTURAL INSIGHT INTO CWSA AND CRGA INTERACTION IN A LIPID BILAYER WITH SSNMR. **Rongfu Zhang, Huajun Qin, Riqiang Fu, Tim Cross**

**267-Pos BOARD B42 TRAVEL AWARDEE**  
CRYO-EM STRUCTURE OF A MITOCHONDRIAL CALCIUM UNIporter. **Jiho Yoo, Mengyu Wu, Ying Yin, Mark A. Herzik Jr, Gabriel C. Lander, Seok-Yong Lee**

**268-Pos BOARD B43 TRAVEL AWARDEE**  
STRUCTURAL FLUCTUATIONS IN RHODOPSIN ACTIVATION REVEALED BY NEUTRON SCATTERING. **Suchithranga M.D.C. Perera, Udeep Chawla, Utsab Shrestha, Debsindhu Bhowmik, Andrey V. Struts, Shuo Qian, Xiang-Qiang Chu, Michael F. Brown**

**269-Pos BOARD B44 TRAVEL AWARDEE**  
VDAC1 CONFORMATIONAL CHANGES INVESTIGATED BY HIGH PRESSURE DEER. **Lucie Bergdoll, Matthias Elgeti, Wayne Hubbell, Jeff Abramson**

**270-Pos BOARD B45**  
ELUCIDATING OLFACTORY RECEPTOR - ODORANT INTERACTIONS: LEVERAGING DRUG-DESIGN IDEATIONS. **Chiquito J. Crasto, Anuththara Lokubandara, Vasanth Mandla, Dan Buzatu**

**271-Pos BOARD B46**  
REGULATION OF PROTON TRANSPORT IN TETRAMERIC UCP2 BY AN INTRAMOLECULAR SALT-BRIDGE NETWORK. **Afshan Ardalan, Stephanie Uwumarenogie, Michael Fish, Shahin Sowlati-Hashjin, Mikko Karttunen, Matthew D. Smith, Masoud Jelokhani-Niaraki**

**272-Pos BOARD B47**  
PROBING THE ACTIVE AND INACTIVE FORMS OF THE BACTERIOPHAGE S21 PINHOLIN PROTEIN SYSTEM USING MAGNETIC RESONANCE SPECTROSCOPY. **Daniel L. Drew, Tanbir Ahammad, Rachel Serafin, Brandon Butcher, Katherine Clowes, Indra D. Sahu, Robert McMarrick, Gary A. Lorigan**

**273-Pos BOARD B48**  
EXPLORING (PROTEO-) LIPOSOMES FOR MASS SPECTROMETRY. **Melissa Frick, Caroline Haupt, Carla Schmidt**

**274-Pos BOARD B49**  
LIPID-MODULATION OF STHK, A CYCLIC NUCLEOTIDE-GATED CHANNEL. **Philipp A.M. Schmidpeter, Jan Rheinberger, Di Wu, Haiping Tang, Carol V. Robinson, Crina M. Nimigeau**

**275-Pos BOARD B50**  
SITE-DIRECTED LABELING OF TYPE II CANNABINOID RECEPTOR CB2 FOR STRUCTURAL EPR ANALYSIS. **Levi T. Hooper**

**276-Pos BOARD B51**  
LYSOSOMAL EXOCYTOSIS IMPACTS DECTIN-1 ENDOCYTOSIS AFTER B-GUCAN STIMULATION. **Akram Etemadi Amin, Aaron Neumann**

**277-Pos BOARD B52**  
CHARACTERIZATION OF THE INTERACTION BETWEEN TWO INFLUENZA A PROTEINS (M1 AND M2) INVOLVED IN VIRAL ASSEMBLY. **Abigail Wong-Rolle, Reham Mahgoub, Elizabeth Erler, Kathleen P. Howard**

**278-Pos BOARD B53**  
 PROBING STRUCTURE, TOPOLOGY AND DYNAMICS OF KCNE3 IN PROTEOLIPOSOMES USING SITE-DIRECT SPIN LABELING AND EPR SPECTROSCOPY. **Fathima Dhillhani Mohammed Faleel**, Indra D. Sahu, Robert M. McCarrick, Charles R. Sanders, Gary A. Lorigan

**279-Pos BOARD B54**  
 PURIFICATION AND PRELIMINARY CHARACTERIZATION OF HUMAN KCNQ1 (100-370) POTASSIUM ION CHANNEL IN LIPID BILAYERS USING SOLID-STATE NMR SPECTROSCOPY. **Colleen K. Jaycox**, Gunjan Dixit, Indra D. Sahu, Robert McMarrick, Charles R. Sanders, Gary A. Lorigan

**280-Pos BOARD B55**  
 COARSE-GRAINED SIMULATIONS OF TRANSMEMBRANE DOMAIN INTERACTIONS IN SEMAPHROIN-PLEXIN-NEUROFILIN SIGNAL SYSTEM. **Zhiyuan Meng**, Zhenlu Li, Matthias Buck

**281-Pos BOARD B56**  
 STRUCTURAL STUDIES OF MEMBRANE PROTEINS USING PULSED EPR SPECTROSCOPY. **Gary A. Lorigan**, Indra D. Sahu, Daniel L. Drew, Gunjan Dixit, TANBIR AHAMMAD

**282-Pos BOARD B57**  
 STRUCTURAL AND FUNCTIONAL ROLE OF THE SURFACE-EXPOSED LOOPS OF AIL DURING COMPLEMENT-MEDIATED EVASION BY *Y. PESTIS*. **Luz Marina Meneghini**, Chandan Singh, Kyungsoo Shin, L. Miya Fujimoto, Ye Tian, Francesca M. Marassi

**283-Pos BOARD B58**  
 NANODISCS AS A PLATFORM FOR THE STUDY OF HUMAN P-GLYCOPROTEIN IN A MEMBRANE ENVIRONMENT. **Sabrina Lusvarghi**, Suresh Ambudkar

**284-Pos BOARD B59**  
 STRUCTURAL STUDY FOR MEMBRANE PROTEIN USING SOLUTION X-RAY SCATTERING CONTRAST VARIATION. **Xiaobing Zuo**

**285-Pos BOARD B60**  
 STRUCTURE AND MECHANISMS OF AN ANION TRANSPORTER FAMILY. **Robert M. Stroud**, Jonathan Leano, Samir Batarni, Robert Edwards

**286-Pos BOARD B61**  
 MEMBRANE BINDING OF HIV-1 ACCESSORY PROTEIN NEF ON SPARSELY-TETHERED BILAYER LIPID MEMBRANES: AN SPR STUDY. **Christopher Kervick**, Manish Aryal, Frank Heinrich, Thomas E. Smithgall, Mathias Lösche

**287-Pos BOARD B62**  
 FLEXIBLE LINKER REGION IN ENDOPHILIN STRUCTURE AFFECTS ITS THERMOSTABILITY. **Rui Jin**, Tobias Baumgart

**288-Pos BOARD B63**  
 CONTRIBUTIONS OF THE C-TERMINUS AND MUTATIONS TO ADENOSINE RECEPTOR ACTIVITY AND STABILITY. **Kirsten N. Swonger**, Anne S. Robinson

**289-Pos BOARD B64 TRAVEL AWARDEE**  
 CHARACTERIZATION OF THE EXTRA-MEMBRANE DOMAINS OF CRGA IN LIPID BILAYERS USING SOLID STATE NMR. **Yiseul Shin**, Riqiang Fu, Huajune Qin, Timothy A. Cross

## Protein Structure, Prediction, and Design (Boards B65 - B81)

**290-Pos BOARD B65**  
 MODELING EPISTASIS USING PROTEIN BIOPHYSICS AND  $\Phi$ X174. **Casey M. Beard**

**291-Pos BOARD B66**  
 FOURIER-TRANSFORM INFRARED (FTIR) SPECTROSCOPY TRANSMISSION TECHNIQUE FOR ANALYSIS OF CHARACTERISTIC INFRARED BANDS OF PEPTIDE LINKAGE USING DRIED PROTEINS. **Jasmeet Kaur**, Shalmoli Bhat-tacharyya

**292-Pos BOARD B67**  
 TOWARD ACCURATE PREDICTION AND DESIGN OF KINKED ALPHA HELICES IN MEMBRANE PROTEINS. **Brittany Lasher**, Rebecca F. Alford, Jeffrey J. Gray

**293-Pos BOARD B68**  
 A THERMODYNAMICALLY-RIGOROUS, BIOLOGICALLY-DRIVEN ENERGY FUNCTION FOR MEMBRANE PROTEIN MODELING AND DESIGN. **Rebecca F. Alford**, Patrick Fleming, Karen G. Fleming, Jeffrey J. Gray

**294-Pos BOARD B69**  
 MOLECULAR MODELS OF HUMAN ELASTIN AND ELASTIN BIOMATERIALS. **Anna Tarakanova**

**295-Pos BOARD B70**  
 HPV VLPS AS SCAFFOLDS FOR VACCINE DESIGN. **Thomas Jordan**, Carolyn Barcellona, Danielle Basore, Charlie Clark, Zeyuan Guo, Sharon Isern, Kripa Nand, Gabi Rabasa, Terrence Shoemaker, Giffin Werner, Kai Xia, Xinmeng Yuan, Robert J. Linhardt, Scott Michael, Christopher Bystroff

**296-Pos BOARD B71**  
 REDEFINING THE PROTEIN KINASE CONFORMATIONAL SPACE WITH MACHINE LEARNING. Peter Man-Un Ung, Rayees Rahman, **Avner Schlessinger**

**297-Pos BOARD B72**  
 ELONGATED DENATURED CONFORMATION OF APOAZURIN: CROWDING AND UREA INTERPLAY. **Dirar M. Homouz**, Fabio Zegarra, Michael Kovermann, Andrei G. Gasic, Lucas Babel, Pernilla E. Wittung-Stafshede, Margaret S. Cheung

**298-Pos BOARD B73**  
 EXTENSION PROTEIN ENGINEERING IMPROVES PROTEIN STABILITY AND BINDING. **Matthew J. Dominguez**, Zoey L. Sharp, Valeria Jaramillo Martinez, Benjamin J. Lantz, Elliott J. Stollar

**299-Pos BOARD B74**  
 THERMAL STABILITY OF SINGLE-DOMAIN-ANTIBODIES ESTIMATED BY MD SIMULATIONS. **Narutoshi Kamiya**, Benson Ma, Gert-Jan Bekker

**300-Pos BOARD B75**  
 A MULTI-OBJECTIVE STOCHASTIC OPTIMIZATION APPROACH FOR DECOY GENERATION IN TEMPLATE-FREE PROTEIN STRUCTURE PREDICTION. **Ahmed Bin Zaman**, Amarda Shehu

**301-Pos BOARD B76**  
 EXPERIMENTAL CHARACTERIZATION OF "METAMORPHIC" PROTEINS PREDICTED FROM AN ENSEMBLE-BASED THERMODYNAMIC DESCRIPTION. **James O. Wrabl**, Miranda Russo, Jordan Hoffmann, Keila Sheetz, Andrew Munoz, Vincent J. Hilser

**302-Pos BOARD B77**  
 BIOMOLECULAR SIMULATIONS FOR STRUCTURAL BIOLOGY: INTEGRATING CO-EVOLUTION, SAXS AND FRET. **Alexander Schug**

**303-Pos BOARD B78**  
 COMPUTATIONAL INVESTIGATION OF THE DISSOCIATION PATHWAYS OF PEPTIDES. **Mary C. Sherman**, Luke Metzler, Michael J. Van Stipdonk

**304-Pos BOARD B79**  
 IN SILICO EVOLUTION OF AMINOACYL-TRNA SYNTHETASES FOR INCORPORATION OF NONCANONICAL AMINO ACIDS. **Tiberiu S. Mihaila**, E. James Petersson

**305-Pos BOARD B80**  
 INVESTIGATING THE STRUCTURE OF LACCASSES FOR BIOFUELS.  
**Shahla H. Partowmah**, Robert Collins, Alexei Soares

**306-Pos BOARD B81**  
 EXPRESSION, PURIFICATION, AND CRYSTALLIZATION OF THE HUMAN OXIDOREDUCTASE, PYROX-D1: A NEW DESCRIBED CAUSE OF EARLY-ONSET MYOPATHY IN HUMANS. **Isaac L. Scott**, Roger Sutton

## Protein Assemblies I (Boards B82 - B99)

**307-Pos BOARD B82**  
 A REGULATORY METABOLIC COMPLEX FOR GLUCOSE METABOLISM IN LIVING CELLS: THE GLUCOSOME. **Songon An**

**308-Pos BOARD B83**  
 SELF-ASSEMBLY OF GAG IN ETHANOL/WATER MIXTURES EXAMINED BY MOLECULAR DYNAMICS. **Shuting Zhang**, Cuong Trinh, Reinhard Schweitzer-Stenner, Brigita Urbanc

**309-Pos BOARD B84**  
 QUANTIFYING A PROTEIN-PROTEIN INTERACTION IN LIVING CELLS.  
**Shannon L. Speer**, Alex J. Guseman, Gary J. Pielak

**310-Pos BOARD B85**  
 KINETIC TRAPPING AND ROBUSTNESS IN PROTEASOME ASSEMBLY.  
**Anupama Kante**, Eric J. Deeds

**311-Pos BOARD B86**  
 IMPROVING THE RECONSTRUCTION OF LOW-RESOLUTION CRYOEM MAP USING ENHANCED MOLECULAR DYNAMICS SIMULATIONS.  
**Cesar A. Lopez**, Mark Swift, Xiao-Ping Xu, Dorit Hanein, Niels Volkman, S. Gnanakaran

**312-Pos BOARD B87**  
 THE MECHANISM OF ACTION FOR DRUGS THAT UNDERMINE HIV-1 VIRAL CAPSID FORMATION AND ACTIVITY: INSIGHTS FROM LARGE-SCALE COARSE-GRAINED SIMULATIONS. **Alexander J. Pak**, John M. A. Grime, Gregory A. Voth

**313-Pos BOARD B88**  
*E. COLI* HIGH THROUGHPUT ASSAY IDENTIFIES REGULATORS OF ENDOTHELIAL BARRIERS. **Dario Mizrachi**

**314-Pos BOARD B89**  
 TETRAMERIC ASSEMBLY OF THE ONCOGENIC C-TERMINAL BINDING PROTEINS. **William E. Royer**, Andrew G. Bellesis, Anne M. Jecrois, Brendan J. Hilbert, Martin M. Dcona, Steven R. Grossman, Celia A. Schiffer

**315-Pos BOARD B90**  
 SHOULD VIRUS CAPSIDS ASSEMBLE PERFECTLY? A SIMPLE EQUILIBRIUM MODEL FOR DEFECTS. **Justin M. Spiriti**, James F. Conway, Daniel M. Zuckerman

**316-Pos BOARD B91**  
 STRUCTURES AND FUNCTIONS OF THE HIV-1 PRE-INTEGRATION COMPLEXES. Julien Batisse, Eduardo Bruch, Nicolas Levy, Patrice Gouet, Stéphane Emiliani, Vincent Parissi, **Marc Ruff**

**317-Pos BOARD B92**  
 PROBING AND DIFFERENTIATING THE SHELL AND ENZYME PROTEINS OF THE BACTERIAL MICROCOMPARTMENT BY THERMAL SHIFT ASSAY. **Naimat Kalim Bari**, Gaurav Kumar, Simerpreet Kaur, Sharmistha Sinha

**318-Pos BOARD B93**  
 MODELING PROTEASOME ASSEMBLY PATHWAYS IN BACTERIA.  
**Pushpa Itagi**, Eric J. Deeds

**319-Pos BOARD B94**  
 EFFECTS OF CHROMOGRANIN A AND B ASSOCIATION ON THE ANION CHANNEL FUNCTION IN THE REGULATED SECRETORY PATHWAY.  
**Sutonuka Bhar**, Gaya P. Yadav, Mahesh S. Chandak, Qiu-Xing Jiang

**320-Pos BOARD B95**  
 USING N<sup>PRO</sup>AUTOPROTEASE FUSION TECHNOLOGY TO EXPRESS A SEMENOGELIN I PEPTIDE. **Fiona Berry**, Birgitta Frohm, Sara Linse, Karin Akerfeldt

**321-Pos BOARD B96 TRAVEL AWARDEE**  
 UNVEILING THE IMPACT OF THE NEGATIVE ARM OF THE CIRCADIAN CLOCK ON OUTPUT IN *NEUROSPORA CRASSA*. **Alexander E. Mosier**, Jennifer M. Hurley

**322-Pos BOARD B97 TRAVEL AWARDEE**  
 RESOLVING THE TRANSITION STATES OF HUMAN HEMOGLOBIN ASSEMBLY THROUGH A COMBINATION OF SPECTROSCOPIC STUDIES AND ALL-ATOM MOLECULAR DYNAMICS SIMULATIONS.  
**Premila P. Samuel Mohan Dass**, George N. Phillips, John S. Olson, David A. Case

**323-Pos BOARD B98**  
 INTERACTIONS BETWEEN THROMBOMODULIN AND THE COMPLEMENT SYSTEM STUDIED BY SURFACE PLASMON RESONANCE AND DEUTERIUM EXCHANGE MASS SPECTROMETRY. **Jose Giler**, Mary Catherine Rice, Vanessa Wiltsie, Kyler Anderson, Julia R. Koeppel

**324-Pos BOARD B99 TRAVEL AWARDEE**  
 SGFE GEF ACTIVITY AND ITS REGULATION BY SCRIBBLE AND DLG1.  
**Ashley Simpson**

## Enzyme Function, Cofactors, and Post-translational Modifications (Boards B100 - B119)

**325-Pos BOARD B100 TRAVEL AWARDEE**  
 INVESTIGATING THE EFFECT OF ALPHA-SYNUCLEIN POST-TRANSLATIONAL MODIFICATIONS ON SYNAPTIC VESICLE TRAFFICKING. **Buyan Pan**, E. James Petersson, Elizabeth Rhoades

**326-Pos BOARD B101**  
 MECHANISTIC STUDY OF PRENYLATED FLAVIN MONONUCLEOTIDE FORMATION. **Szymon Zaczek**, Agnieszka Dybala-Defratyka

**327-Pos BOARD B102**  
 STUDY OF THE LYSINE DEPROTONATION MECHANISM IN UBIQUITIN CONJUGATING ENZYME UBC13. **Katherine Elliott**, N. Cole Seward, Heath Hampton, Isaiah Sumner

**328-Pos BOARD B103**  
 MOLECULAR DYNAMICS SIMULATIONS REVEAL THE ORIGINS OF THE DISTINCT ACTIVITIES AND SUBSTRATE SELECTIVITIES OF *E. COLI* DEHYDRATASES FABA AND FABZ. Greg J. Dodge, Kara L. Jaremko, **Ashay Patel**, J. Andrew McCammon, Janet L. Smith, Michael D. Burkart

**329-Pos BOARD B104**  
 CAN PHOTOLYSIS OF THE CO-C BOND IN COENZYME B<sub>12</sub>-DEPENDENT ENZYMES BE USED TO MIMIC THE NATIVE REACTION? **Abdullah Al Mamun**, Pawel M. Kozlowski

**330-Pos BOARD B105**  
 PHOSPHORYLATION SITES WITH S/T-P MOTIF: POSSIBLE BASAL ANTI-AGGREGATION MECHANISM. **Min Hyung Cho**, James Wrabl, Vincent Hilsner, James Taylor

**331-Pos BOARD B106**  
 INVESTIGATING THE CATALYTIC BASE RESIDUES IN THE PHOSPHOGLUCOSE ISOMERASE FROM *THERMOTOGA MARITIMA*. **Katherine Lake**, Nicole Swope, Linda Columbus

**332-Pos BOARD B107**  
 A KINETIC STUDY OF LIGAND BINDING AND CONFORMATIONAL CHANGES IN INDUCIBLE NITRIC OXIDE SYNTHASE. **Karin Nienhaus**, Michael Horn, G. Ulrich Nienhaus

## Chromatin and the Nucleoid (Boards B120 - B144)

- 333-Pos BOARD B108**  
ESSENTIAL DETERMINANTS OF THE SUBSTRATE SPECIFICITY OF PTEN. Kirstin Hobiger, Michael G. Leitner, Dominik Oliver, Christian R. Halaszovich
- 334-Pos BOARD B109**  
ROLE OF THE RE-FACE TYR RESIDUE STACKED ON THE FAD PROSTHETIC GROUP IN FERREDOXIN-NADP<sup>+</sup> OXIDOREDUCTASE FROM *RHODOSPIRILLUM RUBROUM* DURING CATALYSIS WITH NADP<sup>+</sup>/H. Daisuke Seo, Issei Hayashi
- 335-Pos BOARD B110**  
SUBSTRATE SPECIFICITY OF AN ISOPENTENYL PHOSPHATE KINASE. Shanteri Singh, Erin M. Scull
- 336-Pos BOARD B111**  
A MICROFLUIDICS-BASED ASSAY FOR MAPPING CONNECTIVITY IN HIGHLY PROFICIENT ENZYMES REVEALS FUNCTIONAL MODULARITY. Craig J. Markin, Daniel A. Mokhtari, Fanny Sunden, Daniel Herschlag, Polly M. Fordyce
- 337-Pos BOARD B112**  
STRUCTURAL AND DYNAMICAL EFFECTS OF UBIQUITINATION OF KEY LYSINE RESIDUES IN THE HUMAN MYELOPEROXIDASE. UNDERSTANDING THE SIGNALING MECHANISMS INVOLVED IN AUTOIMMUNE RESPONSES IN SYSTEMIC LUPUS ERYTHEMATOSUS. Daniel Carrillo-Vázquez, Diana Gómez-Martín, Eduardo Jardón-Valadez
- 338-Pos BOARD B113**  
INVESTIGATING THE KEY STRUCTURAL ELEMENTS THAT CONFER SPECIFICITY TO THE ACETYLTRANSFERASES ENZYME FAMILY. Sara K. Lowe, Kole J. Runyan, Patricia Soto, Yadilette Rivera-Colón
- 339-Pos BOARD B114**  
FUNCTION IDENTIFICATION OF THE PROTEIN PRODUCT OF GENE LIN2722 FROM *LISTERIA INNOCUA* USING COMPUTATIONAL AND IN-VITRO TECHNIQUES. Mary Sharkawy, Andrea A. Carter, Paul Craig
- 340-Pos BOARD B115**  
INSIGHT INTO WEAK INTERACTIONS BETWEEN CARRIER PROTEINS AND THEIR SUBSTRATES BY CHEMO-ENZYMATIC AND IMPROVED NMR METHODS. Indrani Pal, Yousang Hwang, David Meyers, Dominique P. Frueh
- 341-Pos BOARD B116**  
LIGHT-INDUCED ACTIVATION OF ORGANO-METALLIC CO-C BOND IN MECBL-DEPENDENT METHIONINE SYNTHASE- QM/MM STUDY. Arghya P. Ghosh, Abdullah Al Mamun, Pawel M. Kozlowski
- 342-Pos BOARD B117**  
IDENTIFYING THE FUNCTION OF PROTEIN 2014 USING BIOINFORMATIC AND BIOCHEMICAL TECHNIQUES. Antonina Flair, Andrea A. Carter, Paul A. Craig
- 343-Pos BOARD B118**  
STRUCTURE-BASED PREDICTION OF POLYPEPTIDE SUBSTRATE SPECIFICITIES OF GLYCOSYLTRANSFERASES. Yashes Srinivasan, Sai Pooja Mahajan, Jason Labonte, Matthew P. DeLisa, Jeffrey J. Gray
- 344-Pos BOARD B119**  
ENGENDERING CATALYTIC ACTIVITY BY INCREASING DYNAMICS IN A DESIGNED ENZYME. Jonathan Preston, Bernard Everson, Fabien Giroud, David Vinyard, Kelly Greenland, Emma Bjerkefeldt, Shelley Minter, Gary Brudvig, Ronald Koder

- 345-Pos BOARD B120**  
THE REMOVAL OF HISTONES FROM ULTRAFINE ANAPHASE BRIDGES STUDIED BY OPTICAL TWEEZERS. Dian Spakman, Andreas S. Biebricher, Graeme A. King, Kata Sarlós, Ian D. Hickson, Erwin J. Peterman, Gijis J. Wuite
- 346-Pos BOARD B121**  
SEQUENCE-DEPENDENT ASYMMETRIC UNWRAPPING OF NUCLEOSOMES OF YEAST. Hidetoshi Kono, Di Luo, Daiki Kato, Jumpei Nogami, Yasuyuki Ohkawa, Hitoshi Kurumizaka
- 347-Pos BOARD B122**  
UNCOVERING A NOVEL FOLDING LANDSCAPE OF THE DROSOPHILA GENOME THROUGH HI-C NORMALIZATION VIA FRACTAL MONTE CARLO DEEP SAMPLING. Qiu Sun, Alan Perez-Rathke, Daniel Czajkowsky, Zhifeng Shao, Jie Liang
- 348-Pos BOARD B123**  
DIFFUSION BEHAVIOR OF SUPRAMOLECULAR PROTEIN ASSEMBLIES IN THE LIVING CELL NUCLEUS. Shuji Fujii, Irena Bronshtein, Yuval Garini, Michael Elbaum
- 349-Pos BOARD B124 TRAVEL AWARDEE**  
MICRORHEOLOGY OF INTERPHASE NUCLEI: A COMPUTER SIMULATION STUDY. Andrea Papale, Angelo Rosa
- 350-Pos BOARD B125**  
LEDGF/P75 DECREASES NUCLEOSOME ACCESSIBILITY. Khan Cox, Matthew D. Gibson, Mamuka Kvaratskhelia, Michael G. Poirier
- 351-Pos BOARD B126**  
THE EFFECTS OF LINKER HISTONE ISOFORMS ON THE STRUCTURE AND DYNAMICS OF THE CHROMATOSOME. Dustin C. Woods, Jeffery M. Wereszczynski
- 352-Pos BOARD B127**  
CHROMATIN STRUCTURE REGULATION BY AN EPIGENETIC SWITCH TUNING THE FLEXIBILITY OF THE H1 C-TERMINAL DOMAIN. Akshay Sridhar, Stephen Farr, Guillem Portella, Tamar Schlick, Modesto Orozco, Rosana Collepardo-Guevara
- 353-Pos BOARD B128**  
BINDING DYNAMICS OF DISORDERED LINKER HISTONE H1 WITH A NUCLEOSOMAL PARTICLE. Hao Wu, Yamini Dalal, Garegin A. Papoian
- 354-Pos BOARD B129**  
PHASE-SEPARATION DRIVEN HETEROCHROMATIN FORMATION: EXPERIMENT AND THEORY. Dan Deviri, Amy R. Strom, Serafin Colmenares, Shelby Wilson, Collin Hickmann, Gary Karpen, Samuel Safran
- 355-Pos BOARD B130**  
IN VIVO CHROMATIN COMPACTION CHANGES AS DETECTED BY WATER DIPOLAR RELAXATIONS: THE MOLECULAR CROWDING ROLE REVEALED BY THE ACIDAN FLUORESCENCE. Leonel S. Malacrida, Lorenzo Scipioni, Enrico Gratton
- 356-Pos BOARD B131**  
MODULATION OF THE DNA ACCESSIBILITY IN THE NUCLEOSOME -- INSIGHTS FROM PHYSICS MODELS. Alexey V. Onufriev
- 357-Pos BOARD B132**  
STRUCTURE AND DYNAMICS OF THE TELOMERIC NUCLEOSOME AND CHROMATIN. Lars Nordenskiöld, Aghil Soman, Nikolay Korolev, Surya Wahyu, Sook Yi Wong, Chong Wai Liew, Simon Lattmann, Hsian Ling Teo, John Van Noort, Daniela Rhodes

**358-Pos BOARD B133**

MULTI-SCALE SIMULATION OF THE CHROMATIN FIBER TO ELUCIDATE OCT4 GENE REPRESSION. **Michael R. Williams**, Dmitri Kireev

**359-Pos BOARD B134**

SURFACE FLUCTUATIONS AND COALESCENCE OF NUCLEOLAR DROPLETS IN THE HUMAN CELL NUCLEUS. **Christina M. Caragine**, Shannon Haley, Alexandra Zidovska

**360-Pos BOARD B135**

A PLATFORM FOR INVESTIGATING NUCLEAR ORGANIZATION AND ITS CHANGES DURING HUMAN IPSC DIFFERENTIATION. **Susanne M. Rafelski**

**361-Pos BOARD B136**

INTENSITY SORTED FLUORESCENCE CORRELATION SPECTROSCOPY: A NOVEL METHOD TO PROBE NUCLEAR DYNAMICS AND CHROMATIN ORGANIZATION IN LIVING CELLS. **Melody Di Bona**, Simone Pelicci, Isotta Cainero, Giuseppe Vicidomini, Davide Mazza, Michael A. Mancini, Alberto Diaspro, Luca Lanzano'

**362-Pos BOARD B137**

EFFECT OF DIFFERENT TRANSCRIPTIONAL STATES ON THE SINGLE GENE DYNAMICS. **Fang-Yi Chu**, Alexandra Zidovska

**363-Pos BOARD B138**

DYNAMICAL SIGNATURES OF LOCAL DNA DAMAGE IN LIVE CELLS. **Jonah Eaton**

**364-Pos BOARD B139**

DESTABILIZING NUCLEOSOMES AND THE ROLE OF HMGB PROTEINS. **Micah J. McCauley**, Ran Huo, Emily Navarrete, Nicole Becker, Qi Hu, Molly Nelson Holte, Uma Muthurajan, Ioulia Rouzina, Karolin Luger, Georges Mer, L. James Maher III, Nathan Israeloff, Mark C. Williams

**365-Pos BOARD B140**

CHROMATIN FOLDING HETEROGENEITY INFERRED FROM HIGH-RESOLUTION NUCLEOSOME STRUCTURES. **Stefjord Todolli**, John Yager, Wilma K. Olson

**366-Pos BOARD B141**

HISTONE TAIL-DNA INTERACTIONS: CHARGE REGULATION AND SEQUENCE SPECIFICITY. **Raju Timsina**, Xiangyun Qiu

**367-Pos BOARD B142**

MANY-BODY CHROMATIN INTERACTIONS IN SUPER-ENHANCER TADS. **Alan Perez-Rathke**, Qiu Sun, Valentina Boeva, Jie Liang

**368-Pos BOARD B143**

QUANTITATIVE MEASUREMENT OF NUCLEOSOME OCCUPANCY AND DNA ACCESSIBILITY. **Razvan V. Chereji**, Terri D. Bryson, Steven Henikoff

**369-Pos BOARD B144**

THE CHROMOSOME'S FIGHT AGAINST DISORDER IN E. COLI. **Christopher H. Bohrer**, Elijah Roberts, Jie Xiao

## DNA Replication, Recombination, and Repair (Boards B145 - B166)

**370-Pos BOARD B145**

DNA MISMATCH REPAIR RELIES ENTIRELY ON STOCHASTIC TRANSACTIONS. **Jiaquan Liu**, Ryang-Geun Lee, Brooke Britton, James London, Jeunghill Hanne, Jong-Bong Lee, Richard Fishel

**371-Pos BOARD B146**

DECIPHERING THE ESSENTIAL INTERACTION BETWEEN PRIMASE AND HELICASE IN *MYCOBACTERIUM TUBERCULOSIS*. **Dhakaram P. Sharma**, Ramachandran Vijayan, Syed Arif Abdul Rehman, Samudrala Gourinath

**372-Pos BOARD B147**

AFM SHOWS THAT HUMAN CTIP FORMS A TETRAMERIC DUMBBELL-SHAPED PARTICLE WHICH BINDS AND BRIDGES DNA ENDS.

**Alejandro Martin-Gonzalez**, Oliver Wilkinson, Hae Joo Kang, Sarah Northall, Dale Wigley, Mark S. Dillingham, Fernando Moreno-Herrero

**373-Pos BOARD B148**

NOVEL ASSAY RESOLVES D-LOOP PROCESSING PATHWAYS BY *E. COLI* RECQ AND HUMAN BLM HELICASES. **Gabor M. Harami**, Janos Palinkas, Yeonee Seol, Mate Gyimesi, Zoltan J. Kovacs, Keir C. Neuman, Mihaly Kovacs

**374-Pos BOARD B149**

MECHANISM OF SSB DISPLACEMENT BY REPLICATIVE DNA POLYMERASES DURING LAGGING STRAND SYNTHESIS. Fernando Cerron, Grzegorz L. Ciesielski, Laurie S. Kaguni, Francisco J. Cao, **Borja Ibarra**

**375-Pos BOARD B150**

SINGLE-MOLECULE MOVIES OF THE INTERPLAY BETWEEN DNA POLYMERASE AND SINGLE STRAND DNA BINDING (SSB) PROTEIN. **Longfu Xu**, Julia Bakx, Seyda Acar, Andreas Biebricher, Erwin J. Peterman, Gijs J. Wuite

**376-Pos BOARD B151**

ELUCIDATION OF THE ROLE OF THE INTERACTION BETWEEN RECQ HELICASE AND SSB PROTEIN. Gabor M. Harami, K. Maria Mills, Zoltan J. Kovacs, Yeonee Seol, Veronika Barath, Julianna B. Nemeth, Hajnalka Harami-Papp, Keir C. Neuman, **Mihaly Kovacs**

**377-Pos BOARD B152**

NOVEL CONFORMATIONALLY-TAUTOMERIC PROPERTIES OF THE BIOLOGICALLY IMPORTANT AT DNA BASE PAIRS. **Ol'ha Brovarets'**, Kostiantyn Tsiupa

**378-Pos BOARD B153**

MUTS HOMOLOG SLIDING CLAMPS SHIELD THE DNA FROM BINDING PROTEINS. **Jeunghill Hanne**, Brooke M Britton, Jonghyun Park, Jiaquan Liu, Juana Martin-Lopez, Nathan Jones, Matthew Schoffner, Piotr Klajner, Ralf Bundschuh, Jong-Bong Lee, Richard Fishel

**379-Pos BOARD B154**

SINGLE-MOLECULE STUDIES REVEAL NEW REPLICATION REACTIVATION PATHWAYS OF BACTERIOPHAGE T7. **Bo Sun**, Michelle D. Wang

**380-Pos BOARD B155**

NANOPORE DETECTS COMPROMISE BETWEEN SPEED AND PROCESSIVITY OF PCRA HELICASE. **Momcilo Gavrilov**, Ram Tippana, Dmitriy Bobrovnikov, Taekjip Ha

**381-Pos BOARD B156**

REPLISOME PRESERVATION BY A SINGLE-STRANDED DNA GATE IN THE CMG HELICASE. **Michael R. Wasserman**, Grant D. Schauer, Michael E. O'Donnell, Shixin Liu

**382-Pos BOARD B157**

**TRAVEL AWARDEE**  
A NEW DNA INVERSION MECHANISM: RECOMBINATION OF THE DNA FOLDBACK INTERCOIL STRUCTURE. **Byung Ho Lee**, Soojin Jo, Hyunki Kim, Sung Ha Park, Byung-Dong Kim, Moon Ki Kim

**383-Pos BOARD B158**

EXOGENOUS DISPLAYS 5'-EXONUCLEASE ACTIVITY ON BOTH SSDNA AND SS-RNA. **Anna Karlowicz**, Michal R. Szymanski

**384-Pos BOARD B159**

BIOPHYSICAL CHARACTERIZATION OF FULL LENGTH EXOG A HUMAN MITOCHONDRIAL INNER MEMBRANE NUCLEASE. **Andrzej B. Dubiel**, Michal R. Szymanski

**385-Pos BOARD B160**

ROLE OF MIS LOCALIZATION OF DNA REPAIR FACTORS IN CELL CYCLE ARREST. **Manasvita Vashisth**, Sangkyun Cho, Dennis Discher

**386-Pos BOARD B161**  
TRACKING THE ACCELERATION OF DNA REPAIR IN X-RAY IRRADIATED CELLS BY INTERACTION WITH HEALTHY CELLS. **Sha Jin**, Nils Cordes

**387-Pos BOARD B162**  
DUAL-COLOUR LIVE CELL SINGLE MOLECULE IMAGING REVEALS THE DYNAMICS OF NUCLEOTIDE EXCISION DNA REPAIR COMPLEXES IN E. COLI. **Alexandra M. Moores**, Jingyu Wang, Neil M. Kad

**388-Pos BOARD B163**  
UNTANGLING DNA MISMATCH REPAIR COMPLEXES WITH SMFRET AND TETHERED PARTICLE MOTION ANALYSIS. **Pengyu Hao**, Sharonda LeBlanc, Dorothy A. Erie, Keith R. Weninger

**389-Pos BOARD B164**  
MYOSIN VI AND ITS ROLE IN THE DNA DAMAGE RESPONSE. **Alexander Cook**, Yukti Hari Gupta, Tomáš Venit, Piergiorgio Percipalle, Christopher P. Toseland

**390-Pos BOARD B165**  
MOLECULAR DYNAMICS SIMULATIONS REVEAL MULTIPLE ROLES OF POLYMERASE THUMB DOMAIN DURING PRIMER STRAND TRANSLLOCATION IN DNA POLYMERASE III. **Thomas W. Dodd**, Ivaylo Ivanov

**391-Pos BOARD B166**  
BINDING SPECIFICITY OF *E. COLI* SSB C-TERMINAL TAILS TO SIPS. **Min Kyung Shinn**, Alexander G. Kozlov, Timothy M. Lohman

## Membrane Physical Chemistry I (Boards B167 - B192)

**392-Pos BOARD B167**  
A CALORIMETRIC STUDY OF BRAIN CEREBROSIDES IN MIXTURES WITH CHOLESTEROL, BRAIN CERAMIDE AND PHOSPHOLIPIDS. **Alicia Alonso**, Emilio González-Ramírez, Goni Felix M

**393-Pos BOARD B168**  
DIRECT IMAGING OF MEMBRANE DOMAINS IN SUB-MICRON LIPID VESICLES BY CRYO-EM. **Caitlin E. Cornell**, Alexander Mileant, Kelly K. Lee, Sarah L. Keller

**394-Pos BOARD B169**  
THE INFLUENCE OF LIPID COMPOSITION UPON LIPID DOMAIN FORMATION IN THE INNER LEAFLET OF ASYMMETRIC VESICLES USING SPIN-LABELED LIPIDS. **Qing Wang**, Erwin London

**395-Pos BOARD B170**  
THE ROLE OF CERAMIDE STRUCTURE IN REGULATING THE STABILITY OF MEMBRANE DOMAINS. **Frederick A. Heberle**, Mitchell DiPasquale, Tye Deering, Mark Kester, John Katsaras, Drew Marquardt

**396-Pos BOARD B171 TRAVEL AWARDEE**  
THE ROLE OF ERGOSTEROL IN PHASE SEPARATION OF YEAST VACUOLE MEMBRANES. **Chantelle L. Leveille**, Caitlin E. Cornell, Alexey J. Merz, Sarah L. Keller

**397-Pos BOARD B172**  
COMPLEX COACERVATE FORMATION ON A HETEROGENEOUS MEMBRANE. **Andrew Balchunas**, Sarah Veatch

**398-Pos BOARD B173**  
CHARACTERIZING GIANT PLASMA MEMBRANE VESICLES ISOLATED FROM *XENOPUS LAEVIS* OOCYTES. **Eva S. Chakravorty**

**399-Pos BOARD B174**  
PHASE BEHAVIOR OF CHOLESTEROL CRYSTALS FORMED IN WATER FROM PURE CHOLESTEROL AND FROM CHOLESTEROL/PHOSPHOLIPID MIXTURES. **Laxman Mainali**, Marta Pasenkiewicz-Gierula, Witold Subczynski

**400-Pos BOARD B175**  
DPPC LIPID MELTING TRANSITION IN CONCENTRATED SUCROSE SOLUTIONS. Mattia I. Morandi, **Fabrice J. Thalmann**, Monika Kluzek, Andre P. Schroder, Carlos M. Marques

**401-Pos BOARD B176**  
EFFECTS OF PASSIVE FLIP-FLOP PHOSPHOLIPID AND ASYMMETRIC EXTERNAL FIELDS ON BILAYER PHASE EQUILIBRIA. **Peter Olmsted**, John Joseph Williamson

**402-Pos BOARD B177**  
INVESTIGATING SINGLE-CELL VARIATION IN MEMBRANE FLUIDITY AND RESPIRATION RATES. Krishna Ojha, Sam Blechman, Joshua Kasburg, **Michael C. Konopka**

**403-Pos BOARD B178**  
PREPARATION OF ASYMMETRIC CHARGED LARGE UNILAMELLAR VESICLES CONTAINING BOTH CATIONIC AND ANIONIC LIPIDS. **Bingchen Li**, Erwin London

**404-Pos BOARD B179**  
A NEW METHOD TO PREPARE ASYMMETRIC UNILAMELLAR VESICLES: HEMIFUSION. **Thais A. Enoki**, Gerald W. Feigenson

**405-Pos BOARD B180**  
TOWARD REALISTIC CELL MEMBRANE MIMICS. **Peter Beltramo**

**406-Pos BOARD B181**  
TEMPERATURE-CONTROLLED SINGLE-LIPOSOME PROTON PERMEABILITY ASSAY OF EXTREMOPHILE-INSPIRED LIPID MEMBRANES. **Anirvan Guha**, Melissa McGuire, Thomas B. H. Schroeder, Geoffroy Leriche, Jerry Yang, Michael Mayer

**407-Pos BOARD B182**  
APPLICATION OF LONG-TERM AIR-STABLE LIPID BILAYERS FOR WAVEGUIDE-BASED BIOSENSORS. **Christine Pedersen**, Aaron Anderson, Harshini Mukundan, Jessica Kubicek-Sutherland

**408-Pos BOARD B183**  
NESTING LIPID BILAYERS IN NANOPORES: EFFECT OF PORE DIAMETER ON MACROSCOPIC ORDER AND THE LAYER COUNT. Morteza Jafarabadi, Melanie Chestnut, Antonin Marek, Alexander Nevzorov, **Alex I. Smirnov**

**409-Pos BOARD B184**  
EFFECT OF SILICA SUPPORT ON ELECTROSTATICS OF LIPID INTERFACES IN NANO-BIO HYBRID SYSTEMS. Erkang Ou, Maxim Voinov, Alex Irving, Alex Smirnov, **Tatyana I. Smirnova**

**410-Pos BOARD B185**  
IMAGING OF LIPID METABOLISM THROUGH A PHASOR ANALYSIS OF MEMBRANE MICROPOLARITY. **Flavio Di Giacinto**, Marco De Spirito, Giuseppe Maulucci

**411-Pos BOARD B186**  
PHOTOPHYSICAL CHARACTERIZATION AND MICROSCOPY APPLICATION OF AN ANTHRACENE ANALOGOUS OF LAURDAN. **German Gunther**, Javier Gajardo, Vicente Castro, Catalina Sandoval, Susana A. Sanchez, Leonel Malacrida

**412-Pos BOARD B187**  
THE ROLE OF PACKING DENSITY ON FLUORESCENCE INTENSITY MEASUREMENTS OF COMMON FLUOROPHORES IN LIPID MONOLAYERS. **Benjamin L. Stottrup**, Dametre Thunberg, Joan C. Kunz

**413-Pos BOARD B188**  
ITRACONAZOLE PERTURBS BEHAVIOR OF FLUORESCENT PROBES IN LIPID BILAYER. Chetan Poojari, Natalia Wilkosz, Piotr Jurkiewicz, Ilpo Vattulainen, Mariusz Kepczynski, **Tomasz Rog**

**414-Pos BOARD B189**  
EXCITATION OF FLUORESCENT LIPID PROBES ACCELERATES PHOSPHOLIPID VESICLE RUPTURE AND SUPPORTED LIPID BILAYER FORMATION. Ashley M. Baxter, **Nathan J. Wittenberg**

**415-Pos BOARD B190**  
CONCENTRATION-CONTROLLED FASCINATING VESICLE-FIBRIL TRANSFORMATION USING MEROCYANINE 540 AND 1-OCTYL-3-METHYLIMIDAZOLIUM CHLORIDE. **Rupam Dutta**, Arghajit Pyne, Sangita Kundu, Pavel Banerjee, Nilmoni Sarkar

**416-Pos BOARD B191**  
A DETAILED MICROSCOPIC INSIGHT INTO THE AGGREGATION BEHAVIORS OF DOXORUBICIN HYDROCHLORIDE IN DIFFERENT MICROHETEROGENEOUS MEDIA. **Arghajit Pyne**, Sangita Kundu, PAVEL BANERJEE, Nilmoni Sarkar

**417-Pos BOARD B192**  
BIOLOGICAL MEMBRANE SOLUBILIZATION BY STYRENE-MALEIC ACID COPOLYMERS: IMPORTANCE OF POLYMER LENGTH. **Adrian H. Kopf**, Min Xie, Randy Cunningham, Martijn C. Koorengel, Helene Jahn, Jonas M. Dörr, Rueben Pfkwa, Bert Klumperman, Antoinette J. Killian

## Membrane Active Peptides and Toxins I (Boards B193 - B214)

**418-Pos BOARD B193**  
CHARACTERIZATION OF HYBRIDS MADE FROM TWO MEMBRANE TRANSLOCATING ANTIMICROBIAL PEPTIDES. **Ju Young Kwag**, Hannah Klim, Donald E. Elmore

**419-Pos BOARD B194**  
MECHANISM OF ACTION OF PH-TRIGGERED, MEMBRANE ACTIVE PEPTIDES. **Sarah Y. Kim**, Anna Pittman, Gavin King, William C. Wimley, Kalina Hristova

**420-Pos BOARD B195 TRAVEL AWARDEE**  
DISCOVERING NOVEL ANTIMICROBIAL PEPTIDES USING HIGH-THROUGHPUT SCREENING AND RATIONAL VARIATION. **Jenisha Ghimire**, Charles G. Starr, William C. Wimley

**421-Pos BOARD B196**  
TOXICITY AND STRUCTURE OF ANTIMICROBIAL PEPTIDES DERIVED FROM THE CHEMOKINE, CXCL10. **Peter Bailer**, Amanda E. Ward, Matthew Crawford, Debra Fisher, Lukas K. Tamm, Molly Hughes

**422-Pos BOARD B197**  
CHARACTERIZATION OF A HISTIDINE CONTAINING ANTIMICROBIAL PEPTIDE WITH PH DEPENDENT ACTIVITY. **Luis Santiago-Ortiz**, Morgan Hitchner, Thaddeus Palmer, Gregory A. Caputo

**423-Pos BOARD B198**  
MEMBRANE REMODELING INDUCED BY A PH DEPENDANT PORE FORMING PEPTIDE VIA ATOMIC FORCE MICROSCOPY. **Anna Pittman**, Sarah Y. Kim, William C. Wimley, Kalina Hristova, Gavin King

**424-Pos BOARD B199**  
ELASTIC BEHAVIOR OF MODEL MEMBRANES WITH ANTIMICROBIAL PEPTIDES DEPENDS ON LIPID SPECIFICITY AND D-ENANTIOMERS. Akari Kumagai, Fernando G. Dupuy, Zoran Arsov, Yasmene Elhady, Diamond Moody, Belita Opene, Robert K. Ernst, Berthony Deslouches, Ronald C. Montelaro, Y.P. Peter Di, **Stephanie A. Tristram-Nagle**

**425-Pos BOARD B200**  
HUMAN ANTIBACTERIAL PEPTIDES MODIFY LATERAL STRUCTURE IN LIPID MONOLAYERS UPON INTERFACIAL ADSORPTION. Thomas Gutschmann, Beate Klösgen, Christian Nehls, Laura Paulowski, **Chen Shen**

**426-Pos BOARD B201**  
CAN MOLECULAR DYNAMICS SIMULATIONS PREDICT THE EFFECT OF TRUNCATING HISTONE-DERIVED ANTIMICROBIAL PEPTIDES? **Kerry Gao**, Donald E. Elmore

**427-Pos BOARD B202**  
EFFECTS OF CHOLESTEROL ON FENGYCIN, AN ANTIMICROBIAL LIPOPEPTIDE USING WEIGHTED ENSEMBLE PATH SAMPLING METHOD. **Sreyoshi Sur**, Alan Grossfield

**428-Pos BOARD B203 TRAVEL AWARDEE**  
EFFECT OF BIOPOLYMER TETHERS ON ANTIMICROBIAL PEPTIDE ACTIVITY IN BIOMEMBRANES. **Fathima T. Doole**, Abhishek Singharoy, Michael F. Brown, Minkyu Kim

**429-Pos BOARD B204**  
EFFECT OF N-TERMINAL METALATION AND LIPID COMPOSITION ON THE ACTIVITY OF ANTIMICROBIAL PISCIDINS IN MEMBRANES. **Ella Mihaiulescu**, Roderico Acevedo, Vitalii Silin, Frank Heinrich, Myriam Cotten

**430-Pos BOARD B205**  
BIOPHYSICAL PROPERTIES OF MAGAININ-TREATED BIOFILMS. **Ryan MacVicar**, Thelma Mashaka, Catherine B. Volle, Megan E. Nunez

**431-Pos BOARD B206**  
MECHANISTIC STUDIES ON DAPTOMYCIN-INDUCED PHASE-TRANSITIONS ON MODEL LIPID MEMBRANES: EFFECT ON MEMBRANE PERMEABILITY. **Alaina K. Howe**, Stavroula Sofou

**432-Pos BOARD B207**  
CORRELATION OF AN ANTIMICROBIAL PEPTIDE'S POTENCY AND ITS INFLUENCES ON MEMBRANE ELASTICITY. Wen-Fang Chang, Si-Han Chen, **Yi-Fan Chen**

**433-Pos BOARD B208**  
MEASURING THE STOICHIOMETRY OF ANTIMICROBIAL PEPTIDES IN NANODISCS WITH NATIVE MASS SPECTROMETRY. **Michael T. Marty**, Lawrence Walker, Marius Kostelic, Elaine Marzluff

**434-Pos BOARD B209**  
ANTIMICROBIAL PEPTIDOMIMETICS WITH ACTIVITY TOWARDS CANCER CELLS. Konstantin Andreev, Michael W. Martynowycz, Mahesh Lingaraju, Christopher Bianchi, Amram Mor, **David Gidalevitz**

**435-Pos BOARD B210 TRAVEL AWARDEE**  
RATIONAL DESIGN OF POLYLEUCINE-BASED ANTIMICROBIAL PEPTIDES AS PROMISING AGENTS AGAINST CANCER CELLS. **Charles H. Chen**, Arvin Eskandari, Jenisha Ghimire, William C. Wimley, Kogularamanan Suntharalingam, Martin B. Ulmschneider

**436-Pos BOARD B211**  
AUREIN 1.2, A SHORT AND POTENT ANTIMICROBIAL PEPTIDE, CHANGES CHARGED LIPID DISTRIBUTION AND LIPID DYNAMICS IN BILAYER. **Shuo Qian**, Veerendra K. Sharma

**437-Pos BOARD B212**  
THE ROLE OF GREASY RESIDUES IN TEIXOBACTIN DERIVATIVES. **Po-Chao Wen**, Emad Tajkhorshid, Susan B. Rempe

**438-Pos BOARD B213**  
USE OF A STEREOCHEMICAL STRATEGY TO PROBE THE MECHANISM OF PHENOL-SOLUBLE MODULIN A3 TOXICITY. **Zhihui Yao**, Brian P. Cary, Craig A. Bingman, Samuel H. Gellman

**439-Pos BOARD B214**  
INVESTIGATING INTRACELLULAR FUNCTIONS OF ANTIMICROBIAL PEPTIDES USING AN INTERNAL GENE EXPRESSION SYSTEMS. **Sattar Taheri-Araghi**, Salimeh Mohammadi, Federico Prokopczuk, Xintian Li



## Membrane Structure I (Boards B215 - B235)

- 440-Pos** **BOARD B215**  
STRUCTURAL PROPERTIES OF INNER AND OUTER MEMBRANE MIMICS OF GRAM-NEGATIVE BACTERIA. **Lisa Marx**, Enrico Semeraro, Karl Lohner, Georg Pabst
- 441-Pos** **BOARD B216**  
LIPOPOLYSACCHARIDE SIMULATIONS ARE HIGHLY SENSITIVE TO ION PARAMETERS AND PHOSPHATE CHARGE STATE. **Amy Rice**, Jeffery M. Wereszczynski
- 442-Pos** **BOARD B217**  
DETERMINING VOLUMES OF LIPID COMPONENTS: HIDDEN ASSUMPTIONS HAVE NOT-SO-HIDDEN CONSEQUENCES. John F. Nagle, Richard M. Venable, Ezekiel Maroclo-Kemmerling, Stephanie A. Tristram-Nagle, **Paul E. Harper**, Richard W. Pastor
- 443-Pos** **BOARD B218**  
EFFECT OF ALCOHOL ON WATER TRANSLOCATION IN ALL-ATOM SIMULATIONS OF OSMOTIC GRADIENT ACROSS LIPID MEMBRANES. **Robert E. Coffman**, David D. Busath, Dixon J. Woodbury
- 444-Pos** **BOARD B219**  
THE EFFECT OF PHLORETIN ON THE THERMOTROPIC BEHAVIOR OF MEMBRANE FORMING LIPIDS. **Svetlana S. Efimova**, Olga S. Ostroumova
- 445-Pos** **BOARD B220**  
MORPHOLOGY AND DYNAMIC EFFECT OF ERGOSTEROL OR CHOLESTEROL ON DOMAINS PRESENT IN POPC-ESM-STEROL SLB. **Arturo Galván-Hernández**, Armando Antillón, Jorge Hernández-Cobos, Ivan Ortega-Blake
- 446-Pos** **BOARD B221**  
CHOLESTEROL-DEPENDENT BENDING ENERGIES IN BOTH LEAVES PLAY A SIGNIFICANT ROLE IN DETERMINING THE CHOLESTEROL DISTRIBUTION IN THE PLASMA MEMBRANE. David Allender, **Alexander J. Sodt**, Michael Schick
- 447-Pos** **BOARD B222**  
EFFECT OF STEROL STRUCTURE ON ORDERED LIPID DOMAINS IN SYMMETRIC AND ASYMMETRIC MODEL MEMBRANES. **Johnna R. St Clair**
- 448-Pos** **BOARD B223**  
INFLUENCE OF STEROL IN TERNARY MIXTURES CONTAINING SPHINGOMYELIN: AN ALL-ATOM MOLECULAR DYNAMICS STUDY. **Fernando Favela-Rosales**, Arturo Galván-Hernández, Jorge Hernández-Cobos, Iván Ortega-Blake
- 449-Pos** **BOARD B224**  
DOES CHOLESTEROL MATTER IN THE LUNG SURFACTANT? A BIOPHYSICAL STUDY ON REALISTIC LUNG SURFACTANT LIPID MIXTURES. **Agnieszka Olzyska**, Pauline Delcroix, Lukasz Cwiklik
- 450-Pos** **BOARD B225**  
RIGIDITY OF ASYMMETRIC AND ASYMMETRICALLY STRESSED MEMBRANES. **Amirali Hossein**, Markus Deserno
- 451-Pos** **BOARD B226**  
EXTENDING A HIGHLY COARSE-GRAINED LIPID MODEL TO ASYMMETRIC MEMBRANES FOR MD SIMULATIONS. **Samuel Foley**, Markus Deserno
- 452-Pos** **BOARD B227**  
ALL ATOM SIMULATIONS OF THE INNER AND OUTER LEAFLET OF THE ERYTHROCYTE PLASMA MEMBRANE. **Edward R. Lyman**, Kandice R. Levental, Joseph Lorent, Ilya Levental
- 453-Pos** **BOARD B228**  
SURFACE ROUGHNESS AND PALMITOYLATION OF TRANSMEMBRANE HELICES INFLUENCE MEMBRANE STRUCTURE AND DYNAMICS. Adéla Melcrová, Marie Olšinová, Marek Cebeauer, **Lukasz Cwiklik**

- 454-Pos** **BOARD B229**  
THE ROLE OF HYDROPHOBIC MISMATCH ON TRANSMEMBRANE HELIX DIMERIZATION IN LIVING CELLS. Brayan Grau, Matti Javanainen, Maria Jesús García-Murria, **Waldemar Kulig**, Ilpo Vattulainen, Ismael Mingarro, Luis Martínez-Gil
- 455-Pos** **BOARD B230**  
DEVELOPMENT AND APPLICATION OF *BICELLE BUILDER* IN CHARMM-GUI. **Christopher J. Sohn**
- 456-Pos** **BOARD B231**  
NANOSCALE STRUCTURE OF LIPID BILAYERS REVEALED BY *IN-SILICO* AND EXPERIMENTAL SMALL ANGLE NEUTRON SCATTERING. **Mitchell Dorrell**, Frederick A. Heberle, John Katsaras, Edward Lyman, Alexander J. Sodt
- 457-Pos** **BOARD B232**  
EFFECTS OF MONOVALENT SALT ON ETHER-LINKED PHOSPHOLIPID BILAYERS. **Matthew W. Saunders**, Mark Steele, Wyatt Lavigne, Sameer Varma, Sagar A. Pandit
- 458-Pos** **BOARD B233**  
DISTINCT INTERACTIONS OF SODIUM AND CALCIUM CATIONS AND NEUTRAL PHOSPHOLIPID MEMBRANES AND HOW TO SIMULATE THEM. **Hector Martinez-Seara**, Matti Javanainen, Adéla Melcrová, Piotr Jurkiewicz, Pavel Jungwirth, Aniket Magarkar, Martin Hof, Josef Melcr, Ricky Nencini, Samuli O. Ollila
- 459-Pos** **BOARD B234**  
MEMSURFER: A TOOL FOR ROBUST COMPUTATION AND CHARACTERIZATION OF BILAYER MEMBRANES. Harsh Bhatia, Helgi I. Ingólfsson, **Timothy S. Carpenter**, Felice C. Lightstone, Peer-Timo Bremer
- 460-Pos** **BOARD B235**  
LDB: LIPID DATABASE FROM THE NMRLIPIDS PROJECT. **Markus S. Miettinen**, NMRLipids Collaboration, O. H. Samuli Ollila

## Exocytosis and Endocytosis I (Boards B236 - B248)

- 461-Pos** **BOARD B236**  
DIFFERENTIAL ROLES OF PIONEER PROTEINS IN INITIATION AND STABILIZATION OF EARLY CLATHRIN COAT UNVEILED BY A NOVEL DISASSEMBLY BIAS SCORE. **Xinxin Wang**, Zhiming Chen, Sandra L. Schmid, Gaudenz M. Danuser
- 462-Pos** **BOARD B237** **TRAVEL AWARDEE**  
CELL TO CELL HETEROGENEITY OF CLATHRIN COAT DYNAMICS IS CELL CYCLE DEPENDENT. **Umidahan Djakbarova**, Nathan Willy, Shahriar Shamiluulu, Comert Kural
- 463-Pos** **BOARD B238**  
CURVATURE GENERATION BY ENDOCYTIC CLATHRIN COATS. Joshua Ferguson, Cemal Cakez, Farah Hasan, Emanuele Cocucci, **Comert Kural**
- 464-Pos** **BOARD B239**  
HIGH-SPEED ATOMIC FORCE MICROSCOPY (HS-AFM) OF CLATHRIN-COATED PITS. **Grigory Tagiltsev**, Simon Scheuring
- 465-Pos** **BOARD B240**  
PIP2 LIPIDS AS REGULATORS OF MEMBRANE CURVATURE SENSING BY ENTH DOMAINS. **Alexis Belessiotis-Richards**, Molly M. Stevens, Alfredo Alexander-Katz
- 466-Pos** **BOARD B241**  
CRYO-EM STUDIES OF CLASSICAL DYNAMINS TO REVEAL THE MECHANISM OF MEMBRANE FISSION. **John Jimah**, Abigail Stanton, Huaibin Wang, Jenny E. Hinshaw

**467-Pos BOARD B242**

GTP CONCENTRATION BURSTS LOCALLY AT ENDOCYTIC SITES FOR DYNAMIN-DEPENDENT MEMBRANE FISSION. **Aisha Azhar**, Yuuta Imoto, Shigeki Watanabe

**468-Pos BOARD B243**

DYNAMIN-1 DRIVES FISSION OF VESICLES WITHIN 100 MS DURING SYNAPTIC VESICLE ENDOCYTOSIS. **Yuuta Imoto**, Sumana Raychaudhuri, Aisha Azhar, Shigeki Watanabe

**469-Pos BOARD B244 TRAVEL AWARDEE**

MECHANOCHEMICAL FEEDBACK CONTROL OF DYNAMIN INDEPENDENT ENDOCYTOSIS MODULATES MEMBRANE TENSION IN ADHERENT CELLS. **Joseph Jose Thottacherry**, Anita Joanna Kosmalka, Susav Pradhan, Parvinder Pal Singh, Xavier Trepal, Ram Vishwakarma, Pramod Pullarkat, Pere Roca-Cusachs, Satyajit Mayor

**470-Pos BOARD B245**

THE EFFECT OF ACUTE ATP DEPLETION ON SYNAPTIC VESICLE ENDOCYTOSIS AT THE ULTRASTRUCTURAL LEVEL. **Quan Gan**, Shigeki Watanabe

**471-Pos BOARD B246**

QUANTIFYING CEACAM TARGETED LIPOSOME DELIVERY USING IMAGING FLOW CYTOMETRY. **Jason P. Kuhn**, Asya Smirnov, Alison Criss, Linda Columbus

**472-Pos BOARD B247**

3D TRAFFICKING OF EPIDERMAL GROWTH FACTOR RECEPTOR IN LIVE CELLS. **Marco A. Alfonso Mendez**, Harshad Viswasrao, Hari Shroff, Justin W. Taraska

**473-Pos BOARD B248**

PHOSPHATIDYL SERINE (PS) EXTERNALIZATION FACILITATES MEMBRANE VESICULATION THROUGH DECREASING MEMBRANE STIFFNESS. **Hongyin Wang**, Joseph H. Lorent, Lakshmi Ganesan, Blanca B. Diaz-Rohrer, Kandice R. Levental, Eric Malmberg, Ilya Levental

## Excitation-Contraction Coupling I (Boards B249 - B264)

**474-Pos BOARD B249**

CHRONIC EFFECTS OF ALDOSTERONE ON CARDIAC EC COUPLING AND OXIDANT STRESS. **María Guadalupe Montiel-Jaen**, Adrian Monsalvo-Villegas, Guillermo Avila

**475-Pos BOARD B250**

UNDERLYING PHYSIOLOGICAL CONDITION ACT AS A CRITICAL FACTOR IN PHENOTYPIC REALIZATIONS OF EXCITATION COUPLING (EC) ABNORMALITIES IN TARGETED CANCER THERAPEUTIC TREATED HIPSC CARDIOMYOCYTES. **Jaehee Shim**

**476-Pos BOARD B251**

IMPERACALCIN'S ANTIARRHYTHMIC EFFECTS ARE PRESERVED AT 37°C IN WHOLE HEARTS FROM A CPVT MOUSE MODEL. Rachael N. Thorson, Jordan Price, Yuriana Aguilar, Carmen R. Valdivia, Héctor Valdivia, **Rafael Mejía-Alvarez**

**477-Pos BOARD B252**

IMPAIRED B-ADRENERGIC RESPONSIVENESS IN HFPEF RATS. **Peter J. Kilfoil**, Daniel Soetkamp, Rui Zhang, Jae Cho, Stephan Aynaszyan, Eugenio Cingolani, Eduardo Marbán, Joshua I. Goldhaber

**478-Pos BOARD B253**

QUANTITATIVE *IN SILICO* ANALYSIS OF THE ARRHYTHMOGENIC CAMKII-SODIUM-CALCIUM-CAMKII FEEDBACK IN THE FAILING RABBIT VENTRICULAR MYOCYTE. Caroline Liu, Bence Hegyi, Haibo Ni, Donald M. Bers, Eleonora Grandi, **Stefano Morotti**

**479-Pos BOARD B254**

LOSS OF DYSTROPHIN ALTERS CALCIUM-HANDLING MATURATION IN RESPONSE TO MICROENVIRONMENT IN HIPSC-CARDIOMYOCYTES FROM DUCHENNE MUSCULAR DYSTROPHY PATIENTS. **J. Manuel Pioner**, Raffaele Coppini, Lorenzo Santini, Chiara Palandri, Flavia Lupi, Marianna Langione, Patrizia Benzon, Sara Landi, Andrea Barbuti, Chiara Tesi, David L. Mack, Michael Regnier, Camilla Parmeggiani, Corrado Poggesi, Cecilia Ferrantini

**480-Pos BOARD B255**

DUAL CALCIUM AND VOLTAGE MAPPING REVEALS DIFFERENCES IN MATURITY OF EXCITATION-CONTRACTION COUPLING IN YOUNG RAT HEARTS. Luke Swift, **Rafael Jaimes**, Nikki G. Posnack

**481-Pos BOARD B256**

*IN VIVO* GENE DELIVERY OF R-CEPIA1ER: A NEW APPROACH TO STUDY  $[Ca]_{sr}$  HANDLING IN CARDIOMYOCYTES. **Elisa Bovo**, Quan Cao, Daniel Kahn, Roman Nikolaienko, Jody L. Martin, Ivana Y. Kuo, Aleksey V. Zima

**482-Pos BOARD B257**

AN AUTOSOMAL DOMINANT MUTATION IN CALSEQUESTRIN 2 CAUSES CPVT WITHOUT CHANGING PROTEIN LEVELS. **Matthew Wlekinski**, Shan Parikh, Bjorn C. Knollmann

**483-Pos BOARD B258**

BRIDGING HTS ION CHANNEL AND MYOCYTE DATA. **George O. Okeyo**, Sonja Stoelzle-Feix, Timothy Strassmaier, Krisztina Juhasz, Nadine Becker, Ulrich Thomas, Leo Doerr, Markus Rapedius, Nina Brinkwirth, Claudia Haarmann, Tom Goetze, Matthias Beckler, Michael George, Andrea Brüggemann, Niels Fertig

**484-Pos BOARD B259**

THE ABSENCE OF ACTIVE CREATINE KINASE SYSTEM INFLUENCES CARDIAC CALCIUM HANDLING. **Martin Laasmaa**, Jelena Branovets, Niina Karro, Rikke Birkedal, Marko Vendelin

**485-Pos BOARD B260**

FUNCTIONAL IMPACT OF CELL CULTURE ON EXCITATION-CONTRACTION COUPLING IN CANINE MYOCYTES. Alida Cooke, Zachary Williams, Samuel Olczyk, Robert J. Goodrow, Jonathan A. Cordeiro, Jacqueline A. Treat, **Gary L. Aistrup**, Jonathan M. Cordeiro

**486-Pos BOARD B261**

DOUBLE REGULATION OF CARDIAC EXCITATION-CONTRACTION COUPLING AND OXIDANT STRESS BY PIRFENIDONE. **Adrian Monsalvo-Villegas**, Guillermo Avila

**487-Pos BOARD B262**

MECHANICAL LOAD EFFECTS ON CARDIAC ACTION POTENTIAL AND ARRHYTHMOGENIC  $Ca^{2+}$  ACTIVITIES REVEALED BY A NOVEL PATCH-CLAMP-IN-GEL TECHNOLOGY. **Zhong Jian**, Bence Hegyi, Mark Jaradeh, Zana A. Coulibaly, Yi-je Chen, Kit S. Lam, Leighton T. Izu, Ye Chen-Izu

**488-Pos BOARD B263**

THE EFFECTS OF MECHANICAL LOAD ON TRANSMURAL DIFFERENCES IN MECHANO-ELECTRIC FEEDBACK IN SINGLE CARDIOMYOCYTES. Anastasia Khokhlova, Gentaro Iribe, Pavel Konovalov, Leonid Katsnelson, **Olga Solovyova**

**489-Pos BOARD B264**

FUNCTIONAL CONNECTOME OF THE MECHANICALLY LOADED CARDIOMYOCYTE II: COORDINATED CHANGES OF SUBSYSTEMS. Zana Coulibaly, Zhong Jian, Rafael Shimkunas, Ye Chen-Izu, **Leighton T. Izu**

## Cardiac Smooth and Skeletal Muscle Electrophysiology I (Boards B265 - B280)

**490-Pos BOARD B265**  
PHARMACOLOGICAL AND ISCHEMIC PRECONDITIONING UP-REGULATE THE EXPRESSION OF SOCS IN ADULT CARDIAC MYOCYTES: ITS PHYSIOLOGICAL SIGNIFICANCE. **Raúl Sampieri**, Joice Thomas, Maria C. Garcia, Elba D Carrillo, Eridani Fuentes, Wilibaldo Orea, Jorge A. Sanchez

**491-Pos BOARD B266 TRAVEL AWARDEE**  
DIABETIC HYPERGLYCEMIA REGULATES POTASSIUM CHANNELS AND ARRHYTHMIAS IN THE HEART VIA AUTONOMOUS CAMKII ACTIVATION BY O-LINKED GLYCOSYLATION. **Bence Hegyi**, Johanna M. Borst, Austen J. Lucena, Logan R.J. Bailey, Julie Bossuyt, Donald M. Bers

**492-Pos BOARD B267**  
AGE DEPENDENT REGULATION OF CARDIAC SODIUM CHANNEL GAIN OF FUNCTION. **Madison B. Nowak**, David Ryan King, Steven Poelzing, Seth H. Weinberg

**493-Pos BOARD B268**  
INHIBITION OF PROTEIN KINASE G PRESERVES PROLONGED VENTRICULAR ACTION POTENTIALS VIA IMPROVEMENT OF SLOW-ACTIVATED VOLTAGE-DEPENDENT K<sup>+</sup>-CHANNEL CURRENTS IN AGED RAT CARDIOMYOCYTES. **Belma Turan**, Yusuf Olgar, Erkan Tuncay

**494-Pos BOARD B269**  
THE EFFECTS OF PINACIDIL, AN ATP SENSITIVE K<sup>+</sup> CHANNEL OPENER ON CARDIAC NA<sup>+</sup>/CA<sup>2+</sup> EXCHANGER FUNCTION IN GUINEA PIG CARDIOMYOCYTES. **Keisuke Iguchi**, Masao Saotome, Kanna Yamashita, Takenori Ikoma, Prottoy Hasan, Yuichiro Maekawa, Yasuhide Watanabe

**495-Pos BOARD B270**  
EXTRACELLULAR PH BUT NOT OSMOTIC PRESSURE MODULATES CL<sup>-</sup> CURRENT IN FRESHLY-ISOLATED GUINEA PIG DETRUSOR SMOOTH MUSCLE CELLS. **Viktor Yarotsky**, Georgi V. Petkov

**496-Pos BOARD B271**  
ENGINEERING AN OPTOGENETIC SYSTEM FOR POINT-PACING CARDIOMYOCYTES IN CULTURE. Geran Kostecki, Shivani Pandey, Renjun Zhu, Emilia Entcheva, **Leslie Tung**

**497-Pos BOARD B272**  
INTRODUCING SIMULATED IK1 INTO HUMAN IPSC-CARDIOMYOCYTES USING DYNAMIC CLAMP ON AN AUTOMATED PATCH CLAMP SYSTEM. **Gang Lu**, András Horváth, Nadine Becker, Alan Fabbr, Christian Grad, Michael George, Niels Fertig, Teun P. de Boer

**498-Pos BOARD B273**  
ESTABLISHING PATHOGENICITY OF NOVEL LQTS8 VARIANT VIA GENOMIC EDITING OF HUMAN IPSC. **Dmytro O. Kryshstal**, Nikhil V. Chavali, Shan S. Parikh, Lili Wang, Andrew M. Glazer, Moore B. Shoemaker, Bjorn C. Knollmann

**499-Pos BOARD B274**  
EFFECT OF A SMALL MOLECULE ACTIVATOR OF POTASSIUM CURRENTS ON REPOLARIZATION RESERVE IN HIPSC-CARDIOMYOCYTES. Jacqueline A. Treat, Robert J. Goodrow, Gary L. Aistrup, Corina T. Bot, **Jonathan M. Cordeiro**

**500-Pos BOARD B275**  
HUMAN INDUCED PLURIPOTENT STEM CELL-DERIVED CARDIOMYOCYTES AS EARLY-SCREENING PLATFORM OF ANTI-ARRHYTHMIC EFFECTS BY PUFAS. **Alicia de la Cruz**, Rene Barro-Soria, Sara I. Liin, H. Peter Larsson

**501-Pos BOARD B276**  
OPTOGENETIC CONTROL OF RE-ENTRANT WAVES DEMONSTRATED IN HUMAN INDUCED STEM CELL DERIVED CARDIOMYOCYTES (HIPSC-CMS). **B Adrienne Caldwell**, Miguel Romero Sepveda, Gil Bub, Alvin Shrier

**502-Pos BOARD B277**  
EFFECT OF REAL-TIME LEAK CURRENT CORRECTION ON ACTION POTENTIALS RECORDED FROM INDUCED PLURIPOTENT STEM CELL-DERIVED CARDIAC MYOCYTES. **Brian Panama**, Mark Nowak, Brandon Franks, Leigh Korbel, Glenna Bett, Randall Rasmusson

**503-Pos BOARD B278**  
THE EFFECTS OF NOISE IN BIOLOGICAL EXCITABLE MEDIA. **J. Miguel Romero Sepúlveda**, B. Adrienne Caldwell, Alvin Shrier, Gil Bub

**504-Pos BOARD B279**  
LONGITUDINAL CARDIOTOXIC EFFECT OF DOXORUBICIN IN A MULTICELLULAR CARDIAC MODEL. **Viviana Zlochiver**, Stacie Edwards, Rosy Joshi-Mukherjee

**505-Pos BOARD B280**  
A COMPUTATIONAL APPROACH TO PREDICT MECHANISMS OF PHENOTYPIC VARIABILITY IN INDUCED PLURIPOTENT STEM CELL-DERIVED CARDIOMYOCYTES. **Divya C. Kernik**, Stefano Morotti, Garg Priyanka, Joseph C. Wu, Jose Jalife, Eleonora Grandi, Colleen E. Clancy

## Voltage-gated K Channels I (Boards B281 - B298)

**506-Pos BOARD B281**  
MOLECULAR MECHANISMS OF FILTER-LEVEL GATING AND LOSS OF SELECTIVITY IN HERG1 N629D MUTANT FROM MICROSECONDS MD SIMULATIONS. **Williams E. Miranda**, Henry J. Duff, Jiqing Guo, Igor V. Vorobyov, Kevin R. DeMarco, Colleen E. Clancy, Sergei Yu. Noskov

**507-Pos BOARD B282**  
DYNAMICS OF PORE DOMAIN AFFECTED BY SINGLE MUTATIONS IN S4 SEGMENT OF SHAKER POTASSIUM CHANNEL. **Carlos Alberto Z. Bassetto Jr**, Joao Luis Carvalho-de-Souza, Francisco Bezanilla

**508-Pos BOARD B283**  
SCREENING OF NEGATIVE CHARGES BY CA<sup>2+</sup> IN THE TURRET REGION CONTROLS KV7.1 INACTIVATION GATING AND IS REGULATED BY PIP2 AND CALMODULIN. **Bernard Attali**, William S. Tobelaim, Maya Lipinsky, Asher S. Peretz, Daniel Yakubovich, Yoav Paas

**509-Pos BOARD B284**  
QUANTUM CALCULATIONS ON PROTON TRANSPORT IN THE KV1 CHANNEL VOLTAGE SENSING DOMAIN, WITH COMPARISON TO ANALOGS IN BACTERIORHODOPSIN, CYTOCHROME C, AND THE H<sub>v</sub>1 PROTON CHANNEL. Alisher M. Kariev, **Michael E. Green**

**510-Pos BOARD B285**  
MOBILITY OF S3-S4 LINKER MODULATES ACTIVATION PROCESS IN SHAKER POTASSIUM CHANNELS. **Joao L. Carvalho-de-Souza**, Carlos Bassetto Jr, Elizabeth EL Lee, Francisco Bezanilla

**511-Pos BOARD B286**  
VOLTAGE DEPENDENT GATING OF BK CHANNELS - WHERE IS THE SPRING? **Karl L. Magleby**, Yanyan Geng

**512-Pos BOARD B287**  
INFLUENCE OF DIMERIC INTERACTIONS ON VOLTAGE SENSING PHOSPHATASE ACTIVITY. **Vamseedhar Rayaprolu**, Perrine Royal, Guillaume Sandoz, Susy C. Kohout

**513-Pos BOARD B288**  
NATURE UTILIZATION OF THE SLOW INACTIVATION MECHANISM IN VOLTAGE GATED  $K^+$  CHANNELS. **Izhar Karbat**, Hagit Gueta, Tibor Szanto, Shelly Hamer-Rogotner, Orly Dym, Felix Frolow, Dalia Gordon, Gyorgy Panyi, Michael Gurevitz, Eitan Reuveny

**514-Pos BOARD B289**  
CALCIUM REGULATION OF KV4-KCHIP ION CHANNEL COMPLEXES. **Jonathan G. Murphy**, Dax A. Hoffman

**515-Pos BOARD B290**  
*IN SILICO* DETERMINATION OF OPEN CONDUCTING AND INACTIVATED ATOMISTIC  $K_v1.1$  CHANNEL MODELS. **John R. D. Dawson**, Kevin R. DeMarco, Borislava Bekker, Sergei Y. Noskov, Colleen E. Clancy, Igor V. Vorobyov

**516-Pos BOARD B291**  
THE ROLE OF HCN DOMAIN IN THE FUNCTION OF HCN CHANNELS. **Zejun Wang**, Sebastien Hayoz, Tinatin I. Brelidze

**517-Pos BOARD B292**  
TRAPPING THE 2,4- $K^+$ -ION BOUND CONFIGURATION OF KCSCA'S SELECTIVITY FILTER. Cholpon Tilegenova, D. Marien Cortes, Nermina Jahovic, Emily Hardy, Parameswaran Hariharan, Lan Guan, **Luis G. Cuello**

**518-Pos BOARD B293**  
QUANTUM CALCULATIONS ON THE  $K^+$  ION IN THE  $K_v1.2$  CHANNEL PORE: HYDRATION AND COSOLVATION. **Alisher M. Kariev**, Michael E. Green

**519-Pos BOARD B294**  
NOBILETIN INHIBITION OF BK CHANNELS. **Liang Sun**, Lorie Ann Gonzalez, Frank T. Horrigan

**520-Pos BOARD B295**  
LOSS OF HAX-1 MAY CONTRIBUTE TO THE NEURODEGENERATION CAUSED BY A KV3.3 MUTATION. **Yalan Zhang**, Luis Varela, Klara Szigeti-Buck, Tamas L. Horvath, Leonard K. Kaczmarek

**521-Pos BOARD B296**  
MODULATION OF KV7.1/KCNE1 CHANNEL ACTIVITY BY NAVB1. **Spencer Mason Webber**, Carlos Villalba-Galea

**522-Pos BOARD B297**  
STRUCTURAL MODELING OF THE HERG CHANNEL IN AN INACTIVATED STATE AND ITS DRUG INTERACTIONS. **Jan Maly**, Aiyana M. Emigh, Kevin R. DeMarco, Jon T. Sack, Igor Vorobyov, Colleen E. Clancy, Vladimir Yarov-Yarovoy

**523-Pos BOARD B298 TRAVEL AWARDEE**  
DIFFERENTIAL REGULATION OF BK CHANNELS BY FRAGILE X MENTAL RETARDATION PROTEIN. **Aravind Kshatri**, Alejandro Cerrada, Roger Gimeno, Teresa Giraldez

## Ligand-gated Channels I (Boards B299 - B325)

**524-Pos BOARD B299**  
FÖRSTER RESONANCE ENERGY TRANSFER (FRET) ANALYSIS OF THE C-TERMINAL DOMAIN OF FP-TAGGED HOMOMERIC AND HETEROMERIC AMPARS UPON PHOSPHORYLATION. **Linda G. Zachariassen**, Anne-Sophie Hafner, Daniel Choquet, Anders S. Kristensen

**525-Pos BOARD B300**  
THE STRUCTURAL ARRANGEMENT AND DYNAMICS OF HOMOMERIC KAINATE RECEPTORS DETERMINED BY SMFRET. **Douglas B. Litwin**, Elisa Carrillo, Sana Shaikh, Vladimir Berka, Vasanthi Jayaraman

**526-Pos BOARD B301**  
SINGLE-MOLECULE FRET INVESTIGATIONS OF NEGATIVE COOPERATIVITY IN THE NMDA RECEPTOR. **Ryan J. Durham**, Nabina Paudyal, Elisa Carrillo, Vladimir Berka, Vasanthi Jayaraman

**527-Pos BOARD B302 TRAVEL AWARDEE**  
STUDY OF A HETEROMERIC KAINATE RECEPTOR GLUK2/K5 BY PROBING SINGLE-MOLECULE FRET. **Nabina Paudyal**, Douglas B. Litwin, Vladimir Berka, Elisa Carrillo Flores, Vasanthi Jayaraman

**528-Pos BOARD B303**  
COMPUTING FREE ENERGY OF THE MAGNESIUM BLOCK IN N-METHYLD-ASPARTATE RECEPTORS. **Christopher Kottke**, Samaneh Mesbahi-Vasey, Maria G. Kurnikova

**529-Pos BOARD B304**  
MECHANISM OF AMPA RECEPTOR MODULATION BY GAMMA-8. **Elisa Carrillo Flores**, Sana A. Shaikh, Vasanthi Jayaraman

**530-Pos BOARD B305**  
MAPPING STRUCTURAL ELEMENTS TO NMDA RECEPTOR ACTIVATION STEPS. **Gary J. Iacobucci**, Han Wen, Matthew Helou, Wenjun Zheng, Gabriela K. Popescu

**531-Pos BOARD B306**  
GATING OF SINGLE AMPA RECEPTORS CROSS-LINKED AT THE LIGAND BINDING DOMAIN LAYER. **Sebastian Opfermann**, Jelena Baranovic, Andrew J.R. Plested

**532-Pos BOARD B307**  
COMPUTATIONAL CHARACTERIZATION OF THE BINDING OF NON-COMPETITIVE INHIBITORS TO AMPA RECEPTORS. **Chamali Narangoda**, Serzhan Sakipov, Maria G. Kurnikova

**533-Pos BOARD B308**  
LIFE IN THE FAST LANE: BINDING TO GLUTAMATE RECEPTORS. Alvin Yu, Hector P. Salazar, Andrew J. Plested, **Albert Y. Lau**

**534-Pos BOARD B309**  
AGONIST AND INHIBITOR BINDING EFFECTS ON AMPA RECEPTOR INTERNAL STRUCTURE AND DYNAMICS. **Serzhan Sakipov**, Chamali m. Narangoda, Samaneh Mesbahi, Jose C. Flores-Canales, Christopher Kottke, Maria G. Kurnikova

**535-Pos BOARD B310**  
SUBUNIT-DEPENDENT MODULATION OF AMPAR GATING BY AUXILIARY PROTEINS. **Irene Riva**, Jelena Baranovic, Anna L. Carbone, Andrew J. Plested

**536-Pos BOARD B311**  
SIGNAL PEPTIDE REPRESSES KAINATE RECEPTOR GLUK1 SURFACE AND SYNAPTIC TRAFFICKING THROUGH DIRECT INTERACTION WITH AMINO-TERMINAL DOMAIN. **Guifang Duan**

**537-Pos BOARD B312**  
DEVELOPMENT OF A HIGH-THROUGHPUT  $Ca^{2+}$  FLUX SCREENING ASSAY TO MONITOR CYCLIC NUCLEOTIDE-GATED CHANNEL ACTIVITY AND EVALUATE ACHROMATOPSIA DISEASE MUTANT CHANNEL FUNCTION. **Jacqueline Tanaka**, Cristy Almonte, Elizabeth McDuffie, Laura Jones, Dennis Colussi, Marlene Jacobson

**538-Pos BOARD B313**  
ALLOSTERIC GATING REARRANGEMENTS OF A PROKARYOTIC CYCLIC NUCLEOTIDE-GATED ION CHANNEL REVEALED WITH PULSED DIPOLAR SPECTROSCOPY. **Eric G.B. Evans**, Jacob L.W. Morgan, Stefan Stoll, William N. Zagotta

**539-Pos BOARD B314**  
FUNCTIONAL CHARACTERIZATION OF GATING IN A BACTERIAL CYCLIC NUCLEOTIDE-GATED CHANNEL. **Jacob Morgan**, Eric Evans, William Zagotta

**540-Pos BOARD B315**  
OPPOSING SUBUNITS INTERACT TO STABILIZE THE CLOSED STATE IN HCN2 CHANNELS. **Mahesh Kondapuram**, Sezin Yüksel, Tina Schwabe, Benedikt Frieg, Holger Gohlke, Ralf Schmauder, Klaus Benndorf, Jana Kusch

**541-Pos BOARD B316**  
UNCOUPLING THE CAMP BINDING DOMAIN FROM THE CHANNEL GATE IN HCN2 CHANNELS. **Sezin Yüksel**, Mahesh Kondapuram, Tina Schwabe, Michele Bonus, Holger Gohlke, Ralf Schmauder, Jana Kusch, Klaus Bendorf

**542-Pos BOARD B317**  
NUCLEOTIDE MODULATION OF  $K_{ATP}$  CHANNELS DISENTANGLED WITH FRET. **Michael C. Puljung**, Samuel Usher, Natascia Vedovato, Frances Ashcroft

**543-Pos BOARD B318**  
SINGLE MOLECULE FRET REVEALS LIPID INDUCED CONFORMATIONAL CHANGES IN CYTOPLASMIC DOMAIN OF KIR2.1. **Joshua B. Brettmann**, Sun Joo Lee, Shizhen Wang, Colin G. Nichols

**544-Pos BOARD B319**  
MULTIPLE NUCLEOTIDE-DEPENDENT CONFORMATIONS OF A MYCOBACTERIAL RCK DOMAIN. Alexandre G. Vouga, Katia K. Matychak, Michael E. Rockman, Lisandra Flores, Sebastian Brauchi, **Brad S. Rothberg**

**545-Pos BOARD B320**  
RCK DOMAINS CAN ASSEMBLE AS HETERO-OCTAMERS AND CONTROL DIFFERENT LIGAND-GATED CHANNELS. **Rita Rocha**, Celso Teixeira Duarte, Joao M. P. Jorge, Joao H. Morais Cabral

**546-Pos BOARD B321**  
CHARACTERIZING P2X<sub>2</sub> MUTANTS ASSOCIATED WITH PROGRESSIVE SENSORINEURAL HEARING LOSS (DFNA41). **Benjamin I. George**, Mufeng Li, Kenton J. Swartz

**547-Pos BOARD B322**  
ELUCIDATING THE FUNCTION AND CELL-SPECIFIC INTERACTIONS OF P2X7 RECEPTOR VARIANTS LINKED TO MENTAL DISORDERS. **Mette Homann Poulsen**, Jamie Fang, Stephan A. Pless

**548-Pos BOARD B323 TRAVEL AWARDEE**  
STOMATIN DEPENDENT REGULATION OF THE ACID SENSING ION CHANNELS. **Robert C. Klipp**, John Bankston

**549-Pos BOARD B324**  
INDIRECT DETERMINANTS OF ION SELECTIVITY IN ACID-SENSING ION CHANNELS AND EPITHELIAL SODIUM CHANNELS. **Zeshan P. Sheikh**, Timothy Lynagh, Anders S. Kristensen, Stephan A. Pless

**550-Pos BOARD B325**  
MOLECULAR BASIS FOR ION SELECTIVITY IN HETEROMERIC ACID-SENSING ION CHANNELS. **Zeshan P. Sheikh**, Timothy Lynagh, Emelie Flood, Celine Boiteux, Toby W. Allen, Stephan A. Pless

## Voltage-gated Ca Channels (Boards B326 - B338)

**551-Pos BOARD B326 TRAVEL AWARDEE**  
A MUTATION LINKED TO MALIGNANT HYPERTHERMIA IN THE SKELETAL  $CA_{V1.1}$  CHANNEL STABILIZES THE RESTING STATE OF VOLTAGE SENSOR I AND IMPAIRS CHANNEL ACTIVATION. **Nicoletta Savalli**, Fenfen Wu, Marbella Quinonez, Stephen C. Cannon, Riccardo Olcese

**552-Pos BOARD B327**  
DESIGN AND APPLICATIONS OF THE NEW CALCIUM SENSOR GCAMP-X. Yaxiong Yang, Yuanyuan He, **Xiaodong Liu**

**553-Pos BOARD B328 TRAVEL AWARDEE**  
PROBING L-TYPE CHANNEL CALCIUM-DEPENDENT INACTIVATION – A BILOBAL MODEL OF CALMODULATION. **Worawan B. Limpitikul**, Joseph L. Greenstein, David T. Yue, Ivy E. Dick, Raimond L. Winslow

**554-Pos BOARD B329**  
CARDIAC  $O_2$  SENSOR: A TRIO OF HEMEOXYGENASE, CAMKII & CARBOXYL TAIL OF  $CA_{V2}$  CHANNEL. **Jose Carlos Fernandez Morales**, Naohiro Yamaguchi, Martin Morad

**555-Pos BOARD B330**  
TREATMENT OF  $CA_{V1.2}$  CHANNELOPATHIES MAY BE COMPLICATED BY ALTERED CHANNEL INACTIVATION. **Moradeke A. Bamgboye**, Maria Traficante, David T. Yue, Ivy E. Dick

**556-Pos BOARD B331**  
POSSIBLE MECHANISM OF CALCIUM-DEPENDENT BLOCK OF L-TYPE CALCIUM CHANNEL BY GLACONTRYPHAN-M. Vyacheslav S. Korkosh, Denis B. Tikhonov, **Boris S. Zhorov**

**557-Pos BOARD B332**  
BETA AMYLOID PEPTIDE (1-42) MEDIATED DYSREGULATION OF L-TYPED VOLTAGE GATED CALCIUM CHANNEL 1.2 THROUGH THE BETA-2 ADRENERGIC RECEPTOR. **Liangying Li**, Jennifer Price, Boram Lee, Johannes Hell

**558-Pos BOARD B333**  
STRUCTURE MODELLING OF  $CA_{V1.1}$  REVEALS FUNCTIONAL TRANS-DOMAIN INTERACTIONS INVOLVED IN VOLTAGE SENSING. **Monica L. Fernández-Quintero**, Youssa El Ghaleb, Petronel Tuluc, Campiglio Campiglio, Klaus R. Liedl, Bernhard E. Flucher

**559-Pos BOARD B334**  
SKELETAL F1 SUBUNIT MODULATION OF HUMAN  $CA_{V1.1}$  AND  $CA_{V1.2}$  CHANNELS. **Marina Angelini**, Nicoletta Savalli, Taleh Yusifov, Riccardo Olcese

**560-Pos BOARD B335**  
A LOCAL-CONTROL MODEL OF THE GUINEA PIG VENTRICULAR MYOCYTE ALLOWS UNDERSTANDING OF FORCE-INTERVAL RELATIONS AT THE CALCIUM SPARK LEVEL. **Roshan Paudel**

**561-Pos BOARD B336**  
HOW DOES THE  $A_2\Delta$ -1 SUBUNIT MODULATE SKELETAL  $CA_{V1.1}$  CHANNELS? **Federica Steccanella**, Nicoletta Savalli, Taleh Yusifov, Giovanni Battista Luciani, Alan Neely, Riccardo Olcese

**562-Pos BOARD B337**  
AUXILIARY BETA SUBUNITS ARE NOT OBLIGATORY FOR  $CA_{V1.3}$  FUNCTION. **Sharen Rivas**, Johanna Diaz, Henry M. Colecraft, Manu Ben Johny

**563-Pos BOARD B338**  
Pore-blocking effect of isoindoline MDIMP on voltage-gated calcium channels. **Juan Antonio M. De La Rosa**, Maricela García-Castañeda, Takuya Nishigaki, Juan Carlos Gomora, Teresa Mancilla-Percino, Guillermo Avila

## Cardiac Muscle Regulation (Boards B339 - B361)

**564-Pos BOARD B339**  
TROPONIN-T CARDIOMYOPATHY MUTATIONS DEPRESS ITS INHIBITORY PROPERTIES, *IN VITRO*, AND STIMULATE MYOCARDIAL DYSFUNCTION, *IN VIVO*. **Aditi Madan**, Meera C. Viswanathan, Georg Vogler, Kathleen C. Woulfe, William Schmidt, Bosco Trinh, Sineej Madathil, Cortney Wilson, Larry S. Tobacman, Anthony Cammarato

**565-Pos BOARD B340**  
THE EFFECT OF PHOSPHORYLATION ON THE STRUCTURE AND TOPOLOGY OF THE SERCA-PLN COMPLEX. **Daniel Weber**, Songlin Wang, Erik Larsen, Tata Gopinath, Gianluigi Veglia

**566-Pos BOARD B341**

DIABETES WITH HEART FAILURE INCREASES METHYLGLYOXAL MODIFICATIONS IN THE SARCOMERE WHICH INHIBIT FUNCTION. **Maria Papadaki**, Ronald Holewinski, Sammantha Previs, Thomas Martin, Marisa Stachowski, Amy Li, Cheavar Blair, Kenneth Campbell, Moravec Christine, Jennifer Van Eyk, Virginie Aubert, David Warshaw, Jonathan Kirk

**567-Pos BOARD B342**

TROPONIN I TYROSINE PHOSPHORYLATION: NOVEL REGULATOR OF CARDIAC FUNCTION. Elizabeth A. Brundage, Vikram Shettigar, Ying-Hsi Lin, Brendan Agatisa-Boyle, Mark Jeong, Mark T. Ziolo, **Brandon J. Biesiadecki**

**568-Pos BOARD B343**

PREDICTING EFFECTS OF TROPOMYOSIN STIFFNESS ON CARDIAC MUSCLE CONTRACTION USING COARSE-GRAINED STOCHASTIC MODELING. **Yasser Aboelkassem**, Kimberly J. McCabe, Michael Regnier, James B. Bassingthwaighe, Andrew D. McCulloch

**569-Pos BOARD B344**

MOLECULAR MECHANISM OF A MUTATION IMPLICATED IN PEDIATRIC-ONSET HEART DISEASE. **Samantha K. Barrick**, Michael J. Greenberg

**570-Pos BOARD B345**

LOSS OF BINDING BETWEEN GIANT OBSCURIN AND TITIN RESULTS IN CARDIAC MALADAPTATION. **Alyssa Grogan**, Li-Yen R. Hu, Christopher Ward, Aikaterini Kontrogianni-Konstantopou

**571-Pos BOARD B346**

CHARACTERIZATION OF THE ALPHA-KAP FRET BIOSENSOR TO DETERMINE COMPARTMENTALIZED BETA-ADRENERGIC RECEPTOR CAMP SIGNALING IN DISTINCT INTRACELLULAR LOCATIONS. **Michael W. Rudokas**, John P. Post, Alejandra Sataray-Rodriguez, Chase M. Fiore, Shailesh R. Agarwal, Robert D. Harvey

**572-Pos BOARD B347**

ENGINEERED THIN FILAMENT MUTATION TO INCREASE CALCIUM SENSITIVITY OF FORCE IN TROPOMYOSIN MUTATION OF DILATED CARDIOMYOPATHY. **Kristina B. Kooiker**, Joseph D. Powers, Jil Tardiff, Michael Regnier, Jennifer Davis, Farid Moussavi-Harami

**573-Pos BOARD B348**

THE ROLE OF CARDIAC MYBPC IN REGULATING FRANK STARLING RELATIONSHIPS. **Laurin M. Hanft**, Daniel P. Fitzsimons, Timothy A. Hacker, Richard L. Moss, Kerry S. McDonald

**574-Pos BOARD B349**

RESOLVING THE ACTIN LATTICE AND IDENTIFYING THE RELATIVE POSITION OF MYBPC'S N-TERMINUS IN CARDIAC MUSCLE USING STORM MICROCOSCOPY. **Sheema Rahmanseresht**, Kyoungwhan Lee, Jeffrey Robbins, David M. Warshaw, Roger Craig, Michael J. Previs

**575-Pos BOARD B350**

MODULATION OF CALCIUM SENSITIVITY AND TWITCH CONTRACTIONS IN CARDIAC MUSCLE WITH TROPONIN-C MUTATIONS: SIMULATIONS AND EXPERIMENTS. **Srboljub M. Mijailovich**, Momcilo Prodanovic, Lazar Vasovic, Boban Stojanovic, Mladen Maric, Danica Prodanovic, Joseph D. Powers, Jennifer Davis, Michael A. Geeves, Michael Regnier

**576-Pos BOARD B351**

C0 IG-DOMAIN OF CARDIAC MYOSIN BINDING PROTEIN-C INTERACTS WITH THE REGULATORY LIGHT CHAIN OF MYOSIN-S1 BOUND TO THE NATIVE CARDIAC THIN FILAMENT. Cristina Risi, Betty Belknap, Samantha Harris, Howard White, **Vitold E. Galkin**

**577-Pos BOARD B352**

OBSCURIN IN HEART FAILURE. **Aidan M. Ex-Willey**, Heather R. Manning, Ahmet Kilic, Paul M.L. Janssen, Nathan T. Wright, Maegen A. Ackermann

**578-Pos BOARD B353**

BIOPHYSICS OF SERCA2A DWORF COMPLEX AND IMPLICATIONS FOR THERAPEUTIC DESIGN. **Ang Li**, Daniel Stroik, Tory Schaaf, David D. Thomas

**579-Pos BOARD B354**

CARDIAC OVEREXPRESSION OF HUMAN ADENYLYL CYCLASE TYPE 8 IN MICE ELICITS PHOSPHORYLATION-DEPENDENT MECHANISMS THAT PERMIT PERPETUAL HEART EXERCISE WHILE CONFERRING PROTECTION AGAINST EXCESSIVE CAMP-PKA SIGNALING. **Khalid Chakir**, Alexey E. Lyashkov, Kirill V. Tarasov, Ismayil Ahmet, Dongmei Yang, Yelena S. Tarasova, Daniel Riordon, Yevgeniya O. Lukyanenko, Thanh Huynh, Karel Pacak, Edward G. Lakatta

**580-Pos BOARD B355**

SINGLE MOLECULE VISUALIZATION OF CARDIAC MYOSIN-BINDING PROTEIN C N-TERMINAL FRAGMENTS INTERACTING WITH REGULATED ACTIN FILAMENTS: MECHANISMS OF CALCIUM SENSITIZATION. Alessio V. Inchingolo, Samantha B. Previs, Michael J. Previs, David M. Warshaw, **Neil M. Kad**

**581-Pos BOARD B356**

REGULATION OF MYOFILAMENT CONTRACTILE FUNCTION IN HUMAN DONOR AND FAILING HEARTS. **Kerry S. McDonald**, Laurin M. Hanft, Joel C. Robinett, Maya E. Guglin, Kenneth S. Campbell

**582-Pos BOARD B357 TRAVEL AWARDEE**

IN HUMAN EMBRYONIC STEM CELL-DERIVED CARDIOMYOCYTES TWITCH KINETICS, ACTION POTENTIAL PARAMETERS AND MYH-MRNA FRACTIONS ARE INDEPENDENT OF THE EXPRESSED MYOSIN HEAVY CHAIN ISOFORM. **Natalie Weber**, Kathrin Kowalski, Tim Holler, Ante Radocaj, Martin Fischer, Jeanne de la Roche, Stefan Thiemann, Kristin Schwanke, Alexander Lingk, Uwe Krumm, Birgit Piep, Ullrich Martin, Robert Zweigert, Bernhard Brenner, Theresia Kraft

**583-Pos BOARD B358**

ADOLESCENT BINGE ALCOHOL EXPOSURE AFFECTS CARDIOVASCULAR FUNCTION. Lizhuo Ai, Edith Perez, Quan Cao, Maxime Heroux, Andrei Zlobin, AnnaDorothea Asimes, Toni R. Pak, **Jonathan A. Kirk**

**584-Pos BOARD B359 TRAVEL AWARDEE**

IMPACT OF HYPERTROPHIC CARDIOMYOPATHY MUTATIONS ON THE CARDIAC MYOSIN SUPER-RELAXED STATE. **Sriya Byrapuneni**, Sami Chu, Joseph M. Muretta, David D. Thomas

**585-Pos BOARD B360**

A NOVEL A-TROPOMYOSIN MUTATION (D55N) ASSOCIATED WITH FAMILIAL DILATED CARDIOMYOPATHY INCREASES TROPOMYOSIN BINDING TO ACTIN. **Xiaomei Yang**, Michelle A. Recto, Xinyu Zhang, Yuejin Li, Genaro A. Ramirez Correa, William M. Schmidt, Brittney Murray, Anne M. Murphy

**586-Pos BOARD B361**

ACTIN-BINDING COMPOUNDS THAT AFFECT THE WEAK-TO-STRONG ACTIN-MYOSIN INTERACTION. **Osha Roopnarine**, David D. Thomas

## Cell Mechanics, Mechanosensing, and Motility I (Boards B362 - B387)

**587-Pos BOARD B362**

RESCUE OF DNA DAMAGE AFTER CONSTRICTED MIGRATION BY DNA REPAIR FACTOR OVEREXPRESSION. **Yuntao Xia**, Charlotte Pfeifer, Kuangzheng Zhu, Jerome Irianto, Dennis Discher

**588-Pos BOARD B363**

SPATIAL SEGREGATION AND BOUNDARY FORMATION IN BREAST CANCER AGGREGATES. **Alex Devanny**, Daniel Lee, Laura Kaufman

**589-Pos BOARD B364**

MAPPING THE BIOCHEMICAL INTERACTIONS OF THE MECHANORESPONSIVE CONTRACTILITY CONTROLLER. **Priyanka Kothari**, Vasudha Srivastava, Vasudha Aggarwal, Irina Tchernyshyov, Jennifer Van Eyk, Taekjip Ha, Douglas N. Robinson

**590-Pos BOARD B365**  
DETERMINING INTEGRIN MOLECULAR TENSION FOR THE RECRUITMENT AND THE ACTIVATION OF FOCAL ADHESION KINASE. **Anwasha Sarkar**, Yingxiao Wang, Xuefeng Wang

**591-Pos BOARD B366**  
CALPONIN 2 MEDIATES ACTIVATION AND MYOFIBROBLAST-LIKE DIFFERENTIATION OF HUMAN AORTIC VALVE INTERSTITIAL CELLS IN CALCIFIC AORTIC VALVE DISEASE. **Olesya Plazyo**, Xue-Qun Chen, Kenneth S. Campbell, Joy Lincoln, J.-P. Jin

**592-Pos BOARD B367**  
EFFECTS OF OPSONIN DENSITY ON PHAGOCYTOTIC BEHAVIOR OF HUMAN NEUTROPHILS. **Emmet A. Francis**, Volkmar Heinrich

**593-Pos BOARD B368**  
LARGE SCALE SIMULATIONS OF CELL RESOLVED TISSUE BY A CELLULAR POTTS MODEL. **Jakob Rosenbauer**

**594-Pos BOARD B369**  
VERSATILE AND HIGH-THROUGHPUT MICROFLUIDICS PLATFORM FOR DORSAL CELL MECHANICS. Seungman Park, Yoon Ki Joo, **Yun Chen**

**595-Pos BOARD B370**  
A COUPLED EXCITABLE NETWORK MODEL DICTATES CORTICAL WAVE PATTERNS AND CONTROLS CELLULAR PROTRUSION MORPHOLOGY. Sayak Bhattacharya, Yuchuan Miao, Peter N. Devreotes, **Pablo A. Iglesias**

**596-Pos BOARD B371**  
INVESTIGATING APICAL CONSTRICTION FORCE OF MADIN-DARBY CANINE KIDNEY CELLS BY LASER ABLATION. **Keng-hui Lin**

**597-Pos BOARD B372**  
A MECHANICAL CUSP CATASTROPHE IMPOSES A UNIVERSAL DEVELOPMENTAL CONSTRAINT ON THE SHAPES OF TIP-GROWING CELLS. **Enrique R. Rojas**, Jacques Dumais

**598-Pos BOARD B373**  
EVOLUTION OF STRESSES AT CELL-GEL INTERFACES DURING CONFINED INTERFACIAL MIGRATION. **Abhishek Mukherjee**, Ramesh Singh, Wenyi Yan, Shamik Sen

**599-Pos BOARD B374**  
A COMPUTATIONAL MODEL TO UNVEIL THE ROLE OF THE NUCLEUS IN 2D CELL MIGRATION. **Adrian Mourer Rosende**, Hector Gomez

**600-Pos BOARD B375**  
SPREADING OUT: MODELING THE PHYSICS OF CELL-SUBSTRATE INTERACTION IN CELL SPREADING AND FOCAL ADHESION EVOLUTION. **Magdalena Stolarska**, Aravind R. Rammohan

**601-Pos BOARD B376**  
ALTERED ERYTHROCYTE BIOPHYSICAL PROPERTIES IN CHRONIC FATIGUE SYNDROME. **Amit K. Saha**, Brendan R. Schmidt, Julie Wilhelmy, Vy Nguyen, Justin K. Do, Vineeth C. Suja, Mohsen Nemat-Gorgani, Anand K. Ramasubramanian, Ronald W. Davis

**602-Pos BOARD B377**  
COOPERATIVE TRANSPORT BY AMOEBOID CELLS: A CELLULAR TUG-OF-WAR. **Valentino Lepro**, Oliver Nagel, Stefan Klumpp, Reinhard Lipowsky, Carsten Beta

**603-Pos BOARD B378**  
SCUTOIDS: UNDERSTANDING THE 3D PACKING OF CURVED EPITHELIA. **Javier Buceta**, Gómez-Gálvez Pedro, Pablo Vicente-Munuera, Luis M. Escudero

**604-Pos BOARD B379**  
ACTIN FLOW DEPENDENT AND INDEPENDENT FORCE TRANSMISSION IN INTEGRIN-MEDIATED ADHESIONS. **Tristan P. Driscoll**, Billy Huang, Sang Joon Ahn, Abhishek Kumar, Martin Schwartz

**605-Pos BOARD B380**  
MECHANICS OF CELLS - IMPLICATIONS FOR ADHESION AND MOTILITY. **Andreas Janshoff**

**606-Pos BOARD B381**  
SPATIOTEMPORAL ANALYSIS OF INTEGRIN MOLECULAR TENSION DURING CANCER CELL ADHESION. **Byoung Choul Kim**

**607-Pos BOARD B382**  
FROM NUCLEI TO ARTIFICIAL CELLS: PROBING THE MECHANICS OF MINIMAL SYSTEMS. **Giulia Bergamaschi**, Andreas Biebricher, Gijs J.L. Wuite

**608-Pos BOARD B383**  
HIGH THROUGHPUT MICROFLUIDIC CHARACTERIZATION OF ERYTHROCYTE SHAPES AND MECHANICAL VARIABILITY. **Felix Reichel**, Johannes Mauer, Ahmad Ahsan Nawaz, Gerhard Gompper, Jochen R. Guck, Dmitry Fedosov

**609-Pos BOARD B384 TRAVEL AWARDEE**  
RHO MEDIATED MECHANICAL FORCE GENERATION THROUGH DECTIN-1. **Rohan Choraghe**, Alan Buser, Aaron Neumann

**610-Pos BOARD B385**  
A MINIMAL MECHANOCHEMICAL MODEL FOR GROWTH CONE DYNAMICS. **Aravind R. Rammohan**, Padmini Rangamani, Magdalena Stolarska

**611-Pos BOARD B386**  
EXTERNAL HYDRAULIC RESISTANCE INFLUENCES CELL MOTILITY. **Yizeng Li**, Debonil Maity, Sean Sun

**612-Pos BOARD B387**  
DEVELOPING NUCLEASE-RESISTANT DNA-BASED TENSION SENSOR FOR CELLULAR FORCE IMAGING. **Yuanchang Zhao**, Xuefeng Wang

## Cytoskeletal-based Intracellular Transport (Boards B388 - B391)

**613-Pos BOARD B388**  
KINESIN-1 ACTS INDEPENDENTLY AND ALSO REGULATES KINESIN-3-DEPENDENT TRANSPORT OF SYNAPTOPHYSIN VESICLES IN MAMMALIAN AXONS. **Sandra E. Encalada**

**614-Pos BOARD B389**  
LATE ENDOSOMAL MEMBRANE-LIPID COMPOSITION IMPARTS CHANGE IN OXYSTEROL-BINDING PROTEIN-RELATED PROTEIN 1L'S (ORP1L) NANOSCALE ORGANIZATION WHICH EFFECTS ORGANELLE MOTILITY. **Shreyasi Thakur**, Peter Relich, Melike Lakadamyali

**615-Pos BOARD B390**  
RECONSTITUTING MITOTIC CHROMOSOME MOVEMENT *IN VITRO*. **Sagar U. Setru**, Joshua W. Shaevitz, Sabine Petry

**616-Pos BOARD B391**  
LOCAL ACTIN FILAMENT GEOMETRY DICTATES HOW MYOSIN VA MOLECULAR MOTOR TEAMS TRANSPORT LIPOSOMES THROUGH 3D ACTIN NETWORKS *IN VITRO*. **Sam Walcott**, Andrew T. Lombardo, Kathleen M. Trybus, David M. Warshaw

## Membrane Pumps, Transporters, and Exchangers I (Boards B392 - B410)

**617-Pos BOARD B392**  
DRUG-BINDING TO DISTINCT SITE OF THE MULTIDRUG EXPORTER P-GLYCOPROTEIN MONITORED BY TRYPTOPHAN FLUORESCENCE. **Ina Urbatsch**, Douglas J. Swartz, Anukriti Singh, Courtney Katz, Sakshi Gautam, Joachim Weber

**618-Pos BOARD B393**

P-GLYCOPROTEIN ACTIVITY IS NON-MONOTONICALLY MODULATED BY TRANSMEMBRANE VOLTAGE. **Thomas B.H. Schroeder**, Haiyan Liu, David Sept, Khyati Kapoor, Divya K. Rao, Suresh V. Ambudkar, Michael Mayer

**619-Pos BOARD B394**

CONFORMATIONAL COUPLING TO ASYMMETRIC ATP HYDROLYSIS IN THE TRANSPORT CYCLE OF P-GLYCOPROTEIN. **Sepehr Dehghani-Ghahnaviyeh**, Karan Kapoor, Emad Tajkhorshid

**620-Pos BOARD B395**

LIPID-MEDIATED INHIBITION MECHANISM OF P-GLYCOPROTEIN. **Karan Kapoor**, Shashank Pant, Emad Tajkhorshid

**621-Pos BOARD B396**

MECHANISTIC STUDY OF A PEPTIDASE CONTAINING ABC-TRANSPORTER, EMPLOYING MICROSECOND LEVEL MOLECULAR DYNAMICS SIMULATIONS AND ENHANCED SAMPLING TECHNIQUES. **Dylan S. Ogden**, Vivek Govind Kumar, Mahmoud Moradi

**622-Pos BOARD B397**

ELECTROSTATIC LOCK IN THE TRANSPORT CYCLE OF THE MULTIDRUG RESISTANCE TRANSPORTER EMRE. **Josh V. Vermaas**, Susan L. Rempe, Emad Tajkhorshid

**623-Pos BOARD B398**

SPONTANEOUS PHOSPHOLIPID BINDING TO THE BACTERIAL FLIPPASE MSBA. **Po-Chao Wen**, Pius Padayatti, Qinghai Zhang, Emad Tajkhorshid

**624-Pos BOARD B399**

MAPPING MEMBRANE PROTEIN COMPLEX ASSEMBLY PATHWAYS IN LIVE CELLS WITH PROGRESSIVE ACCEPTOR PHOTBLEACHING. **Michael P. Dalton**, Ellen E. Cho, Marsha P. Pribadi, Deo R. Singh, Seth L. Robia

**625-Pos BOARD B400**

PHOTOCYCLE AND ABNORMAL ACTIVITY OF THE DUAL CHROMOPHORE PROTON PUMP ARCHAEORHODOPSIN-4 WITH AND WITHOUT THE SECOND CHROMOPHORE. Xiaoyan Ding, Chao Sun, Haolin Cui, Sijin Chen, Xinyi Dong, Xinru Meng, Ming Wang, Yanan Yang, Weimin Liu, Qixi Mi, Xiao He, Anthony Watts, **Xin Zhao**

**626-Pos BOARD B401**

WHAT IS YOUR MACHINE REALLY DOING? SYSTEMATIC EXPLORATION OF ALTERNATIVE MECHANISMS AS APPLIED TO TRANSPORT. **August George**, Michael Grabe, John M. Rosenberg, Daniel M. Zuckerman

**627-Pos BOARD B402**

COMPARATIVE ANALYSIS OF PULSED EPR DISTANCE MEASUREMENTS IN AN *E. COLI* COBALAMIN TRANSPORTER IN CELLS VERSUS ISOLATED OUTER MEMBRANES REVEALS NOVEL CONFORMATIONAL CHANGES DEPENDENT ON THE NATIVE ENVIRONMENT. **David Nyenhuis**, Thushani Nilaweera, David S. Cafiso

**628-Pos BOARD B403**

AN APPROACH FOR EXPLORING NOVEL CONFORMATIONAL STATES AND MEMBRANE ORGANIZATION OF BTUB IN WHOLE CELLS USING EPR SPECTROSCOPY. **Thushani D. Nilaweera**, David A. Nyenhuis, Robert K. Nakamoto, David S. Cafiso

**629-Pos BOARD B404**

LIVE-CELL FRET BIOSENSORS FOR HIGH-THROUGHPUT SCREENING TARGETING THE SERCA2A/PLB COMPLEX. **Dan Stroik**, Samantha Yuen, Evan Kleinboehl, Kevyn Janicek, Tory Schaaf, Razvan Cornea, David Thomas

**630-Pos BOARD B405**

THE PHOSPHOLAMBAN PENTAMER FUNCTIONALLY INTERACTS WITH THE SARCOPLASMIC RETICULUM CALCIUM PUMP SERCA. John Paul Glaves, Joseph O. Primeau, L. Michel Espinoza-Fonseca, M. Joanne Lemieux, **Howard S. Young**

**631-Pos BOARD B406**

SINGLE-MOLECULE STUDIES OF ATP BINDING TO THE SODIUM PUMP. Su-shi Madhira, Don C. Lamb, **Promod R. Pratap**

**632-Pos BOARD B407**

THE BRINE SHRIMP'S FIGHT AGAINST HYPERSALINE ENVIRONMENTS REQUIRES A NA/K PUMP WITH REDUCED STOICHIOMETRY. Dylan J. Meyer, Victoria C. Young, Jessica Eastman, Jessica Drenth, Abigail Benson, Kerri Spontarelli, Craig Gatto, **Pablo Artigas**

**633-Pos BOARD B408**

EXTRACELLULAR NA<sup>+</sup> INTERACTIONS IN THE WT HNA<sup>+</sup>/K<sup>+</sup>ATPASE ALPHA 3 AND ALTERNATING HEMIPLEGIA OF CHILDHOOD. **Cristina Moreno Vadillo**, Miguel Holmgren

**634-Pos BOARD B409**

EXPRESSION OF THE NA<sup>+</sup>/K<sup>+</sup>-ATPASE SUBUNITS IN ADULT MOUSE BRAIN ANALYZED BY SINGLE-CELL RNA-SEQ PROFILING. **Song Jiao**, Cristina Moreno Vadillo, Miguel Holmgren

**635-Pos BOARD B410**

THE SINGLE CHANNEL CONFIGURATION OF NA/K PUMP. **Pengfei Liang**, Jason Mast, Wei Chen

## Cellular Signaling and Metabolic Networks (Boards B411 - B425)

**636-Pos BOARD B411**

NEW TOOLS FOR BACTERIAL BIOFILM ELECTROPHYSIOLOGY. **Alan L. Gillman**, Joseph W. Larkin, Edgar Gutierrez, Jordi Garcia-Ojalvo, Alex Groisman, Guro M. Suel

**637-Pos BOARD B412**

PREDICTING TGF- $\beta$ -INDUCED EPITHELIAL-MESENCHYMAL TRANSITION USING DATA ASSIMILATION. **Mario J. Mendez**, Matthew J. Hoffman, Elizabeth M. Cherry, Christopher A. Lemmon, Seth H. Weinberg

**638-Pos BOARD B413**

SIGNALING GROWTH THROUGH LIPID KINASES. **Sanjeev Sharma**, Swarna Mathre, Visvanathan Ramya, Dhananjay Shinde, Padinjat Raghu

**639-Pos BOARD B414**

DYNAMINE-RELATED PROTEIN 1 (DRP1) CONTRIBUTES TO HYPERTENSIVE CARDIAC HYPERTROPHY AND FIBROSIS IN VIVO AND IN VITRO MODEL. **Prottoy Hasan**

**640-Pos BOARD B415**

QUANTIFICATION OF DYNAMIC GLUCOKINASE REGULATION IN ISLETS USING A HOMOTRANSFER FRET REPORTER. **Shenq Huey Wong**

**641-Pos BOARD B416**

PREDICTION OF METABOLITE CONCENTRATIONS, RATE CONSTANTS AND POST-TRANSLATIONAL REGULATION OF NEUROSPORA CRASSA USING MAXIMUM ENTROPY OPTIMIZATIONS AND REINFORCEMENT LEARNING. **William R. Cannon**, Samuel R. Britton, Mikahl Banwarth-Kuhn, Mark Alber, Jennifer M. Hurley, Meaghan S. Jankowski, Jeremy D. Zucker, Douglas J. Baxter, Neeraj Kumar, Scott E. Baker, Jay C. Dunlap

**642-Pos BOARD B417**

TOWARD A MULTISCALE MODEL OF VALVULAR INTERSTITIAL CELLS: AN INTEGRIN-MEDIATED MECHANOTRANSDUCTION MODULE. **Daniel P. Howsmon**, Michael S. Sacks

**643-Pos BOARD B418**

CHARACTERIZATION OF THE CONTRIBUTION OF RETINOIC ACID RECEPTOR ISOFORMS IN THE SUPPRESSION OF CARDIAC HYPERTROPHY. **Lauren Parker**, Ni Yang, Brian O'Rourke, D. Brian Foster



**644-Pos BOARD B419**  
TRANSCRIPTOME AND PROTEOME ALTERATIONS OF MICE THAT OVEREXPRESS ADENYLATE CYCLASE TYPE 8 UNDERLIE A CHRONIC AND MARKED INCREASE IN SINOATRIAL NODE (SAN) AND LEFT VENTRICLE (LV) PERFORMANCE WHILE ENSURING HEART SURVIVAL. **Kirill Tarasov**, Khalid Chakir, Yelena Tarasova, Yevgeniya Lukyanenko, Alexey Lyashkov, Edward G. Lakatta

**645-Pos BOARD B420**  
THE THERAPEUTIC IMPLICATIONS OF PROTEIN KINASE C INHIBITION IN ENDOTHELIAL DYSFUNCTION INDUCED BY CARDIOPLEGIC-ISCHEMIA/ REPERFUSION INJURY. **Justin Kim**, Guangbin Shi, Amy Zhao, Frank Sellke, Jun Feng

**646-Pos BOARD B421**  
SPLITTING UP: FINDING A NEW WAY TO MONITOR MITOCHONDRIAL CAMKII USING SPLITGFP. **Kevin R. Murphy**, Qinchuan Wang, Jonathan Granger, Gianna Bortoli, Jinying Yang, Xi Zhang, Elizabeth Luczak, Rong Li, Mark E. Anderson

**647-Pos BOARD B422**  
MINIMIZING THE NUMBER OF MEASUREMENTS REQUIRED TO PREDICT A PHENOTYPIC LANDSCAPE IN BACTERIAL FOLATE METABOLISM. **Andrew D. Mathis**, Judith Boldt, Kimberly A. Reynolds

**648-Pos BOARD B423**  
THE ROLE OF POOL SIZE MEASUREMENTS IN IMPROVING FLUX ESTIMATIONS IN NON-STATIONARY METABOLIC FLUX ANALYSIS. Anna Sher, **Daniel Fridman**, Jamey Young, Cynthia J. Musante

**649-Pos BOARD B424**  
PHOSPHOLIPASE CBETA REGULATES STRESS GRANULE FORMATION. **Suzanne F. Scarlata**, Lela Jackson, Androniqi Qifti, Osama Garwain

**650-Pos BOARD B425**  
SYSTEMS BIOLOGY OF CONTROL AND REGULATION OF SUBSTRATE SELECTION IN CYTOPLASMIC AND MITOCHONDRIAL CATABOLIC NETWORKS. **Sonia Cortassa**, Miguel A. Aon, Steven J. Sollott

## Optical Microscopy and Superresolution Imaging I (Boards B426 - B452)

**651-Pos BOARD B426**  
QUANTIFYING FRET EFFICIENCY BETWEEN FLUORESCENT PROTEINS USING FLUORESCENCE POLARIZATION MICROSCOPY. **Vishnu Rao**

**652-Pos BOARD B427**  
UNVEILING THE INHIBITORY SYNAPSE ORGANIZATION USING SUPER-RESOLUTION MICROSCOPY. **Silvia Scalisi**, Andrea Barberis, Enrica Maria Petrini, Francesca Cella Zanacchi, Alberto Diaspro

**653-Pos BOARD B428**  
SUPER-RESOLUTION MICROSCOPY REVEALS THE MOLECULAR ARCHITECTURE OF CENTRIOLE SUBDISTAL APPENDAGES AND ITS ROLE IN MICROTUBULE/GOLGI ANCHORING. Weng Man Chong, T Tony Yang, **Jung-Chi Liao**

**654-Pos BOARD B429**  
AUTOMATED SINGLE MOLECULE CLUSTERING OF SUPERRESOLUTION DATA AS AN N-BODY PROBLEM. **Peter K. Relich**, Shreyasi Thakur, Melike Lakadamyali

**655-Pos BOARD B430 TRAVEL AWARDEE**  
CUSP ARTIFACTS IN HIGH ORDER SUPERRESOLUTION OPTICAL FLUCTUATION IMAGING (SOFI). **Xiyu Yi**, Shimon Weiss

**656-Pos BOARD B431**  
COMPREHENSIVE FLUOROPHORE BLINKING ANALYSIS PLATFORM AS A PREREQUISITE FOR PALM DATA INTERPRETATION. Benedikt K. Rossoth, Rene Platzer, Florian Baumgart, Hannes Stockinger, Gerhard J. Schuetz, Johannes B. Huppa, **Mario Brameshuber**

**657-Pos BOARD B432**  
THIRD HARMONIC GENERATION IMAGING USING COMMON HISTOLOGICAL DYES. **Alexei Kazarine**, Angelica A. Gopal, Paul W. Wiseman

**658-Pos BOARD B433**  
MONITORING SELF-ORGANIZATION EVENTS IN THE EARLY EMBRYOGENESIS OF CAENORHABDITIS ELEGANS WITH LIGHTSHEET MICROSCOPY. **Matthias Weiss**, Rolf Fickentscher, Philipp Struntz

**659-Pos BOARD B434**  
PRECISION OF TIME SUPER-RESOLUTION IMAGING BY EVENT CORRELATION MICROSCOPY. Qinghua Fang, Ying Zhao, **Manfred Lindau**

**660-Pos BOARD B435**  
METHOD FOR HIGH FREQUENCY TRACKING AND SUB-NM SAMPLE STABILIZATION IN SINGLE-MOLECULE FLUORESCENCE MICROSCOPY. **Patrick Schmidt**, Benjamin Reichert, John Lajoie, Sanjeevi Sivasankar

**661-Pos BOARD B436**  
MULTI-MODAL SUPERRESOLUTION MICROSCOPY THROUGH SUPERRESOLUTION RADIAL FLUCTUATIONS (SRRF). **Jeffrey Oleske**

**662-Pos BOARD B437**  
MOLECULAR COUNTING BY PHOTON STATISTICS IN CONFOCAL FLUORESCENCE IMAGING. **Marcelle Koenig**, Caroline Berlage, Paja Reisch, Christian Oelsner, Felix Koberling, Haisen Ta, Rainer Erdmann

**663-Pos BOARD B438**  
PLASMA MEMBRANE-SELECTIVE VISUALIZATION BY MULTIMODAL TWO-PHOTON IMAGING IN LIVING CELLS USING SECOND HARMONIC GENERATION. **Takaha Mizuguchi**, Masato Yasui, Mutsuo Nuriya

**664-Pos BOARD B439**  
INTRACELLULAR TRACKING OF INFLUENZA HEMAGGLUTININ IN HUMAN MONOCYTE-DERIVED MACROPHAGES MEASURED BY IMAGE CROSS CORRELATION SPECTROSCOPY. **Angelica A. Gopal**, Alexander I. Makarkov, Nathalie Landry, Brian J. Ward, Paul W. Wiseman

**665-Pos BOARD B440**  
FLEXIBLE LIGHT-SHEET GENERATION BY FIELD SYNTHESIS. Bo-Jui Chang, Mark Kittisopikul, Kevin M. Dean, **Reto P. Fiolka**

**666-Pos BOARD B441**  
LINE-SCANNING SPATIAL CORRELATION SPECTROSCOPY FOR STUDYING DYNAMICS IN BIOMEMBRANES. Peng Gao, Xiang Gao, Karin Nienhaus, **G. Ulrich Nienhaus**

**667-Pos BOARD B442**  
BROWNIAN MOTION USING A PIEZO ACTUATED MICROSCOPE STAGE. **Nicholas A. Vickers**, Sean B. Andersson

**668-Pos BOARD B443**  
SPATIOFUNCTIONAL ENZYME DROPLETS IN CELLULAR METABOLISM. **Erin L. Kennedy**, Miji Jeon, Patricia S. Boyd, Farhan Augustine, Songon An, Minjoung Kyoung

**669-Pos BOARD B444**  
CALCIUM INDEPENDENCE OF EPITHELIAL JUNCTIONS IS REGULATED BY PROTEIN MOBILITY. **Emily I. Bartle**, Tara M. Urner, Tejeshwar C. Rao, Andrew P. Kowalczyk, Alexa L. Mattheyses

**670-Pos BOARD B445**  
PHOTON-FREE CALIBRATION OF CMOS CAMERAS FOR PRECISE SINGLE MOLECULE LOCALIZATION MICROSCOPY RECONSTRUCTION. **Robin Diekmann**, Jonas Ries

**671-Pos BOARD B446**  
SINGLE MOLECULE MEASUREMENTS BASED ON INFORMATION THEORY. **Sheng Liu**, Fang Huang

**672-Pos BOARD B447**  
HUMAN STEM CELL STRUCTURES MEASURED WITH CONCENTRATION-CALIBRATED SUPER-RESOLUTION MICROSCOPY. **Derek Thirstrup**, **Winfried Wiegand**, Allen Institute for Cell Science Team

**673-Pos BOARD B448**  
NUCLEAR PORES AS UNIVERSAL REFERENCE STANDARDS FOR QUANTITATIVE MICROSCOPY. **Jervis V. Thevathasan**, Ulf Matti, Maurice Kahnwald, Sudheer Kumar Peneti, Bianca Nijmeijer, Moritz Kueblbeck, Jan Ellenberg, Jonas Ries

**674-Pos BOARD B449**  
FLUORESCENCE LIFETIME IMAGING MICROSCOPY USING COMPRESSED PHASORS. **Ryan A. Colyer**, Sarah Grant, Sarah Eplett

**675-Pos BOARD B450**  
ILLUMINATING SUN2/KASH HETERO-COMPLEX FORMATION WITHIN THE NUCLEAR ENVELOPE OF LIVING CELLS WITH DUAL-COLOR TIME-SHIFTED MSQ. **Kwang-Ho Hur**, Jared Hennen, John Kohler, Siddarth Reddy Karuka, G.W. Gant Luxton, Joachim D. Mueller

**676-Pos BOARD B451**  
AUTOMATING LOCALIZATION MICROSCOPY. **Joran Deschamps**, Yiming Li, Markus Mund, Jonas Ries

**677-Pos BOARD B452 TRAVEL AWARDEE**  
QUANTITATIVE AND MOTION-CORRECTED SUPER-RESOLUTION IMAGING OF ENDOSOME DYNAMICS IN LIVING CELLS. **Elias M. Puchner**, Santosh Adhikari

## Single-Molecule Spectroscopy I (Boards B453 - B466)

**678-Pos BOARD B453**  
TIME-TAGGED SINGLE PHOTON COUNTING EXAMINATION OF ROTATION OF RECEPTOR-BOUND QUANTUM DOTS. **Dongmei Zhang**, Jason Pace, Deborah A. Roess, **B. George Barisas**

**679-Pos BOARD B454**  
STABLE OFF-PATH STRUCTURES IN THE FOLDING DYNAMICS OF TWO CONSECUTIVE TELOMERIC DNA G-QUADRUPLEXES. **Emil L. Kristoffersen**, Victoria Birkedal

**680-Pos BOARD B455 TRAVEL AWARDEE**  
RIGIDIFICATION OF THE *E. COLI* CYTOPLASM BY THE HUMAN ANTIMICROBIAL PEPTIDE LL-37 REVEALED BY SUPERRESOLUTION FLUORESCENCE MICROSCOPY. **Yanyu Zhu**, Sonisilpa Mohapatra, James C. Weisshaar

**681-Pos BOARD B456**  
**A DIVISIVE SEGMENTATION AND CLUSTERING SCHEME FOR ACCELERATED AND IMPROVED SINGLE-MOLECULE TIME SERIES IDEALIZATION (DISC).** **David S. White**, **Marcel P. Goldschen-Ohm**, **Randall H. Goldsmith**, Baron Chanda

**682-Pos BOARD B457**  
THREE-COLOR SINGLE-MOLECULE FRET AND FLUORESCENCE LIFETIME ANALYSIS OF FAST PROTEIN FOLDING. **Janghyun Yoo**, John M. Louis, Irina V. Gopich, Hoi Sung Chung

**683-Pos BOARD B458**  
INVESTIGATION OF SINGLE PARTICLE TRACKING PERFORMANCE BY DIFFERENT PARTICLE FILTER AND SMOOTHER ALGORITHMS. **Ye Lin**, Sean B. Andersson

**684-Pos BOARD B459**  
BAYESIAN APPROACH TO FLUORESCENCE CORRELATION SPECTROSCOPY DATA ANALYSIS - THE DANGER OF LEAST-SQUARE FITTING. **Helmut H. Strey**

**685-Pos BOARD B460**  
EXPERIMENTAL DISSECTION OF EXCLUDED VOLUME EFFECTS FROM QUINARY INTERACTIONS IN MACROMOLECULAR CROWDING. **Evan J. Burd-sall**, Vincent J. Altamari, Brandon F. Jarmusik, Everett D. Spencer, Zachary A. Norris, Michael M. J. Lim, Jeffrey D. Hettlinger, Nathaniel V. Nucci

**686-Pos BOARD B461**  
EXTENDING FLUORESCENCE LONGEVITY WITH A LAGUERRE-GAUSSIAN TRAPPING LASER FOR THE COMBINATION OF OPTICAL TRAPPING AND SINGLE MOLECULE FLUORESCENCE. **Zheng Zhang**, Joshua N. Milstein

**687-Pos BOARD B462**  
TOWARD SINGLE MOLECULE FRET STUDIES OF DNA MISMATCH REPAIR IN LIVE BACTERIA. **Pengning Xu**, Andrew Hensley, Edward Chan, Keith R. Wenginger

**688-Pos BOARD B463**  
SINGLE-MOLECULAR PULL-DOWN FOR QUANTIFYING EPIGENETIC MODIFICATIONS IN CELL-FREE DNA. **Yang Du**, Yongyao Wang, Jiyan Liu, Jiajie Diao

**689-Pos BOARD B464**  
HIGH-PRECISION FRET REVEALS SEQUENCE DEPENDENT STRUCTURES OF RNA THREE-WAY JUNCTIONS. **Olga Doroshenko**, Hayk Vardanyan, Aiswaria Prakash, Sascha Froebel, Stanislav Kalinin, Simon Sindbert, Oleg Opanasyuk, Christian A. Hanke, Sabine Mueller, Holger Gohlke, Claus A.M. Seidel

**690-Pos BOARD B465 TRAVEL AWARDEE**  
INVESTIGATING HOW CHIRALITY OF A THREADING BINUCLEAR RUTHE-NIUM COMPLEX AFFECTS THE DNA THREADING INTERCALATION USING OPTICAL TWEEZERS. **Adam A. Jabak**, Nicholas Bryden, Fredrik Westerlund, Per Lincoln, Micah J. McCauley, Ioulia F. Rouzina, Mark C. Williams, Thayaparan Paramanathan

**691-Pos BOARD B466**  
THREE COLOR SINGLE-MOLECULE FRET OF FAST IDP BINDING AND FOLD-ING. **Jae-Yeol Kim**, Janghyun Yoo, Hoi Sung Chung

## Molecular Dynamics I (Boards B467 - B496)

**692-Pos BOARD B467**  
FAST SIMULATION METHODS FOR CHEMISTRY AND BIOLOGY BASED ON QUANTUM MECHANICS. **Pedro E. M Lopes**

**693-Pos BOARD B468**  
ERROR ANALYSIS FOR SMALL-SAMPLE, HIGH-VARIANCE DATA: CAUTIONS FOR BOOTSTRAPPING AND BAYESIAN BOOTSTRAPPING. **Barmak Mostofian**, Daniel M. Zuckerman

**694-Pos BOARD B469**  
MDFF ERROR ANALYSIS: A TOOL FOR DETERMINING STEREOCHEMICAL AND THERMODYNAMIC CORRECT STRUCTURES. **Daipayan Sarkar**, John Vant, Mrinal Shekhar, Jane S. Richardson, Robert Skeel, Abhishek Singharoy

**695-Pos BOARD B470**  
LOOS: A TOOL FOR MAKING TOOLS TO ANALYZE MOLECULAR DYNAMICS SIMULATIONS. **Alan Grossfield**, Tod D. Romo

**696-Pos BOARD B471**  
ON THE VALIDITY OF HYDROGEN MASS REPARTITIONING FOR CHARMM36 MEMBRANE SYSTEMS IN NAMD. **James C. Gumbart**, Curtis Balusek, Hyea Hwang, Chun Hon Lau, Karl Lundquist, Anthony Hazel, Anna Pavlova, Diane Lynch, Patricia Reggio, Yi Wang

**697-Pos BOARD B472**  
OPTIMAL TEMPERATURE AND PRESSURE EVALUATIONS IN MOLECULAR DYNAMICS SIMULATIONS WITH A LARGE TIME STEP. **Jaewoon Jung**, Chigusa Kobayashi, Yuji Sugita

**698-Pos BOARD B473**  
DETERMINING FREE ENERGY DIFFERENCES THROUGH NON-LINEAR MORPHING. **Martin Reinhardt**, Helmut Grubmueller

**699-Pos BOARD B474**  
EXPLORING OPTIMAL RESOURCE ALLOCATION FOR WEIGHTED ENSEMBLE RESAMPLING OF RARE EVENTS. **Jeremy T. Copperman**, David Aristoff, Daniel M. Zuckerman

**700-Pos BOARD B475**  
NEW TOOLS FOR CONFORMATIONAL AND BINDING FREE ENERGY SIMULATIONS. Giacomo Fiorin, Grace Brannigan, **Jérôme Hénin**

**701-Pos BOARD B476**  
OPTIMIZED PARAMETERS FOR THE DRUDE POLARIZABLE FORCE FIELD FOR SMALL ORGANIC MOLECULES. **Chetan Rupakheti**, Alexander D. MacKerell, Benoit Roux

**702-Pos BOARD B477**  
POLARIZABLE GENERAL FORCE FIELD FOR DRUG-LIKE MOLECULES: DRUDE GENERAL FORCE FIELD (DGENFF). **Payal Chatterjee**, Esther Heid, Christian Schröder, Alexander D. MacKerell

**703-Pos BOARD B478**  
COMPARISON OF FUNCTIONAL GROUP AFFINITY PATTERNS FROM THE ADDITIVE VERSUS DRUDE POLARIZABLE FORCE FIELDS FROM THE SITE-IDENTIFICATION BY LIGAND COMPETITIVE SATURATION (SILCS) APPROACH. **Himanshu Goel**, Delin Sun Sun, Wenbo Yu, Alexander D. MacKerell

**704-Pos BOARD B479**  
GROMAPS: A GROMACS-BASED TOOLSET TO ANALYSE DENSITY MAPS DERIVED FROM MOLECULAR DYNAMICS SIMULATIONS. Rodolfo Briones, Christian Blau, Carsten Kutzner, Bert L. de Groot, **Camilo Aponte-Santamaría**

**705-Pos BOARD B480 TRAVEL AWARDEE**  
EXPLORING HYDROGEN BOND GEOMETRY IN RNA WITH F-SAPT. **Louis G. Smith**, Chapin E. Cavender, Alan Grossfield, David H. Mathews

**706-Pos BOARD B481**  
MARKOV MODELING OF PROTEIN DIFFUSION ON TELOMERIC DNA. **Milosz Wieczor**, Antoni Marciniak, Jacek Czub

**707-Pos BOARD B482**  
CAPTURING THE COOPERATIVITY OF BACKBONE HYDROGEN BONDING WITH POLARIZABLE FORCE FIELDS. **Jing Huang**

**708-Pos BOARD B483**  
WATERFALL SAMPLING: AN ONLINE SEQUENTIAL MONTE CARLO STRATEGY FOR CONFORMATIONAL SAMPLING OF BIOMOLECULAR SYSTEMS. **Mir Ishruna Muniyat**, Justin L. MacCallum

**709-Pos BOARD B484**  
CHARTING THE HYDROPHOBIC EFFECT: COMPUTING SPATIALLY RESOLVED ABSOLUTE HYDRATION SHELL ENTROPIES. **Leonard P. Heinz**, Helmut Grubmueller

**710-Pos BOARD B485**  
HAMILTONIAN REPLICA EXCHANGE FOR ENHANCED SAMPLING OF THE CONFORMATIONAL LANDSCAPE FOR INTRINSICALLY DISORDERED PROTEINS. **Justin SH Kim**, Sarah Rauscher

**711-Pos BOARD B486**  
PROTEIN-WATER AND SOLVENT-MEDIATED INTERACTIONS IN MULTISCALE SIMULATIONS. **Matthias Heyden**

**712-Pos BOARD B487**  
CONNECTIVITY, DYNAMICS AND BIOMOLECULAR ENERGY TRANSPORT. **Justin Elenewski**, Kirill Velizhanin, Michael Zwolak

**713-Pos BOARD B488 TRAVEL AWARDEE**  
USING COMMITTOR AND ITS DISTRIBUTION TO ASSESS THE CONVERGENCE OF FREE ENERGY CALCULATIONS. **Nihit Pokhrel**, Lutz Maibaum

**714-Pos BOARD B489**  
ENHANCED SAMPLING, KINETICS CALCULATION AND STRUCTURAL DATABASE ANALYSIS AIMING AT COMPUTATIONAL DRUG DESIGN. **Kei Moritsugu**, Tohru Terada, Yoshihiko Nishino, Akinori Kidera

**715-Pos BOARD B490**  
WHEN ADDITIVE MOLECULAR DYNAMICS FAILS: QUANTUM EFFECTS IN CALCIUM-DEPENDENT LECTIN/CARBOHYDRATE COMPLEX. **Martin Lepsik**, Mickael G. Lelimosin, Emanuele Paci, Anne Imberty

**716-Pos BOARD B491**  
OVERCOMING THE EMBEDDABILITY PROBLEM: A MORE ROBUST CALCULATION OF KINETIC INFORMATION FROM SPARSELY SAMPLED MOLECULAR DYNAMICS SIMULATIONS. **Curtis Goolsby**, Mahmoud Moradi

**717-Pos BOARD B492**  
HETEROGENEOUS SOLVATION IN DISTINCTIVE PROTEIN-PROTEIN INTERFACES REVEALED BY MOLECULAR DYNAMICS SIMULATIONS. **Clarisse Gravina Ricci**, James A. McCammon

**718-Pos BOARD B493**  
COMPARING BINDING AFFINITY RESULTS FROM PYROSETTA AND COARSE-GRAINED SIMULATIONS. **Kyle P. Martin**, F. Marty Ytreberg

**719-Pos BOARD B494**  
EXTENSION OF THE FORCE MATCHING METHOD TO ANISOTROPIC COARSE-GRAINED TRANSFERABLE FORCE FIELDS: APPLICATION TO THE UNRES MODEL OF PROTEINS. **Jozef A. Liwo**, Cezary R. Czaplewski

**720-Pos BOARD B495**  
COMPARISON OF FORCEFIELDS IN THE PREDICTION OF INTRINSIC RESIDUE-SPECIFIC BACKBONE DIHEDRAL ANGLE DISTRIBUTIONS OF BLOCKED AMINO ACIDS. **Jared M. Lalmansingh**, Jeong-Mo Choi, Rohit V. Pappu

**721-Pos BOARD B496**  
DEVELOPMENT OF A NEW CALCIUM ION MODEL FOR SIMULATING BIOMOLECULES. Aihua Zhang, Hua Yu, Chunhong Liu, **Chen Song**

## Biosensors I (Boards B497 - B517.1)

**722-Pos BOARD B497**  
HOW TO MAKE EXCITABLE CELLS. **Merrilee A. Thomas**

**723-Pos BOARD B498**  
ROLE OF ELECTRIC FIELD CHANGES IN FLUORESCENCE RESPONSE OF RED FLUORESCENT GENETICALLY-ENCODED  $Ca^{2+}$  INDICATORS. **Rosana S. Molina**, Thomas E. Hughes, Mikhail Drobizhev

**724-Pos BOARD B499**  
A VOLTAGE DEPENDENT HETEROTRIMERIC FRET SIGNAL SUGGESTS MULTIMERIC ASSOCIATION FOR THE VOLTAGE SENSING DOMAIN OF THE VOLTAGE SENSING PHOSPHATASE. **Lee Min Leong**, Bok Eum Kang, Bradley J. Baker

**725-Pos BOARD B500**  
SURFACE-ENHANCED RAMAN SPECTROSCOPY (SERS)-ACTIVE NANOPIPETTE FOR SINGLE CELL INTRACELLULAR PH SENSING. **Jing Guo**, jin He

**726-Pos BOARD B501**  
LABEL-FREE ENZYME ACTIVITY MEASUREMENTS WITH QUANTUM-LIMITED BIOSENSORS. **Arvind Balijepalli**, Son T. Le, Nicholas B. Guros, Antonio Cardone, Niranjana D. Amin, Jeffery B. Klauda, Harish C. Pant, Curt A. Richter

**727-Pos BOARD B502**  
LUMINESCENT MOLECULAR SENSORS FOR THE SELECTIVE DETECTION OF NEURODEGENERATIVE DISEASE PROTEIN PATHOLOGY IN CSF. **Florencia Monge**, Adeline Fanni, Shanya Jiang, David G. Whitten, Kiran Bhaskar, Eva Y. Chi

**728-Pos BOARD B503 TRAVEL AWARDEE**  
NOVEL SENSORS FOR DETECTING ALZHEIMER'S DISEASE RELATED TAU PROTEIN AGGREGATES. **Salomon L. Alires**, Florencia A. Monge, David G. Whitten, Eva Y. Chi

**729-Pos BOARD B504**  
ELECTRIC FIELD AND IONIC STRENGTH DEPENDENT TRANSLOCATION OF TAU PROTEIN THROUGH SOLID-STATE NANOPORE. **Mitu C. Acharjee**, Haopeng Li, Jiali Li

**730-Pos BOARD B505**  
A-SYNUCLEIN INTERACTION WITH AND TRANSLOCATION BY THE MSPA PORIN. **Philip A. Gurnev**, David P. Hoogerheide, Jens H. Gundlach, Andrew H. Laszlo, Sergey M. Bezrukov

**731-Pos BOARD B506**  
NANOPORE SPECTROSCOPY: A SINGLE MOLECULE APPROACH TO ANALYZE PROTEIN STRUCTURAL DYNAMICS. **Min Chen**, Xin Li

**732-Pos BOARD B507 TRAVEL AWARDEE**  
NANOZYME MODIFIED ELECTROCHEMICAL BIOSENSORS AS RAPID SCREENING TOOLS FOR BIOMOLECULES. **Monica Florescu**, Melinda David, Adrian Serban

**733-Pos BOARD B508**  
TEMPERATURE STUDIES REVEAL THE ROLES OF ENTROPY AND ENTHALPY IN POLYMER-PORIN INTERACTIONS. **Joseph W. Robertson**, Joseph Reiner, Christopher Angevine, Nuwan Kothalawala, Amala Dass

**734-Pos BOARD B509**  
IMPROVED BILAYER MEMBRANE STABILITY FOR NANOPORE SENSING APPLICATIONS. **Xinqi Kang**, Mohammad Amin Alibakhshi, Meni Wanunu

**735-Pos BOARD B510**  
LABEL-FREE DETECTION OF SOLO OLIGONUCLEOTIDE LESION BASED ON SITE-DIRECT MUTAGENIZED AEROLYSIN NANOPORE. **Jiajun Wang**, Mengyin Li, Jie Yang, Xue-yuan Wu, Jin Huang, Yi-lun Ying, Yi-tao Long

**736-Pos BOARD B511**  
KINETIC ANALYSIS OF SINGLE MOLECULE ELECTRODIFFUSION IN A BIOLOGICAL NANOPORE WITH TWO BINDING SITES. Norbert Ankri, Mordjane Boukhet, Gerhard Baaken, Murugappan Muthukumar, **Jan C. Behrends**

**737-Pos BOARD B512**  
OPTIMIZING NUCLEIC ACID BIOMARKER DETECTION IN A SOLID-STATE NANOPORE THROUGH PROBABILISTIC MODELING. **Samuel Bearden**, Osama K. Zahid, Adam R. Hall

**738-Pos BOARD B513**  
REAL-TIME NANOPORE COUTING OF AMPLICONS FOR ULTRASENSITIVE AND LABEL-FREE SEQUENCE-SPECIFIC DNA DETECTION. **Zifan Tang**, Weihua Guan

**739-Pos BOARD B514**  
DNA BASED NANOPORE SENSING. **Haichen Wu**

**740-Pos BOARD B515**  
EMBEDDING SINGLE METAL IONS WITHIN A BIOLOGICAL NANOPORE FOR AMPLIFIED ION AND SSDNA SENSING. **Jiao Cao**, Shuo Huang

**741-Pos BOARD B516**  
HIGH-THROUGHPUT OPTICAL SENSING FROM IMMOBILIZED BIOLOGICAL NANOPORES IN A MICRO-BILAYER ARRAY. **Yuqin Wang**, Shuo Huang

**742-Pos BOARD B517**  
MICROSCOPIC IMAGING OF RESTRICTION ENGINEERED BIOLOGICAL NANOPORES FOR HIGHLY SPECIFIC SPOTTING OF EPIGENETIC MARKERS. **Shuo Huang**

**742.1-Pos BOARD B517.1**  
DEVELOPMENT OF PHOTOACTIVATABLE OPTICAL BIO-SENSORS OF PHYSIOLOGICAL ACTIVITIES. **Sungmoo Lee**, Yoon-Kyu Song, Bradley J. Baker.

# Student Research Achievement Award (SRAA) Poster Competition

These posters will be displayed for judging on Sunday, March 3, 6:00 PM–9:00 PM, in the SRAA poster board area marked S1–S188, in the Exhibit Hall. S board numbers before each title indicate where the posters will be assigned during the Sunday evening competition.

The posters will also be presented during the regular daily sessions as programmed below. Note that only the applicant's name is listed. Please refer to the full abstract for all authors. **Please also note that only applicants and judges will be allowed in S poster area on Sunday evening.**

## Bioenergetics, Mitochondria & Metabolism

### Board S1

REGULATION OF PROTON TRANSPORT IN TETRAMERIC UCP2 BY AN INTRAMOLECULAR SALT-BRIDGE NETWORK.

Afshan Ardalan (271-Pos / B46)

### Board S2

STRUCTURAL REARRANGEMENTS IN THE C-TERMINAL DOMAIN HOMOLOG OF ORANGE CAROTENOID PROTEIN ARE CRUCIAL FOR CAROTENOID TRANSFER.

Dvir Harris (237-Pos / B12)

### Board S3

MITOCHONDRIAL MEMBRANE POTENTIAL HETEROGENEITY IN CANCER CELLS IS INDEPENDENT OF THE CELL CYCLE AND INFLUENCES RESPONSE TO HYPERPOLARIZING AGENTS.

Morgan E. Morris (1339-Pos / B441)

### Board S4

MINIMIZING THE NUMBER OF MEASUREMENTS REQUIRED TO PREDICT A PHENOTYPIC LANDSCAPE IN BACTERIAL FOLATE METABOLISM.

Andrew D. Mathis (647-Pos / B422)

### Board S5

MITOCHONDRIAL MEMBRANE POTENTIAL OSCILLATIONS PERSIST DURING REPERFUSION AFTER ISCHEMIA IN MCU KNOCKOUT CARDIOMYOCYTES.

Deepthi Ashok (1328-Pos / B430)

### Board S6

MODELING THE INSERTION OF HEXOKINASE IN THE MITOCHONDRIAL OUTER MEMBRANE AND ITS COMPLEX FORMATION WITH VDAC.

Nandan Haloi (1319-Pos / B421)

### Board S7

MODULATION OF ORIENTATIONAL DYNAMICS OF EXCITATORY AMINO ACID TRANSPORTER-1 BY CHOLESTEROL.

Shashank Pant (2758-Pos / B430)

## Bioengineering

### Board S8

UNDERSTANDING CARDIAC TUBE FORMATION IN DEVELOPING DROSOPHILA EMBRYOS USING LIGHT SHEET MICROSCOPY AND CARDIAC DRUG SCREENING.

Christopher McFaul (2162-Pos / B525)

### Board S9

LUMINESCENT MOLECULAR SENSORS FOR THE SELECTIVE DETECTION OF NEURODEGENERATIVE DISEASE PROTEIN PATHOLOGY IN CSF.

Florencia Monge (727-Pos / B502)

### Board S10

ENGINEERING NOVEL GENETICALLY ENCODED VOLTAGE INDICATORS BASED ON INTRA-PROTEIN ELECTRON TRANSFER.

Martin J. Iwanicki (1355-Pos / B457)

### Board S11

DOES MEMBRANE ASYMMETRY AFFECT NANOPARTICLE-MEMBRANE INTERACTIONS.

Saeed Nazemidashtarjandi (2877-Pos / B549)

### Board S12

ROLES OF NUCLEAR CONFINEMENT, EXCLUDED VOLUME, AND PERSISTENCE ON TAD FORMATIONS, CHROMOSOME TERRITORIES, AND CHROMATIN-NUCLEAR ENVELOPE INTERACTIONS.

Samira Mali (2784-Pos / B456)

### Board S13

STABLE HYBRID NANOPORES FOR BIOMOLECULE SENSING.

Mehrnaz Mojtavavi (2874-Pos / B546)

### Board S14

OPTOGENETIC CONTROL OF RE-ENTRANT WAVES DEMONSTRATED IN HUMAN INDUCED STEM CELL DERIVED CARDIOMYOCYTES (HIPSC-CMs).

Bridget Caldwell (501-Pos / B276)

### Board S15

THE EFFECTS OF NOISE IN BIOLOGICAL EXCITABLE MEDIA.

José Miguel Romero Sepúlveda (503-Pos / B278)

### Board S16

RAPID LIGHT-TRIGGERED SPATIAL REORGANIZATION OF PROTEINS IN LIVING BACTERIA CELLS.

Ryan J. McQuillen (2702-Pos / B374)

### Board S17

EFFECT OF CHITOSAN ON MECHANICAL PROPERTIES OF LIPID BILAYERS USING MICROPIPETTE ASPIRATION.

Honey Priya James (1079-Pos / B181)

### Board S18

ENUMERATING VIABLE N-STATE MARKOV MODELS OF SODIUM CHANNEL DYNAMICS.

Kathryn Mangold (1921-Pos / B284)

### Board S19

PURIFICATION OF AN ENGINEERED MEMBRANE PROTEIN FHUA FOR SIZE-DEPENDENT SEPARATION.

Alina Thokkadam (1712-Pos / B75)

### Board S20

HOW LIGAND BINDING ALTERS THE DYNAMICS OF TOLL-LIKE RECEPTOR 4 (TLR4) AND ITS CO-RECEPTOR MYELOID DIFFERENTIATION FACTOR 2 (MD-2): A MOLECULAR DYNAMICS SIMULATION.

Alireza Tafazzol (2150-Pos / B513)

**Board S21**

EXPLORING THE EFFECTS OF DIRECTED EVOLUTION ON THE DYNAMICS OF ARTIFICIAL RETRO ALDOLASES.

Joseph Schafer (2131-Pos / B494)

**Board S22**

CONTROLLED PHOTOSENSITIZING ACTIVITY OF OLIGOMERIC P-PHENYLENE ETHYNYLENES ON AMYLOID- $\beta$  FIBRILS.

Adeline M. Fanni (1353-Pos / B455)

## Biological Fluorescence

**Board S23**

STUDY OF A HETEROMERIC KAINATE RECEPTOR GLUK2/K5 BY PROBING SINGLE-MOLECULE FRET.

Nabina Paudyal (527-Pos / B302)

**Board S24**

HIGH-PRECISION FRET REVEALS SEQUENCE DEPENDENT STRUCTURES OF RNA THREE-WAY JUNCTIONS.

Olga Doroshenko (689-Pos / B464)

**Board S25**

INTERACTIONS BETWEEN A BIOFLAVONOID AND G-QUADRUPLEX DNA AT THE ENSEMBLE AND SINGLE-MOLECULE LEVEL.

Sneha Paul (1364-Pos / B466)

**Board S26**

FRET AT THE SINGLE MOLECULE LEVEL USING MOLECULAR BRIGHTNESS AND FLUORESCENCE CORRELATION SPECTROSCOPY.

Robert Miller (2814-Pos / B486)

**Board S27**

COMPUTATIONAL AND EXPERIMENTAL INVESTIGATION OF CARDIAC TROPONIN T R173Q, R173W AND  $\Delta$ 160E MUTATION SPECIFIC CORRELATES TO DISEASE.

Andrea E. Deranek (1307-Pos / B409)

**Board S28**

A DECOY FOLDING NUCLEUS CAN MODULATE PROTEIN FOLDING KINETICS.

Anirban Das (1670-Pos / B33)

**Board S29**

LIGHT-INDUCED ACTIVATION OF ORGANO-METALLIC CO-C BOND IN MECBL-DEPENDENT METHIONINE SYNTHASE- QM/MM STUDY.

Arghya P. Ghosh (341-Pos / B116)

**Board S30**

DETAILED KINETICS OF RNA FOLDING PATHWAYS AND THERMODYNAMIC ORIGINS OF CROWDING BY SINGLE-MOLECULE FRET.

Hsuan-Lei Sung (1370-Pos / B472)

**Board S31**

STRUCTURAL REARRANGEMENT OF DNA FOR CRISPR-CAS9 NUCLEASE SPECIFICITY REGULATED BY THE REC2 DOMAIN.

Keewon Sung (2506-Pos / B178)

**Board S32**

AUTOMATED AND OPTIMALLY FRET-ASSISTED STRUCTURAL MODELING.

Mykola Dimura (1647-Pos / B10)

**Board S33**

INVESTIGATING THE KEY STRUCTURAL ELEMENTS THAT CONFER SPECIFICITY TO THE ACETYLTRANSFERASES ENZYME FAMILY.

Sara K. Lowe (338-Pos / B113)

## Biopolymers in vivo

**Board S34**

DEVELOPMENT OF AN ATOMISTIC STRUCTURE OF MYOSIN BOUND CARDIAC THIN FILAMENT AND FREE ENERGY DETERMINATION OF THE CLOSE TO OPEN TRANSITION.

Anthony Baldo (1297-Pos / B399)

**Board S35**

DISULFIDE BONDS MODULATE LYSOZYME FOLDING PATHWAYS.

Aswathy Muttathukattil Narayanan (945-Pos / B47)

**Board S36**

IDENTIFYING INTERMEDIATE STATES IN PRION PROTEIN FOLDING PATHWAY: A POSSIBLE PRECURSOR TO THE MISFOLDED STATE?

Balaka Mondal (944-Pos / B46)

**Board S37**

QUANTIFYING DNA ELASTICITY IN THE COURSE OF BINDING OF SMALL MOLECULE TO DNA.

Anurag Singh (1774-Pos / B137)

**Board S38**

THE EARLIEST STAGES OF A PROTEIN'S LIFE INFLUENCES ITS LONG-TERM SOLUBILITY AND STRUCTURAL ACCURACY.

Matthew D. Dalphin (949-Pos / B51)

**Board S39**

RIGIDIFICATION OF THE E. COLI CYTOPLASM BY THE HUMAN ANTIMICROBIAL PEPTIDE LL-37 REVEALED BY SUPERRESOLUTION FLUORESCENCE MICROSCOPY.

Yanyu Zhu (680-Pos / B455)

## Cell Biophysics

**Board S40**

IN VIVO CELL TRACKING AND CLEARED TISSUE IMAGING WITH EXTENDED FIELD OF VIEW SELECTIVE PLANE ILLUMINATION MICROSCOPY.

Leonardo A. Saunders (2808-Pos / B480)

**Board S41**

$\beta$ -ADRENERGIC PATHWAY IS ENHANCED BY HORMONE-INDUCED MATURATION OF HUMAN INDUCED PLURIPOTENT STEM CELL-DERIVED CARDIOMYOCYTES (IPS-CM).

David Carreras (1896-Pos / B259)

**Board S42**

CARDIAC SODIUM CURRENT IS SEVERELY IMPAIRED IN INDUCED PLURIPOTENT STEM CELL-DERIVED CARDIOMYOCYTES FROM BRUGADA SYNDROME PATIENTS.

Rebecca Martinez-Moreno (1932-Pos / B295)

**Board S43**

NON-RYR CALCIUM LEAK OF THE SARCOPLASMIC RETICULUM IS GOVERNED BY TRPC1 IN CARDIOMYOCYTES.

Azmi A. Ahmad (1901-Pos / B264)

**Board S44**

USING SCAM TO INVESTIGATE RECONFIGURATION OF MOLECULAR DETERMINANTS IN D1-S6 DURING SLOW INACTIVATION OF hNAV1.4.  
Jon M. Beard (1926-Pos / B289)

**Board S45**

STRUCTURAL ANALYSIS OF MOUSE PLATELETS USING SERIAL BLOCK-FACE SCANNING ELECTRON MICROSCOPY.  
Kenny Ling (2845-Pos / B517)

**Board S46**

SIGNALLING GROWTH THROUGH LIPID KINASES.  
Sanjeev Sharma (638-Pos / B413)

**Board S47**

METABOLIC-RESPONSE ASSESSMENT OF MURINE BREAST CANCER CELLS IN 2D AND 3D CULTURES USING TWO-PHOTON FLUORESCENCE LIFETIME IMAGING MICROSCOPY OF INTRINSIC NAD(P)H.  
Anh Cong (2079-Pos / B442)

**Board S48**

A MEMBRANE-ACTIVATED, UNIVERSAL T-CELL RECEPTOR AGONIST.  
Kiera Wilhelm (2631-Pos / B303)

**Cryo-EM****Board S49**

MULTI-STEP 2D PROTEIN CRYSTALLIZATION VIA STRUCTURAL CHANGES WITHIN AN ORDERED LATTICE.  
Jonathan Herrmann (963-Pos / B65)

**Board S50**

BIOPHYSICAL CHARACTERIZATION OF FULL LENGTH EXOG A HUMAN MITOCHONDRIAL INNER MEMBRANE NUCLEASE.  
Andrzej B. Dubiel (384-Pos / B159)

**Board S51**

INVESTIGATING THE STRUCTURAL MECHANISM OF THE STALLED BACTERIAL RIBOSOME BOUND TO A DRUG THAT TARGETS TRANS-TRANSLATION.  
Atousa Mehrani (2848-Pos / B520)

**Board S52**

THE STRUCTURAL BASIS FOR RELEASE FACTOR ACTIVATION DURING TRANSLATION TERMINATION REVEALED BY TIME-RESOLVED CRYOGENIC ELECTRON MICROSCOPY.  
Ziao Fu (2853-Pos / B525)

**Exocytosis & Endocytosis****Board S53**

RATIONAL TARGETING AND TESTING OF MYCOBACTERIAL L-ASPARAGINASE, ESSENTIAL FOR SURVIVAL OF MTB INSIDE HOSTS.  
Arti Kataria (1643-Pos / B6)

**Board S55**

MECHANOCHEMICAL FEEDBACK CONTROL OF DYNAMIN INDEPENDENT ENDOCYTOSIS MODULATES MEMBRANE TENSION IN ADHERENT CELLS.  
Joseph J. Thottacherry (469-Pos / B244)

**Board S56**

SPATIOTEMPORAL DYNAMICS OF RON AND EGFR CROSSTALK AT THE PLASMA MEMBRANE.  
Justine Keth (1152-Pos / B254)

**Intrinsically Disordered Proteins****Board S57**

A RECEPTOR-INDEPENDENT LIPID MEMBRANE-MEDIATED PATHWAY FOR SEROTONIN ACTION.  
Simli Dey (2102-Pos / B465)

**Board S58**

DIVULGING CHARACTERISTIC FEATURES OF THE NOVEL  $\alpha$ -SYNUCLEIN OLIGOMERS AUGMENTING PARKINSON'S DISEASE.  
Animesh Mondal (915-Pos / B17)

**Board S59**

THE INTERPLAY OF STRUCTURAL AND CELLULAR BIOPHYSICS CONTROLS THE CLUSTERING OF MULTIVALENT SIGNALING MOLECULES: THE NEPHRIN-NCK-NWASP SYSTEM.  
Aniruddha Chattaraj (1165-Pos / B267)

**Board S60**

COMPARISON OF FORCEFIELDS IN THE PREDICTION OF INTRINSIC RESIDUE-SPECIFIC BACKBONE DIHEDRAL ANGLE DISTRIBUTIONS OF BLOCKED AMINO ACIDS.  
Jared M. Lalmansingh (720-Pos / B495)

**Board S61**

WHAT MODULATES THE USP7 FUNCTION...A DYNAMIC POCKET OR INTER-REGULATORY DOMAINS?  
Mitul Srivastava (1686-Pos / B49)

**Board S62**

INSIGHT INTO AMYLOID INTERACTIONS: MOLECULAR DYNAMICS SIMULATIONS OF MODEL PEPTIDE FRAGMENTS.  
Nicholas A. Cramer (2159-Pos / B522)

**Board S63**

BIOPHYSICAL CHARACTERIZATION OF DIFFERENCES IN DOMAIN-DO-MAIN INTERACTIONS BETWEEN THE APOLIPOPROTEIN E4 AND E3.  
Subhrajyoti Dolai

**Board S64**

CHARACTERISTICS OF THE BINDING INTERACTION BETWEEN PDX1 AND SPOP.  
Grace A. Usher (993-Pos / B95)

**Board S65**

STRUCTURAL OPTIMIZATION OF  $\alpha$ -SYNUCLEIN FIBRIL GROWTH INHIBITORS.  
Ksenia Afitska (2438-Pos / B110)

**Board S66**

TIGHT BINDING OF NATURAL POLYPHENOLS TO THE INTRINSICALLY DISORDERED MAMMALIAN HIGH MOBILITY GROUP PROTEIN AT-HOOK 2.  
Linjia Su (2386-Pos / B58)

**Board S67**

MEASURES ADAPTED FROM INFORMATION THEORY AND ENERGY LANDSCAPE THEORY FOR QUANTIFYING SEQUENCE-TO-CONFORMATION RELATIONSHIPS OF INTRINSICALLY DISORDERED REGIONS.  
Megan Cohan (992-Pos / B94)

**Board S68**

BINDING SPECIFICITY OF E. COLI SSB C-TERMINAL TAILS TO SIPS.  
Min Kyung Shinn (391-Pos / B166)

**Board S69**

OBSERVATION OF STRUCTURAL GROWTH OF FIBRILS OF AMYLIN PROTEIN.

Suparna Khatun (2437-Pos / B109)

## Mechanobiology

**Board S70**

UNFOLDING TRANSITIONS AND INTERDOMAIN COUPLING IN HUMAN DYSTROPHIN SPECTRIN REPEATS.

Lisa Ito, Madison Nohner (1681-Pos / B44)

**Board S71**

THE HCM-CAUSING Y235S CMYBPC MUTATION ACCELERATES CONTRACTILE FUNCTION BY ALTERING C1 DOMAIN STRUCTURE.

Chang Yoon Doh (1312-Pos / B414)

**Board S72**

PHYSICAL MODEL FOR CELL MIGRATION GUIDED BY ELASTIC PROPERTIES OF THE SUBSTRATE.

Susana Márquez (2714-Pos / B386)

**Board S73**

PROBING THE INTERACTION BETWEEN RECEPTOR TYROSINE KINASES AND TRANSMEMBRANE ADHESION PROTEINS.

Taylor P. Light (1153-Pos / B255)

## Membrane Biophysics

**Board S74**

PHARMACOLOGICAL CHARACTERIZATION OF THE ZINC-ACTIVATED CHANNEL: A CYS-LOOP RECEPTOR GATED BY  $Zn^{2+}$ ,  $Cu^{2+}$  AND PROTONS.

Nawid Madjroh (1956-Pos / B319)

**Board S75**

PHOSPHATIDYLINOSITOL INHIBITS TRPV1 VIA ITS VANILLOID BINDING SITE.

Aysenur T. Yazici (2660-Pos / B332)

**Board S76**

STRUCTURE-ACTIVITY RELATIONSHIP OF POTENT PHOTO-SWITCHABLE NEUROMUSCULAR INHIBITORS.

Clara Herrera-Arozamena (1951-Pos / B314)

**Board S77**

PROTEIN-LIPID INTERACTIONS REGULATE ATG3 ACTIVITY IN AUTOPHAGY.

Erin R. Tyndall (2568-Pos / B240)

**Board S78**

SINGLE-MOLECULE FRET INVESTIGATIONS OF NEGATIVE COOPERATIVITY IN THE NMDA RECEPTOR.

Ryan J. Durham (526-Pos / B301)

**Board S79**

EFFECTS OF CHOLESTEROL ON FENGYCIN, AN ANTIMICROBIAL LIPOPEPTIDE USING WEIGHTED ENSEMBLE PATH SAMPLING METHOD.

Sreyoshi Sur (427-Pos / B202)

**Board S80**

STRUCTURE MEETS FUNCTION: AGONIST ACTIONS AT NEUROTRANSMITTER BINDING SITES.

Sushree Tripathy (1948-Pos / B311)

**Board S81**

ALLOSTERIC MODULATION OF  $Ca^{2+}$ -ACTIVATED CL-CHANNELS TMEM16A BY PIP2 AND CAMKII.

Woori Ko (1103-Pos / B205)

**Board S82**

MYOCARDIAL RAD DELETION MODULATES L-TYPE CALCIUM CHANNEL CURRENT.

Brooke Ahern (1177-Pos / B279)

**Board S83**

PIP2 POTENTIATES THE  $Ca^{2+}$ -ACTIVATED CL-CHANNEL TMEM16A IN XENOPUS LAEVIS OOCYTES.

Maiwase Tembo (1104-Pos / B206)

**Board S84**

DYNAMIC ACTIN MEDIATED NANOCUSTERING OF CD44 REGULATES ITS MESO-SCALE ORGANIZATION AT THE PLASMA MEMBRANE.

Parijat Sil (1023-Pos / B125)

**Board S85**

IMPLICATION OF CHOLESTEROL IN REGULATING THE MEMBRANE-INTERACTION MECHANISM OF VIBRIO CHOLERAE CYTOLYSIN, A BETA-BARREL PORE-FORMING TOXIN.

Reema Kathuria (1106-Pos / B208)

**Board S86**

LIPID NANOTUBES: A POSSIBLE ROUTE TO PROTOCELL FORMATION AND GROWTH.

Elif S. Koksall (1081-Pos / B183)

**Board S87**

BAYESIAN ESTIMATION OF THE DIFFUSION CONSTANT FOR MEMBRANE PROTEIN DYNAMICS IN AN ARBITRARY LANDSCAPE OF OBSTRUCTING BOUNDARIES.

Hanieh Mazloom-Farsibaf (1710-Pos / B73)

**Board S88**

EFFECTS OF DC MAGNETIC FIELDS ON MAGNETOLIPOSOMES.

Raymundo Rodríguez López (1802-Pos / B165)

## Membrane Structure & Function

**Board S89**

EXPLORING (PROTEO-) LIPOSOMES FOR MASS SPECTROMETRY.

Melissa Frick (273-Pos / B48)

**Board S90**

MEMBRANES MATTER: PREDICTING DRUG TOXICITY.

R Lea Sanford (2536-Pos / B208)

**Board S91**

MECHANISM OF ACTION OF PH-TRIGGERED, MEMBRANE ACTIVE PEPTIDES.

Sarah Y. Kim (419-Pos / B194)

**Board S92**

THE ROLE OF ERGOSTEROL IN PHASE SEPARATION OF YEAST VACUOLE MEMBRANES.

Chantelle Leveille (396-Pos / B171)



**Board S93**

PREDICTING SPECTRAL PROPERTIES OF POLARITY SENSITIVE DYES WITH QM/MM SIMULATION.  
Swapnil Baral (1111-Pos / B213)

**Board S94**

EFFECT OF BIOPOLYMER TETHERS ON ANTIMICROBIAL PEPTIDE ACTIVITY IN BIOMEMBRANES.  
Fathima T. Doole (428-Pos / B203)

**Board S95**

INCORPORATING PROTEINS INTO GEOMETRICALLY COMPLEX, CELL-SCALE MEMBRANE MODELS FOR MOLECULAR DYNAMICS SIMULATIONS.  
Noah Trebesch (1413-Pos / B515)

**Board S96**

AMINO ACIDS BIND TO AND INFLUENCE THE STRUCTURE OF FATTY ACID VESICLES.  
Zachary R. Cohen (2527-Pos / B199)

**Board S97**

SINGLE-LIPID SORTING AND DYNAMICS AT MEMBRANE CURVATURE SITES: THE EFFECTS OF FLUORESCENCE LABELING, COMPOSITION, PHASE, AND TEMPERATURE.  
Xinxin Woodward (1110-Pos / B212)

**Board S98**

MECHANISM OF EPHA2 DIMERIZATION IN RESPONSE TO MONOMERIC LIGANDS.  
Elmer A. Zapata-Mercado (1155-Pos / B257)

**Board S99**

HUMAN PICOBIRNAVIRUS CAPSIDS AS POTENTIAL NANOCARRIERS FOR DRUG DELIVERY WITHIN PULMONARY SURFACTANT CONTEXTS.  
Cristina García Mouton (1835-Pos / B198)

**Board S100**

CHARACTERIZING P2X2 MUTANTS ASSOCIATED WITH PROGRESSIVE SENSORINEURAL HEARING LOSS (DFNA41).  
Benjamin I. George (546-Pos / B321)

## Membrane Transport

**Board S101**

MECHANISM OF BK CHANNEL INHIBITION BY THE OPIOID AGONIST LOPERAMIDE.  
Alexandre G. Vouga (2691-Pos / B363)

**Board S102**

MICROSECOND KINETICS OF ION TRANSPORT AND MEMBRANE INTERFACE BINDING IN ELECTRICALLY STRESSED LIPID BILAYERS.  
Federica Castellani (2834-Pos / B506)

**Board S103**

MOLECULAR DYNAMICS SIMULATION OF RYANODINE RECEPTOR IN THE PRESENCE AND ABSENCE OF CA<sup>2+</sup> BINDING.  
Han Wen (2584-Pos / B256)

**Board S104**

OPTICAL SENSING OF ION FLUX THROUGH BIOMIMETIC CARBON NANOTUBE CHANNELS.  
Pengyu Zheng (1206-Pos / B308)

**Board S105**

FUNCTIONAL CHARACTERIZATIONS OF PURIFIED CTR COPPER TRANSPORTER PROTEINS REVEAL A NOVEL MECHANISM OF ION SELECTIVITY AND TRANSPORT.  
Kehan Chen (2741-Pos / B413)

**Board S106**

A COMPUTATIONAL STUDY OF THE ESSENTIAL TRANSMEMBRANE PROTEIN NARK AS NITRATE/NITRITE EXCHANGER.  
Nara L. Chon (1971-Pos / B334)

**Board S107**

UNDERSTANDING MEMBRANE TRANSPORT PROCESSES USING ENM AND MD SIMULATIONS.  
Sayane Shome (1719-Pos / B82)

**Board S108**

MOLECULAR MECHANISMS OF FILTER-LEVEL GATING AND LOSS OF SELECTIVITY IN HERG1 N629D MUTANT FROM MICROSECONDS MD SIMULATIONS.  
Williams E. Miranda (506-Pos / B281)

**Board S109**

CLC CONFORMATIONAL LANDSCAPE AS STUDIED BY SMFRET.  
Ayush Krishnamoorti (2751-Pos / B423)

**Board S110**

PROBING AND DIFFERENTIATING THE SHELL AND ENZYME PROTEINS OF THE BACTERIAL MICROCOMPARTMENT BY THERMAL SHIFT ASSAY.  
Naimat Kalim Bari

## Molecular Biophysics

**Board S111**

SPECTRAL ASSIGNMENT OF LYSOZYME COLLECTIVE VIBRATIONS.  
Yanting Deng (2797-Pos / B469)

**Board S112**

IMPAIRED LIGAND REGULATION OF NATIVE RYR2 CHANNELS IN THE CATECHOLAMINERGIC POLYMORPHIC VENTRICULAR TACHYCARDIA MUTATION, RYR2-V2475F(+/-).  
Abigail D. Wilson (1887-Pos / B250)

**Board S113**

SGEF GEF ACTIVITY AND ITS REGULATION BY SCRIBBLE AND DLG1.  
Ashley Simpson (324-Pos / B99)

**Board S114**

EFFECTS OF DISCRIMINATOR CHANGES ON OPEN COMPLEX FORMATION, STABILIZATION, AND TRANSCRIPTION INITIATION.  
Hao-Che Wang (1042-Pos / B144)

**Board S115**

CYTOTOXICITY OF VARIOUS GOLD NANOPARTICLES - AN IN VITRO STUDY.  
Marika Musielak (2092-Pos / B455)

**Board S116**

INVESTIGATING THE ACTIVATION MECHANISM ALTERATION OF RECEPTOR TYROSINE KINASE MUTANTS.  
Soyeon Kim (1011-Pos / B113)

**Board S117**

GPU ACCELERATED COMPUTATION OF ISOTROPIC CHEMICAL SHIFTS OFFERS NEW DIMENSION OF STRUCTURE REFINEMENT IN LARGESCALE MOLECULAR DYNAMICS SIMULATION.  
Alexander J. Bryer (2826-Pos / B498)

**Board S118**

PH-DEPENDENT PROPERTIES OF IONIZABLE RESIDUES IN THE HYDROPHOBIC INTERIOR OF A PROTEIN.  
Ankita Sarkar (2356-Pos / B28)

**Board S119**

A NEW DNA INVERSION MECHANISM: RECOMBINATION OF THE DNA FOLDBACK INTERCOIL STRUCTURE.  
Byung Ho Lee (382-Pos / B157)

**Board S120**

CALIBRATION-INDEPENDENT ATOMIC FORCE MICROSCOPY.  
Carmen Suay Corredera (2112-Pos / B475)

**Board S121**

MOLECULAR DYNAMICS INVESTIGATION OF THE PHYSICAL BINDING OF THE NNK DIAZONIUM ION TO EXON 5 OF TP53.  
David Wahl (2160-Pos / B523)

**Board S122**

EXAMINING THE REFOLDING OF PERTURBED PROTEIN STRUCTURE INTERMEDIATES USING VARIOUS MOLECULAR MECHANICS FORCE FIELDS.  
David Wang (2136-Pos / B499)

**Board S123**

MORPHOLOGY OF GOLD NANORODS OBTAINED IN THE PRESENCE OF OLIGOMERIC SURFACTANTS.  
Joanna Maksim (2213-Pos / B576)

**Board S124**

GOLD NANORIBBONS AS SUPPORT MATERIAL FOR NANOSENSORS.  
Joanna P. Patalas (2196-Pos / B559)

**Board S125**

SAXS AND SPECTROSCOPIC STUDIES OF SYNTHESIS PROCEDURES OF NANORODS.  
Karolina Rucinska (2212-Pos / B575)

**Board S126**

INVESTIGATING THE STRUCTURE OF LACCASES FOR BIOFUELS.  
Shahla H. Partowmah (305-Pos / B80)

**Board S127**

THE STRUCTURAL ARRANGEMENT AND DYNAMICS OF HOMOMERIC KAINATE RECEPTORS DETERMINED BY SMFRET.  
Douglas B. Litwin (525-Pos / B300)

## Motility & Cytoskeleton

**Board S128**

DIFFERENTIAL ACTIN BINDING AFFINITY LEADS TO PROTEIN SORTING IN A RECONSTITUTED ACTIVE COMPOSITE LAYER.  
Abrar A. Bhat (1085-Pos / B187)

**Board S129**

FLEXURAL RIGIDITY OF MICROTUBULES MEASURED WITH NANOMETER-LEVEL LOCALIZATION PRECISION.  
Hang Zhou (2015-Pos / B378)

**Board S130**

IMPACT OF HUMAN BETA-CARDIAC MYOSIN MUTATION IMPLICATED IN BOTH HYPERTROPHIC AND DILATED CARDIOMYOPATHY.  
Wanjian Tang (1300-Pos / B402)

**Board S131**

TUNING OF MEMBRANE SPHINGOLIPID CONTENT INFLUENCES THE LINKS OF OUTER-LEAFLET MEMBRANE LIPID DYNAMICS TO CHOLESTEROL AND CYTOSKELETON.  
Anjali Gupta (1077-Pos / B179)

**Board S132**

PROBING THE CHAPERONE ACTIVITY OF ERYTHROID SPECTRIN.  
Dipayan Bose (946-Pos / B48)

**Board S133**

ONE NANOMETER PRECISION BY BAYESIAN GROUPING OF LOCALIZATIONS.  
Mohamadreza Fazel (1435-Pos / B537)

## Nanoscale Biophysics

**Board S134**

AFM SHOWS THAT HUMAN CtIP FORMS A TETRAMERIC DUMBBELL-SHAPED PARTICLE WHICH BINDS AND BRIDGES DNA ENDS.  
Alejandro Martin-Gonzalez (372-Pos / B147)

**Board S135**

PEPTIDE ASSISTED SUPRAMOLECULAR POLYMERIZATION OF THE ANIONIC PORPHYRIN MESO-TETRA(4-SULFONATOPHENYL)PORPHINE.  
Eric Kohn (2365-Pos / B37)

**Board S136**

LABEL-FREE CHROMATIN-DNA IMAGING BY CIRCULAR POLARIZED LIGHT SCATTERING SCANNING MICROSCOPY.  
Riccardo Marongiu (2475-Pos / B147)

**Board S137**

METAL OXIDE COATING OF SILVER NANOPARTICLES TO IMPROVE THEIR PHYSICO-CHEMICAL AND OPTICAL PROPERTIES.  
Soha AbdelHamied Mohamed (2210-Pos / B573)

**Board S138**

A NOVEL VIEWPOINT TO ANALYZE STRUCTURED ILLUMINATION MICROSCOPY (SIM) DATA.  
Isotta Cainero (2166-Pos / B529)

**Board S139**

CHARACTERIZATION OF ONC112 EFFECT ON RIBOSOMES AND ASSOCIATED PROTEINS IN LIVE E. COLI CELLS USING SUPERRESOLUTION MICROSCOPY.  
Mainak Mustafi (1794-Pos / B157)

**Board S140**

OPTIMIZING ASTIGMATISM FOR 3D STOCHASTIC OPTICAL RECONSTRUCTION MICROSCOPY.  
Alondra Escobar (2172-Pos / B535)

**Board S141**

CONVERTING FRET SIGNAL INTO FORCE INFORMATION USING SHORT LOOPED DNA AS FORCE TRANSDUCER.  
Golam Mustafa (2187-Pos / B550)

**Board S142**

ELECTRIC FIELD MEDIATED DISRUPTION OF BETA AMYLOID; A POTENTIAL NON-INVASIVE THERAPY FOR ALZHEIMER'S DISEASE.  
Jahnu Saikia (257-Pos / B32)

# Monday, March 4, 2019

## Daily Program Summary

All rooms are located in the *Baltimore Convention Center* unless noted otherwise.

7:30 AM–8:30 AM	Graduate Student Breakfast	Room 321/322/323
7:30 AM–5:00 PM	Registration/Exhibitor Registration	Charles Street Lobby
8:00 AM–10:00 PM	Poster Viewing	Exhibit Hall
8:15 AM–10:15 AM	<p><b>Symposium: Large Macromolecular Machines in the Cell</b>  <b>Chair:</b> <i>Titia Sixma, Netherlands Cancer Institute, The Netherlands</i></p> <p>CRYO-EM STRUCTURE OF HUMAN TELOMERASE AND NEW INSIGHT INTO ITS ASSEMBLY AND FUNCTION. <i>Kelly Nguyen</i>  HIGH-RESOLUTION MODELING AND SIMULATION OF CELLULAR STRUCTURES AND PROCESSES, ONE ATOM AT A TIME. <i>Emad Tajkhorshid</i>  STRUCTURE-FUNCTION MAPPING OF THE NUCLEAR PORE COMPLEX. <i>Michael P. Rout</i>  STEPPING THROUGH DNA MISMATCH REPAIR INITIATION. <i>Titia K. Sixma</i></p>	Ballroom I
8:15 AM–10:15 AM	<p><b>Symposium: Biological Membranes and Vesicles</b>  <b>Chair:</b> <i>John Briggs, MRC Laboratory of Molecular Biology, United Kingdom</i></p> <p>STRUCTURAL CELL BIOLOGY OF VIRUS-HOST INTERACTIONS. <i>Kay Grunewald</i>  UNCOVERING THE MECHANISMS OF CLATHRIN-MEDIATED ENDOCYTOSIS USING QUANTITATIVE BIOLOGY APPROACHES. <i>Julien Berro</i>  CROWDING IN THE CELLULAR CONTEXT: TALES OF CLUSTERS AND DYNAMICS. <i>Michael Feig</i>  REVEALING THE STRUCTURES OF TRAFFICKING VESICLES AND ENVELOPED VIRUSES USING CRYO-ELECTRON TOMOGRAPHY. <i>John Briggs</i></p>	Ballroom II
8:15 AM–10:15 AM	Platform: Protein-Small Molecule Interactions	Ballroom III
8:15 AM–10:15 AM	Platform: Excitation-Contraction Coupling/Cardiac and Skeletal Muscle Electrophysiology II	Ballroom IV
8:15 AM–10:15 AM	Platform: Energy Transducing Complexes and Mitochondria in Cell Life and Death	Room 307/308
8:15 AM–10:15 AM	Platform: Microtubules, Structure, Dynamics and Associated Proteins	Room 309/310
8:15 AM–10:15 AM	Platform: Protein Assemblies/Enzyme Function, Cofactors and Post-translational Modifications I	Room 314/315
8:15 AM–10:15 AM	Platform: Biomolecular Methods In and Out of Cells	Room 316/317
8:30 AM–10:30 AM	CPOW Committee Meeting	Room 333
9:30 AM–11:00 AM	Exhibitor Presentation: Bruker Corporation Advances In Dye Development and Microscopy for Live Cell Superresolution Microscopy with the Vutara 352	Room 303
10:00 AM–11:00 AM	Career Development Center Workshop: Demystifying the Academic Job Search II: Preparing Your Written Application Materials: CV, Cover Letter, and Research Statement	Exhibit Hall A
10:00 AM–5:00 PM	Exhibits	Exhibit Hall
10:15 AM–11:00 AM	Coffee Break	Exhibit Hall
10:15 AM–11:15 AM	New Member Welcome Coffee	Room 321/322/323
10:30 AM–12:00 PM	Exhibitor Presentation: Bruker Corporation Using NMR (Nuclear Magnetic Resonance) and EPR (Electron Paramagnetic Resonance) in Biophysics	Room 301
10:45 AM–12:45 PM	<p><b>Symposium: Phase Separations in the Cell</b>  <b>Chair:</b> <i>Geeta Narlikar, University of California, San Francisco</i></p> <p>PHASE SEPARATION: PREDICTION AND ROLE IN BIOLOGICAL REGULATION. <i>Julie D. Forman-Kay</i>  A PROTEIN CONDENSATE DRIVES ACTIN-INDEPENDENT ENDOCYTOSIS. <i>Stephen Michnick</i>  MAKING AND BREAKING THE SYMMETRY BETWEEN SEQUENCE-SPECIFIC CONFORMATIONAL AND PHASE BEHAVIORS OF DISORDERED PROTEINS. <i>Rohit V. Pappu</i>  THE ROLE OF PHASE-SEPARATION IN HETEROCHROMATIN. <i>Geeta Narlikar</i></p>	Ballroom I

MONDAY

10:45 AM–12:45 PM	<p><b>Symposium: Regulation of Cardiomyocyte Beating</b>  <b>Chair:</b> <i>Beth L. Pruitt, University of California, Santa Barbara</i></p> <p>MULTIMERIC PROTEIN COMPLEXES IN REGULATION OF CARDIOMYOCYTE CALCIUM CYCLING AND SURVIVAL. <i>Litsa Kranias</i>          SLOW AND FAST TIME SCALES IN CARDIOMYOCYTE BEATING. <i>Ohad Cohen</i>          WHY AND WHEN YOUR NEXT HEARTBEAT WILL OCCUR. <i>Edward G. Lakatta</i>          INVITED SPEAKER: MECHANOBIOLOGY OF ENGINEERED HIPSC CARDIOMYOCYTES. <i>Beth L. Pruitt</i></p>	Ballroom II
10:45 AM–12:45 PM	<p><b>Symposium: Future of Biophysics</b>  <b>Co-Chairs:</b> <i>Susan Marqusee, University of California, Berkeley, Andrej Sali, University of California, San Francisco</i></p> <p>LIVE CELL IMAGING OF RNA DYNAMICS IN MAMMALIAN CELLS USING RIBOGLOW, A RIBOSWITCH-BASED FLUORESCENCE TAGGING PLATFORM. <i>Esther Braselmann</i>          SCULPTING EMBRYOS VIA CONTROLLED FLUID-TO-SOLID TISSUE TRANSITIONS. <i>Otger Campas</i>          OPTICAL DISSECTION OF CLASS C GPCR ASSEMBLY, ACTIVATION, AND SIGNALING MECHANISMS. <i>Joshua Levitz</i>          MESOSCALE ARCHITECTURE OF B-CELLS UPON STIMULATION WITH GLUCOSE AND EX-4. <i>Kate L. White</i></p>	Ballroom III
10:45 AM–12:45 PM	<b>Platform: Protein Dynamics and Allostery I</b>	Ballroom IV
10:45 AM–12:45 PM	<b>Platform: Membrane Structure</b>	Room 307/308
10:45 AM–12:45 PM	<b>Platform: Computational Methods and Bioinformatics</b>	Room 309/310
10:45 AM–12:45 PM	<b>Platform: Protein Structure and Conformation II</b>	Room 314/315
10:45 AM–12:45 PM	<b>Platform: Membrane Pumps, Transporters, and Exchangers</b>	Room 316/317
11:00 AM–12:30 PM	<b>Annual Meeting of the Student Chapters</b>	Room 324/325/326
11:30 AM–12:30 PM	<b>Career Development Center Workshop: Networking for Nerds: How to Create Your Dream Career</b>	Exhibit Hall A
11:30 AM–1:00 PM	<b>Exhibitor Presentation: Asylum Research Capturing Biochemical Reactions with Video-Rate AFM</b>	Room 303
12:30 PM–2:00 PM	<b>The Nuts and Bolts of Preparing Your NSF Grant</b>	Room 321/322/323
12:30 PM–2:00 PM	<b>Exhibitor Presentation: Nanion Technologies Ion Channels and Transporters in the Spotlight</b>	Room 301
1:00 PM–2:30 PM	<b>Understanding the Congressional Budget Process: How Science is Funded</b>	Room 318/319/320
1:30 PM–3:00 PM	<b>Biophysics 101: Gene Editing</b>	Room 307/308
1:30 PM–3:00 PM	<b>Exhibitor Presentation: Bruker Corporation Investigating Dynamic Biological Processes with High-Speed, High-Resolution Correlative AFM-Light Microscopy</b>	Room 303
1:45 PM–3:00 PM	<b>Snack Break</b>	Exhibit Hall
1:45 PM–3:45 PM	<b>Poster Presentations and Late Posters</b>	Exhibit Hall
2:15 PM–3:45 PM	<b>Virtual Biophysics: Virtual and Augmented Reality Meets Biophysics</b>	Room 324/325/326
2:30 PM–3:30 PM	<b>Career Development Center Workshop: The Strategic Postdoc: How to Find &amp; Leverage your Postdoc Experience</b>	Exhibit Hall A
2:30 PM–4:00 PM	<b>Speed Networking</b>	Mezzanine Level
2:30 PM–4:00 PM	<b>Designing and Implementing Strategies to Prevent and Recover from Burnout</b>	Room 321/322/323
2:30 PM–4:00 PM	<b>Exhibitor Presentation: Alvéole Bioengineering Relevant Cellular Microenvironments With PRIMO®</b>	Room 301
3:30 PM–5:00 PM	<b>Exhibitor Presentation: NanoSurface Biomedical Biomimetic Cell Culture Platforms for Enhancing Cell Biology Studies</b>	Room 303
3:30 PM–5:30 PM	<b>Membership Committee Meeting</b>	Room 333
4:00 PM–5:00 PM	<b>Career Development Center Workshop: Developing Your 30-Second Value Statement (aka Your Elevator Pitch)</b>	Exhibit Hall A

4:00 PM–6:00 PM	<p><b>Symposium: Chromatin Organization and Regulation: From Physical Principles to Biological Phenomena</b>  <b>Chair:</b> <i>Karolin Luger, University of Colorado Boulder</i></p> <p>DNA SHAPE SHIFTING AS A GENE THERAPY TOOL. <i>Lynn Zechiedrich</i>          CHROMOSOME ORGANIZATION BY LOOP EXTRUSION AND PHASE SEPARATION. <i>Leonid Mirny</i>          HOW TO READ AND WRITE MECHANICAL INFORMATION IN DNA MOLECULES. <i>Helmut Schiessel</i>          OFF TO THE RACES - QUANTITATING THE RECRUITMENT OF PROTEINS TO SITES OF DNA DAMAGE. <i>Karolin Luger</i></p>	Ballroom I
4:00 PM–6:00 PM	<p><b>Symposium: Synthetic Biology</b>  <b>Chair:</b> <i>Luis Serrano, Centre for Genomic Regulation, Spain</i></p> <p>SYNTHETIC BIOLOGY APPROACHES TO BIO-ORTHOGONAL CHEMISTRY. <i>Michelle Chang</i>          SYNTHETIC ELECTROPHYSIOLOGY. <i>Adam Cohen</i>          MECHANISMS, DIVERSITY AND OPTOGENETIC APPLICATIONS OF CHANNELRHODOPSINS FROM CRYPTOPHYTE ALGAE. <i>Elena G. Govorunova</i>          ENGINEERING OF MYCOPLASMA PNEUMONIAE AS A THERAPEUTIC VEHICLE TO TREAT LUNG DISEASES. <i>Luis Serrano</i></p>	Ballroom II
4:00 PM–6:00 PM	<b>Platform: Ion Channels, Pharmacology, and Disease</b>	Ballroom III
4:00 PM–6:00 PM	<b>Platform: Optical Microscopy and Superresolution Imaging II</b>	Ballroom IV
4:00 PM–6:00 PM	<b>Platform: Membrane Receptors and Signal Transduction</b>	Room 307/308
4:00 PM–6:00 PM	<b>Platform: Myosin and Skeletal/Smooth Muscle Mechanics, Structure, and Regulation</b>	Room 309/310
4:00 PM–6:00 PM	<b>Platform: Intrinsically Disordered Proteins (IDP) and Aggregates II</b>	Room 314/315
4:00 PM–6:00 PM	<b>Platform: Macromolecular Interactions and Effects on Membranes</b>	Room 316/317
4:30 PM–6:00 PM	<p><b>Exhibitor Presentation: Molecular Devices</b>  <b>Supercharge Your Patch-Clamp Data Acquisition and Analysis with the NEW Axon pCLAMP 11 Software</b></p>	Room 301
5:30 PM–7:00 PM	<p><b>Exhibitor Presentation: LUMICKS</b>  <b>A Versatile Platform For High-Resolution Single-Molecule Research: Expanding Capabilities and Exploring New Possibilities</b></p>	Room 303
6:00 PM–6:30 PM	<b>Dinner Meet-Ups</b>	Society Booth/Charles Street Lobby
8:00 PM–9:00 PM	<b>Awards and 2019 Biophysical Society Lecture</b>	Ballrooms I-IV
9:30 PM–12:00 AM	<b>Reception and Dance</b>	Hilton, Key Ballroom
9:30 PM–12:00 AM	<b>Reception and Quiet Room</b>	Hilton, Peale A/C

# Monday, March 4

## Graduate Student Breakfast

7:30 AM - 8:30 AM, ROOM 321/322/323

This breakfast presents an opportunity for graduate student Annual Meeting attendees to meet and discuss the issues they face in their current career stage. Limited to the first 100 attendees.

### Speakers

Lamar Mair, Weinberg Medical Physics  
Frank Sachse, University of Utah

## Registration/Exhibitor Registration

7:30 AM - 5:00 PM, CHARLES STREET LOBBY

## Poster Viewing

8:00 AM - 10:00 PM, EXHIBIT HALL

## Symposium

### Large Macromolecular Machines in the Cell

8:15 AM - 10:15 AM, BALLROOM I

#### Chair

*Titia Sixma, Netherlands Cancer Institute, The Netherlands*

#### 743-SYMP 8:15 AM

CRYO-EM STRUCTURE OF HUMAN TELOMERASE AND NEW INSIGHT INTO ITS ASSEMBLY AND FUNCTION. **Kelly THD Nguyen**, Jane Tam, Robert Alexander Wu, Basil J. Greber, Eva Nogales, Kathleen Collins

#### 744-SYMP 8:45 AM

HIGH-RESOLUTION MODELING AND SIMULATION OF CELLULAR STRUCTURES AND PROCESSES, ONE ATOM AT A TIME. **Emad Tajkhorshid**

#### 745-SYMP 9:15 AM

STRUCTURE-FUNCTION MAPPING OF THE NUCLEAR PORE COMPLEX. **Michael P. Rout**

#### 746-SYMP 9:45 AM

STEPPING THROUGH DNA MISMATCH REPAIR INITIATION. Rafael Fernandez-Leiro, Doreth Bhairosing-Kok, Flora Groothuizen, Laffebber Charlie, Joyce H. Lebbink, Peter Friedhoff, Meindert Lamers, **Titia K. Sixma**

## Symposium

### Biological Membranes and Vesicles

8:15 AM - 10:15 AM, BALLROOM II

#### Chair

*John Briggs, MRC Laboratory of Molecular Biology, United Kingdom*

#### NO ABSTRACT 8:15 AM

STRUCTURAL CELL BIOLOGY OF VIRUS-HOST INTERACTIONS. **Kay Grunewald**

#### 747-SYMP 8:45 AM

UNCOVERING THE MECHANISMS OF CLATHRIN-MEDIATED ENDOCYTOSIS USING QUANTITATIVE BIOLOGY APPROACHES. **Julien Berro**

#### 748-SYMP 9:15 AM

CROWDING IN THE CELLULAR CONTEXT: TALES OF CLUSTERS AND DYNAMICS. **Michael Feig**

#### NO ABSTRACT 9:45 AM

REVEALING THE STRUCTURES OF TRAFFICKING VESICLES AND ENVELOPED VIRUSES USING CRYO-ELECTRON TOMOGRAPHY. **John Briggs**

## Platform

### Protein-Small Molecule Interactions

8:15 AM - 10:15 AM, BALLROOM III

#### Co-Chairs

*Alex Dickson, Michigan State University*  
*Rezvan Shahoei, University of Illinois at Urbana-Champaign*

#### 749-PLAT 8:15 AM

MAPPING LIGAND BINDING LANDSCAPES USING WEIGHTED ENSEMBLES OF TRAJECTORIES. **Alex Dickson**

#### 750-PLAT 8:30 AM

THE RELEVANCE OF CONFORMATIONAL ENTROPY FOR PROTEIN LIGAND INTERACTIONS: THE CASE OF BIOTIN AND STREPTAVIDIN. **Mona Sarter**, Andreas M. Stadler, Doreen Niether, Bernd W. Koenig, Michaela Zamponi, Lohstroh Wiebke, Simon Wiegand, Joerg Fitter

#### 751-PLAT 8:45 AM

STRUCTURAL AND FUNCTIONAL CHARACTERIZATION OF PERIPLASMIC SIALIC ACID BINDING PROTEINS FROM PATHOGENIC BACTERIA. **Thanuja Gangi Setty**, Ramaswamy S

#### 752-PLAT 9:00 AM

MECHANICAL STRENGTH OF CATCH BOND FORMING FIMH AND MANNOSE. **Laura A. Carlucci**, Keith Johnson, Wendy E. Thomas

#### 753-PLAT 9:15 AM

MENTHOL BINDS TO EXTRACELLULAR AND TRANSMEMBRANE DOMAINS OF THE HUMAN A4B2 NICOTINIC RECEPTOR. **Rezvan Shahoei**, Emad Tajkhorshid

#### 754-PLAT 9:30 AM

MOLECULAR DETERMINANTS OF NON-OXIME BISPYRIDINIUM ACTIVITY AT ADULTS MUSCLE NACHRS. **Max Epstein**

#### 755-PLAT 9:45 AM

TARGETING THE MRNAS TRANSLATION PROCESS: A NOVEL THEORETICAL BASED APPROACH TO DESIGN TAILORED ANTICANCER AGENTS. **Daniele Di Marino**, Stefano Raniolo, Alessandro Gori, Vittorio Limongelli

#### 756-PLAT 10:00 AM

PROTEIN DATABANK SURVEY HINTS INTO THE EMERGENCE OF PROTEIN-ADENINE RECOGNITION IN EVOLUTION. Aya Narunsky, Ron Solan, Amir Kessel, Rachel Kolodny, **Nir Ben-Tal**

## Platform

### Excitation-Contraction Coupling/Cardiac and Skeletal Muscle Electrophysiology II

8:15 AM - 10:15 AM, BALLROOM IV

#### Co-Chairs

*Sabine Lotteau, Smidt Heart Institute*  
*Filip Van Petegem, University of British Columbia, Canada*

#### 757-PLAT 8:15 AM

L-TYPE CALCIUM CHANNELS ARE A MAJOR SOURCE OF PLASMA MEMBRANE CALCIUM INFLUX FOR DROSOPHILA CARDIOMYOCYTES. **Worawan B. Limpitkul**, Meera C. Viswanathan, Brian O'Rourke, David T. Yue, Anthony Cammarato

#### 758-PLAT 8:30 AM

EFFICIENT HIGH-THROUGHPUT SCREENING FOR TYPE 1 RYANODINE RECEPTOR INHIBITORS USING ER CA<sup>2+</sup> MEASUREMENTS. **Takashi Murayama**, Nagomi Kurebayashi, Mari Yuasa-Ishigami, Shuichi Mori, Haruo Ogawa, Junji Suzuki, Kazunori Kanemaru, Masamitsu Iino, Hiroyuki Kagechika, Takashi Sakurai

**759-PLAT** **8:45 AM** **TRAVEL AWARDEE**  
 ENDOTHELIAL CELL REGULATION OF EXCITATION-CONTRACTION COUPLING IN INDUCED PLURIPOTENT STEM CELL DERIVED MYOCARDIUM.  
**Oisín King**, Fatemeh Kermani, Brian Wang, Warrapong Kit-Anan, Jerome Fourre, Anna M. Randi, Cesare M. Terracciano

**760-PLAT** **9:00 AM**  
 BIOCHEMICAL AND EPIGENETIC MODIFICATIONS OCCUR IN MUSCLES OF PATIENTS WITH SELENOPROTEIN N RELATED CONGENITAL MYOPATHY. Christoph Bachmann, Nicol Voermans, Heinz Jungbluth, Francesco Muntoni, Francesco Zorzato, **Susan Treves**

**761-PLAT** **9:15 AM**  
 STRUCTURAL INSIGHTS INTO RECOGNITION OF RYANODINE RECEPTORS BY PKA. Omid Haji-Ghassemi, Zhiguang Yuchi, **Filip Van Petegem**

**762-PLAT** **9:30 AM**  
 ACUTE GENETIC ABLATION OF SODIUM-CALCIUM EXCHANGE: ADAPTATIONS OF EXCITATION-CONTRACTION COUPLING AND CALCIUM REGULATION. **Sabine Lotteau**, Rui Zhang, Christina Grabar, Stephan Aynaszyn, Xin Yue, Yushun Zhang, Kenneth D. Philipson, Michela Ottolia, Joshua I. Goldhaber

**763-PLAT** **9:45 AM**  
 MUSCLES FROM CALSEQUESTRIN-1 KNOCKOUT MICE CONTAIN PRE-ASSEMBLED CALCIUM ENTRY UNITS THAT PROVIDE CONSTITUTIVELY ACTIVE STORE-OPERATED CALCIUM ENTRY. **Antonio Michelucci**, Simona Boncompagni, Laura Pietrangelo, Robert Dirksen, Feliciano Protasi

**764-PLAT** **10:00 AM**  
 NOVEL MORPHOLOGICAL AND FUNCTIONAL INSIGHTS IN PYTHON CARDIAC BIOLOGY. **Claudia Crocini**, Kathleen C. Woulfe, Leslie A. Leinwand

**Platform**  
**Energy Transducing Complexes and Mitochondria in Cell Life and Death**  
**8:15 AM - 10:15 AM, ROOM 307/308**

**Co-Chairs**  
*William Cramer, Purdue University*  
*Santhanam Shanmughapriya, Pennsylvania State University*

**765-PLAT** **8:15 AM**  
 STRUCTURE-BASED CHANGE IN THE RATE-LIMITING STEP OF PHOTOSYNTHETIC ELECTRON TRANSPORT. **William A. Cramer**, J. Ness, S. Saif Hasan, Katherine Ehringer, Sejuti Naurin, Valentyn Stadnytskyi, Iskander M. Ibrahim, Sujith Puthiyaveetil

**766-PLAT** **8:30 AM**  
 CHEMOMECHANICAL COUPLING OF MITOCHONDRIAL COMPLEX I. **Chitrak Gupta**, Umesh Khaniya, Chun Kit Chan, Marilyn Gunner, Christophe Chipot, Francois Dehez, Abhishek Singharoy

**767-PLAT** **8:45 AM**  
 A NEW SYNTHETIC FRET SENSOR TO ANALYZE ALLOSTERIC AMPK ACTIVATION AND CELLULAR ENERGY STATE. **Uwe Schlattner**, Martin Pelosse, Imre Berger

**768-PLAT** **9:00 AM**  
 HOW THE NANOARCHITECTURE OF CARDIAC MUSCLE MITOCHONDRIA AFFECTS FUNCTION: LESSONS FROM COMPUTER SIMULATIONS. **Carmen A. Mannella**, Zheng Liu, Chyongere Hsieh, Nasrin Afzal, Raquel A. Adams, M. Saleet Jafri, W. Jonathan Lederer

**769-PLAT** **9:15 AM**  
 HUMAN VDAC3 FORMS VDAC1-TYPE ANIONIC CHANNELS THAT ARE HIGH-CONDUCTING, PERMEABLE TO METABOLITES, AND REGULATED BY CYTOSOLIC PROTEINS. **Maria Queralt-Martin**, Lucie A. Bergdoll, Jeff Abramson, Daniel Jacobs, Oscar Tejjido Hermida, David P. Hoogerheide, Sergey M. Bezrukov, Tatiana K. Rostovtseva

**770-PLAT** **9:30 AM** **TRAVEL AWARDEE**  
 MOLECULAR LINK BETWEEN MCU AND MRS2P CHANNELS FOR MITOCHONDRIAL ION HOMEOSTASIS AND ENERGY METABOLISM.  
**Shanmughapriya Santhanam**, Xueqian Zhang, Jianliang Song, Joseph Y. Cheung, Peter Basile Stathopoulos, Muniswamy Madesh

**771-PLAT** **9:45 AM**  
 MITOCHONDRIAL MEGACHANNEL RESIDES IN MONOMERIC ATP SYNTHASE. **Nelli Mnatsakanyan**, Han-A Park, Wu Jing, Marc C. Llaguno, Besnik Murtishi, Maria Latta, Ellie Davis, Paige Miranda, Youshan Yang, Fred Sigworth, Elizabeth A. Jonas

**772-PLAT** **10:00 AM**  
 MITOCHONDRIAL CREATINE KINASE ATTENUATES ROS EMISSION AND IMPROVES MYOCYTE SURVIVAL AFTER ROS IN THE FAILING HEART.  
**Gizem Keceli**, Joevin Sourdon, Ashish Gupta, Carlo G. Tocchetti, Bongsoo Park, Jacopo Agrimi, Michelle Leppo, Genaro A. Ramirez-Correa, Shyam S. Biswal, Nazareno Paolucci, Robert G. Weiss

**Platform**  
**Microtubules, Structure, Dynamics and Associated Proteins**  
**8:15 AM - 10:15 AM, ROOM 309/310**

**Co-Chairs**  
*Annapurna Vemu, NIH*  
*William Hancock, Pennsylvania State University*

**773-PLAT** **8:15 AM**  
 SEVERING ENZYMES AMPLIFY MICROTUBULE ARRAYS THROUGH LATTICE GTP-TUBULIN INCORPORATION. **Annapurna Vemu**, Ewa Szczesna, Elena A. Zehr, Jeffrey O. Spector, Nikolaus Grigorieff, Alexandra M. Deaconescu, Antonina Roll-Mecak

**774-PLAT** **8:30 AM**  
 DIRECT OBSERVATION OF INDIVIDUAL TUBULIN DIMERS BINDING TO GROWING MICROTUBULES. **Keith J. Mickolajczyk**, Elisabeth Geyer, Tae Kim, Luke Rice, William O. Hancock

**775-PLAT** **8:45 AM**  
 COMPUTATIONAL MODELING AND CRYO ELECTRON TOMOGRAPHY REVEAL A NEW MECHANISM FOR MICROTUBULE ASSEMBLY AND DYNAMICS. **Nikita B. Gudimchuk**, Evgeni V. Ulyanov, Eileen O'Toole, Dmitrii S. Vinogradov, Fazly I. Ataullakhanov, J. Richard McIntosh

**776-PLAT** **9:00 AM**  
 DYNAMIC INSTABILITY AND TREADMILLING COEXIST FOR IN VITRO MICROTUBULES. **Goker Arpag**, Marija Zanic

**777-PLAT** **9:15 AM**  
 ACTIVE FLUCTUATIONS OF MICROTUBULE NETWORKS FACILITATE FASTER MOTILITY OF DYNEIN. **Yasin Ezber**

**778-PLAT** **9:30 AM**  
 OXIDATIVE STRESS RESTRUCTURES THE CELLULAR MICROTUBULE CYTOSKELETON VIA REPAIR-MEDIATED RESCUE EVENTS.  
**Rebecca R. Goldblum**, Kyle White, Mark McClellan, Joseph M. Metzger, Melissa K. Gardner

**779-PLAT** **9:45 AM**  
 TAU'S PROLINE RICH REGION DOMINATES TUBULIN BINDING.  
**Kristen McKibben**, Elizabeth Rhoades

**780-PLAT** **10:00 AM**  
 MECHANISMS OF BIDIRECTIONAL TRANSPORT OF MISALIGNED CHROMOSOMES IN MITOSIS. **Saad Ansari**, Zachary Gergely, Christopher Edelmaier, Nicolas Santander, Patrick Flynn, Adam Lamson, Matthew A. Glaser, J. Richard McIntosh, Meredith D. Betterton

## Platform

Protein Assemblies/Enzyme Function,  
Cofactors and Post-translational Modifications I

8:15 AM - 10:15 AM, ROOM 314/315

## Co-Chairs

*Peter Schuck, NIBIB NIH**Charlotte Lorenz, Forschungszentrum Jülich, Germany*

## 781-PLAT 8:15 AM

MEASURING MACROMOLECULAR SIZE-DISTRIBUTIONS AND INTERACTIONS AT HIGH CONCENTRATIONS BY SEDIMENTATION VELOCITY. **Sumit K. Chaturvedi**, Jia Ma, Patrick H. Brown, Huaying Zhao, **Peter Schuck**

## 782-PLAT 8:30 AM

PHYSIOLOGICALLY-RELEVANT CROWDING EFFECTS ON THE SH3-SON OF SEVENLESS INTERACTION. **Samantha S. Stadmler**, Jhoan Sebastian Aguilar, Gary J. Pielak

## 783-PLAT 8:45 AM

A CONSERVED ASPARAGINE IN A UBIQUITIN CONJUGATING ENZYME PROMOTES A REACTIVE SUBSTRATE GEOMETRY. **Isaiah Sumner**, Walker M. Jones, Aaron G. Davis, R. Hunter Wilson, Katherine L. Elliott

## 784-PLAT 9:00 AM

DIRECT OBSERVATION OF PROTEIN TRANSLOCATION BY THE 26S PROTEASOME. **Erik Jonsson**, Jared Bard, Erika M. López-Alfonzo, Ellen Goodall, Ken Dong, Andreas Martin

## 785-PLAT 9:15 AM

CHARACTERIZATION OF THE ASSEMBLY AND DISASSEMBLY OF CAPSID PROTEINS DERIVED FROM HEPATITIS B VIRUS. **Maelenn Chevreuil**, Sonia Fieulaine, Laetitia Poncet, Karen Perronet, Thomas Zinn, Eric Jaquet, Naima Nhiri, Stephane Bressanelli, Guillaume Tresset

## 786-PLAT 9:30 AM

## TRAVEL AWARDEE

ASSEMBLY MECHANISM OF FARNESYLATED HGBP1 STUDIED BY TIME-RESOLVED SAXS AND ELECTRON MICROSCOPY. **Charlotte Lorenz**, Andreas M. Stadler

## 787-PLAT 9:45 AM

PROTEIN SELF-ASSEMBLY DRIVES SURFACE LAYER BIOGENESIS AND MAINTENANCE IN *C. CRESCENTUS*. **Jonathan Herrmann**, Colin Comerci, Joshua Yoon, Fatemeh Jabbarpour, Lucy Shapiro, Soichi Wakatsuki, William E. Moerner

## 788-PLAT 10:00 AM

QUENCHABLE PROBES FOR IMAGING OXIDATIVE STRESS IN VIVO. **Oshini Ekanayake**, Sam Scinto, Joseph Fox, Sharon Rozovsky

## Platform

## Biomolecular Methods In and Out of Cells

8:15 AM - 10:15 AM, ROOM 316/317

## Co-Chairs

*Ryan Russell, University of Delaware**Jill Trehwella, The University of Sydney, Australia*

## 789-PLAT 8:15 AM

ATOMIC STRUCTURE OF NEARLY INDESTRUCTIBLE PILI FROM A HYPER-THERMOPHILIC ACIDOPHILE. **Fengbin Wang**, Virginija Cvirkaite-Krupovic, Joe S. Wall, David Prangishvili, Mart Krupovic, Edward H. Egelman

## 790-PLAT 8:30 AM

CHARACTERIZING FUNCTIONAL STATES OF A MODEL LIGAND-GATED ION CHANNEL BY CRYO-ELECTRON MICROSCOPY. **Urska Rovsniak**, Rebecca Howard, Bjorn Forsberg, Marta Carroni, Erik Lindahl

## 791-PLAT 8:45 AM

## TRAVEL AWARDEE

CRYO-EM STRUCTURES REVEAL MECHANISMS OF ACTIVATION AND INACTIVATION IN BESTROPHIN CHANNELS. **Alexandria N. Miller**, George Vaisey, Stephen B. Long

## 792-PLAT 9:00 AM

OUTCOMES OF THE CRYO-EM MAP AND MODEL CHALLENGES.

**Catherine L. Lawson**, Andriy Kryshchak, Grigore Pintilie, Helen M. Berman, Wah Chiu

## 793-PLAT 9:15 AM

A COMPLETE ATOMIC MODEL FOR LETHOCERUS FLIGHT MUSCLE MYOSIN FILAMENT. **Hamidreza Rahmani**, Nadia Daneshparvar, Zhongjun Hu, Dianne Taylor, Robert J. Edwards, Kenneth A. Taylor

## 794-PLAT 9:30 AM

COMPUTATIONAL ASSESSMENT OF DISTANCE RESTRAINT REQUIREMENTS FOR ACCURATE PROTEIN STRUCTURE DETERMINATION BY MAS NMR. **Ryan W. Russell**, Matthew Fritz, Jodi Kraus, Caitlin M. Quinn, Angela M. Gronenborn, Tatyana Polenova

## 795-PLAT 9:45 AM

INTRACELLULAR METAL SPECIATION IN STREPTOCOCCUS SANGUINIS IS PIVOTAL FOR REDOX MAINTENANCE. **Cody Murgas**, Ashley K. Forney, Shannon Baker, Seon-Sook An, Todd O. Kitten, Heather R. Lucas

## 796-PLAT 10:00 AM

RELIABLE BIOMOLECULAR STRUCTURAL MODELLING WITH SMALL-ANGLE SCATTERING. **Jill Trehwella**

## CPOW Committee Meeting

8:30 AM - 10:30 AM, ROOM 333

## Exhibitor Presentation

## Bruker Corporation

9:30 AM - 11:00 AM, ROOM 303

ADVANCES IN DYE DEVELOPMENT AND MICROSCOPY FOR LIVE CELL  
SUPER RESOLUTION MICROSCOPY WITH THE VUTARA 352

Expanding the frontier of super-resolution imaging requires advances in both microscopy hardware and fluorescent labels. Here we describe a cooperative effort to improve both technological fronts with the ultimate goal of live-cell super-resolution microscopy. Bruker's Vutara 352 super-resolution microscope has been designed for live-cell super-resolution microscopy with both high spatial and temporal resolution capabilities. The patented biplane module allows simultaneous two-color imaging in 3D while the sCMOS detector enables fast imaging of biological phenomena. Although this microscope system is capable of live-cell super-resolution imaging, it has been stymied by limitations in the current generation of live-cell-compatible fluorophores. Extant live-cell probes are either fluorescent proteins with low photon counts—and therefore low localization precision—or organic dyes, which require high laser power resulting in phototoxicity in living samples. To remedy this problem, we developed spontaneously blinking (SB) versions of the Janelia Fluor and Alexa Fluor dyes, which blink under physiological conditions at low laser power while still providing high photon counts. In particular, the spontaneously blinking Janelia Fluor 549 (SB-JF549) and red-shifted SB-JF646 are cell-permeable and are easily conjugated to HaloTag or SNAP-tag ligands, making them ready to use in live cell multi-color superresolution experiments. The SB dyes, in combination with the Vutara 352, provide a powerful methodology for simultaneous imaging, localization and visualization of live-cell single-molecule localization data, while offering numerous statistical tools to quantify the data into publishable results.

## Speaker

Robert Hobson, Applications Scientist, Bruker Corporation



## Career Development Center Workshop Demystifying the Academic Job Search II: Preparing your Written Application Materials: CV, Cover Letter, and Research Statement

10:00 AM - 11:00 AM, EXHIBIT HALL A

Over 90% of the cuts in a typical academic job search are made on the basis of your written application materials. Given the large number of candidates in a typical applicant pool, your documents must convey the most important information about you in the most clear and efficient manner. Learn about how your materials should differ based on the type of institution and/or program, and how to create "glanceable" documents to speak most effectively on your behalf.

### Exhibits

10:00 AM - 5:00 PM, EXHIBIT HALL

### Coffee Break

10:15 AM - 11:00 AM, EXHIBIT HALL

### New Member Welcome Coffee

10:15 AM - 11:15 AM, ROOM 321/322/323

Calling all new BPS members! Come and mingle with BPS Staff, Society Council, and program members as you learn about the Society's activities. Current members are welcome to come and meet with new members.

### Exhibitor Presentation Bruker Corporation

10:30 AM - 12:00 PM, ROOM 301

#### USING NMR (NUCLEAR MAGNETIC RESONANCE) AND EPR (ELECTRON PARAMAGNETIC RESONANCE) IN BIOPHYSICS

Magnetic resonance offers many insights into how biological systems function. The two techniques shed light on the identity of species, dynamics, and structures of proteins, peptides, nucleotides, and lipids. The speakers will present an overview of these techniques and applications for people who may be new to the field and wish to incorporate them in their studies.

NMR is a valuable tool for the study of structures and dynamic processes of proteins, peptides and nucleotides. NMR is also well suited to study the interaction of such molecules. Various NMR methods exist to study the interaction of proteins with small molecules in drug discovery, interactions of proteins with each other or with peptides and nucleotides.

In drug discovery fragment based screening by NMR is a well-established technique. A brief presentation of these methods will be included.

The investigation of interaction between larger molecules is facilitated by several NMR methods and by the use of isotopic labeling. Interactions such as protein oligomerization, protein-protein and protein-nucleotide interaction in solutions can be investigated. An overview of these techniques and applications will be included.

In contrast to NMR, EPR detects unpaired electrons in free radicals and transition metal ions. One electron transfer reactions result in unpaired electrons. Examples of paramagnetic species encountered in biology are:

- ROS (Reactive Oxygen Species), RNS (Reactive Nitrogen Species)
- Amino acid radicals such as tyrosine and tryptophan radicals
- Paramagnetic intermediates in photosynthesis
- Metalloenzymes

In addition to these naturally occurring paramagnetic species, spin labels can be incorporated into a number of biomolecules via SDSL (Site Directed Spin Labeling). Applications and techniques are:

- Motional dynamics of proteins, peptides, and nucleotides via linse-hape analysis
- Accessibility studies in membrane proteins or peptides via saturation measurements
- Distance measurements (2-8 nm) via DEER (Double Electron-Electron Resonance) to complement other structural methods such as X-ray, NMR, CryoEM and FRET

An introduction to the techniques and applications will be presented.

#### Speakers

Ralph Weber, Senior Application Scientist, Bruker Corporation  
Clemens Anklin, Vice President Applications, Bruker Corporation

### Symposium

#### Phase Separations in the Cell

10:45 AM - 12:45 PM, BALLROOM I

#### Chair

*Geeta Narlikar, University of California, San Francisco*

#### 797-SYMP 10:45 AM

PHASE SEPARATION: PREDICTION AND ROLE IN BIOLOGICAL REGULATION. Robert M. Vernon, Brian Tsang, Tae Hun Kim, Andrew Chong, **Julie D. Forman-Kay**

#### 798-SYMP 11:15 AM

A PROTEIN CONDENSATE DRIVES ACTIN-INDEPENDENT ENDOCYTOSIS. **Stephen Michnick**, Louis-Philippe Bergeron-Sandoval, Rohit Pappu, Paul François, Adam G. Hendricks, Allen J. Ehrlicher, Hossein Khadivi Heris

#### 799-SYMP 11:45 AM

MAKING AND BREAKING THE SYMMETRY BETWEEN SEQUENCE-SPECIFIC CONFORMATIONAL AND PHASE BEHAVIORS OF DISORDERED PROTEINS. **Rohit V. Pappu**

#### 800-SYMP 12:15 PM

THE ROLE OF PHASE-SEPARATION IN HETEROCHROMATIN. **Geeta Narlikar**, Serena Sanulli, John D. Gross, Patrick Griffin, Mike Trnka

### Symposium

#### Regulation of Cardiomyocyte Beating

10:45 AM - 12:45 PM, BALLROOM II

#### Chair

*Beth L. Pruitt, University of California, Santa Barbara*

#### 801-SYMP 10:45 AM

MULTIMERIC PROTEIN COMPLEXES IN REGULATION OF CARDIOMYOCYTE CALCIUM CYCLING AND SURVIVAL. **Litsa Kranias**

#### 802-SYMP 11:15 AM

SLOW AND FAST TIME SCALES IN CARDIOMYOCYTE BEATING. **Ohad Cohen**, Samuel Safran

#### 803-SYMP 11:45 AM

WHY AND WHEN YOUR NEXT HEARTBEAT WILL OCCUR. **Edward G. Lakatta**

#### 804-SYMP 12:15 PM

INVITED SPEAKER: MECHANOBIOLOGY OF ENGINEERED HIPSC CARDIOMYOCYTES. **Beth L. Pruitt**

## Symposium Future of Biophysics

10:45 AM - 12:45 PM, BALLROOM III

### Co-Chairs

*Susan Marqusee, University of California, Berkeley*  
*Andrej Sali, University of California, San Francisco*

### NO ABSTRACT 10:45 AM

LIVE CELL IMAGING OF RNA DYNAMICS IN MAMMALIAN CELLS USING RIBOGLOW, A RIBOSWITCH-BASED FLUORESCENCE TAGGING PLATFORM. **Esther Braselmann**

### NO ABSTRACT 11:15 AM

SCULPTING EMBRYOS VIA CONTROLLED FLUID-TO-SOLID TISSUE TRANSITIONS. **Otger Campas**

### NO ABSTRACT 11:45 AM

OPTICAL DISSECTION OF CLASS C GPCR ASSEMBLY, ACTIVATION, AND SIGNALING MECHANISMS. **Joshua Levitz**

### NO ABSTRACT 12:15 PM

MESOSCALE ARCHITECTURE OF B-CELLS UPON STIMULATION WITH GLUCOSE AND EX-4. **Kate L. White**

## Platform Protein Dynamics and Allostery I

10:45 AM - 12:45 PM, BALLROOM IV

### Co-Chairs

*Jose Caro, University of Pennsylvania*  
*Joseph Rehfus, Johns Hopkins University*

### 805-PLAT 10:45 AM

TARGETING CONFORMATIONAL ENTROPY TO MODULATE BINDING AFFINITY. **José A. Caro**, Shannen Cravens, Kathleen G. Valentine, A. Joshua Wand

### 806-PLAT 11:00 AM

E. COLI ADENYLATE KINASE EXHIBITS INTER-DOMAIN COUPLING. **Joseph E. Rehfus**, Vincent J. Hilser

### 807-PLAT 11:15 AM TRAVEL AWARDEE

A THERMODYNAMIC VIEW OF DYNAMIC ALLOSTERY IN A PDZ DOMAIN PROTEIN. **Amit Kumawat, Suman Chakrabarty**

### 808-PLAT 11:30 AM

STRUCTURAL FLUCTUATIONS ARE KEY TO ALLOSTERIC STIMULATION OF NDV HEMAGGLUTININ-NEURAMINIDASE. **Nalvi D. Duro**, Sameer Varma

### 809-PLAT 11:45 AM

SINGLE-MOLECULE FLUORESCENCE MEASUREMENTS OF TRANSIENT PROTEIN COMPLEXES DETERMINED VIA DIFFUSION-INDEPENDENT MICROFLUIDIC MIXING. **Johann Thurn**, Bjorn Hellenkamp, Thorsten Hugel

### 810-PLAT 12:00 PM

STRUCTURAL DYNAMICS COUPLE SUBSTRATE-INDUCED ALLOSTERIC RESPONSES WITH DOMAIN COMMUNICATION IN NONRIBOSOMAL PEPTIDE SYNTHETASES. **Subrata H. Mishra**, Aswani K. Kancharla, Kenneth Marincin, Sanrupti Nerli, Nikolaos Sgourakis, Daniel Dowling, **Dominique P. Frueh**

### 811-PLAT 12:15 PM

MARKOV STATE MODEL OF INFLUENZA HEMAGGLUTININ REVEALS STRUCTURAL BASIS FOR GROUP 1 INFLUENZA INHIBITION BY ARBIDOL. **Sarah E. Kochanek**, Rommie E. Amaro

### 812-PLAT 12:30 PM

A GENERAL METHOD TO DESIGN ALLOSTERIC CONFORMATIONAL SWITCHES. **Ronald L. Koder**, Peter J. Schnatz, Joseph Brisendine, Craig Liang, Bernard H. Everson, Cooper French

## Platform Membrane Structure

10:45 AM - 12:45 PM, ROOM 307/308

### Co-Chairs

*Sarah Shelby, University of Michigan*  
*Ingela Parmryd, University of Gothenburg, Sweden*

### 813-PLAT 10:45 AM

LIPID BILAYER STRUCTURE REFINEMENT WITH SAXS/SANS BASED RESTRAINED ENSEMBLE MOLECULAR DYNAMICS. **Yevhen K. Cherniavskyi**, D. Peter Tieleman

### 814-PLAT 11:00 AM

DISTRIBUTION OF MECHANICAL STRESS IN THE *ESCHERICHIA COLI* CELL ENVELOPE. **Sunny Hwang**, Nicolo Paracini, Jerry M. Parks, Jeremy H. Lakey, James C. Gumbart

### 815-PLAT 11:15 AM

MICRODOMAIN STRUCTURE AND MECHANICAL PROPERTIES OF LIPID MONOLAYERS MIMICKING RED BLOOD CELL MEMBRANES UNDER OXIDATIVE STRESS. **Bob-Dan Lechner**, Paul Smith, Peter C. Winlove, Chris D. Lorenz, Peter G. Petrov

### 816-PLAT 11:30 AM

PHASE PARTITIONING OF PEPTIDE ANCHORS IN PLASMA MEMBRANE VESICLES PREDICTS THEIR RECRUITMENT TO B CELL RECEPTOR CLUSTERS IN LIVE CELLS. **Sarah A. Shelby**, Ivan C. Serrano, Kandice R. Levental, Ilya Levental, Sarah L. Veatch

### 817-PLAT 11:45 AM

MEMBRANE TOPOGRAPHY CREATES THE APPEARANCE OF ANOMALOUS DIFFUSION. **Ingela Parmryd**, Jeremy Adler, Ida-Maria Sintorn, Robin Strand

### 818-PLAT 12:00 PM

INTERACTION OF LIPIDS WITH VOLTAGE-GATED ION CHANNEL PROTEINS. **Nidhin Thomas**, Kranthi Kiran Mandadapu, **Ashutosh Agrawal**

### 819-PLAT 12:15 PM TRAVEL AWARDEE

THE IMPORTANCE OF GLYCOLIPID CROSSLINKING IN ALTERING THE MEMBRANE CURVATURE. **Abir Kabbani**, Krishnan Raghunathan, Anne Kenworthy, Wayne Lencer, Christopher V. Kelly

### 820-PLAT 12:30 PM TRAVEL AWARDEE

DYSLIPIDEMIA INDUCED ENDOTHELIAL STIFFENING IS ACCOMPANIED BY INCREASED MEMBRANE TENSION. **Manuela A. Ayee**, Irena Levitan

## Platform Computational Methods and Bioinformatics

10:45 AM - 12:45 PM, ROOM 309/310

### Co-Chairs

*Swagata Pahari, Clemson University*  
*Zhaleh Ghaemi, University of Illinois at Urbana-Champaign*

### 821-PLAT 10:45 AM

MEMBRANE PERMEABILITY FROM CONVENTIONAL MD SIMULATIONS: COUNTING TRANSITIONS VS. BAYESIAN ANALYSIS. **Andreas Krämer**, Richard M. Venable, Eric Z. Wang, Bernard R. Brooks, Richard W. Pastor

### 822-PLAT 11:00 AM

COMPUTING LONG TIME DYNAMICS USING DYNAMICALLY CORRECTED KINETIC MONTE CARLO (DC-KMC). **Animesh Agarwal**, Cesar A. Lopez, Nicolas W. Hengartner, Sandrasegaram Gnanakaran, Arthur F. Voter

### 823-PLAT 11:15 AM

DYNAMIC COMBINATORIAL ANALYSIS OF LOCAL CONFIGURATIONS IN MOLECULAR DYNAMICS SIMULATION: FREQUENT ITEMSET MINING AND HIERARCHICAL HIDDEN MARKOV MODEL. **Ka Chun Ho**, Donald Hamelberg

**824-PLAT 11:30 AM**  
SURFACE-FREE PROTOCOL FOR COMPUTING PKA'S (DELPHIPKA): APPLICATIONS TO PROTEIN-PROTEIN INTERACTIONS. **Swagata Pahari**, Lexuan Sun, Emil Alexov

**825-PLAT 11:45 AM TRAVEL AWARDEE**  
STRUCTURAL TOPOLOGY OF GLYCOPROTEIN SURFACE NETWORKS USING HIGH THROUGHPUT ATOMISTIC MODELING AND GRAPH THEORY. **Srirupa Chakraborty**, Zachary Berndsen, Cesar Lopez, Andrew Ward, Bette Korber, Nicolas Hengartner, S. Gnanakaran

**826-PLAT 12:00 PM TRAVEL AWARDEE**  
A COMPUTATIONAL HUMAN WHOLE-CELL MODEL REVEALS THE EFFECTS OF SPATIAL ORGANIZATION ON RNA SPLICING. **Zhaleh Ghaemi**, Zaida Luthy-Schulten

**827-PLAT 12:15 PM**  
THE ROLE OF CELLULAR REPLICATIVE LIFESPAN AND STEM CELL DYNAMICS ON CORNEAL EPITHELIUM HOMEOSTASIS AND PATTERN FORMATION. Lior Strinkovsky, Evgeni Havkin, **Yonatan Savir**

**828-PLAT 12:30 PM**  
4D CELL BIOLOGY: BIG DATA IMAGE ANALYTICS AND LATTICE LIGHT-SHEET IMAGING REVEAL DYNAMICS OF CLATHRIN-MEDIATED ENDOCYTOSIS IN STEM CELL-DERIVED INTESTINAL ORGANOID. **Johannes Schöneberg**, Daphné Dambournet, Tsung-Li Liu, Ryan Forster, Dirk Hockemeyer, Eric Betzig, David G. Drubin

## Platform Protein Structure and Conformation II

**10:45 AM - 12:45 PM, ROOM 314/315**

**Co-Chair**  
*Andrea Soranno, Washington University in St. Louis*  
*Gwladys Riviere, University of Florida*

**829-PLAT 10:45 AM**  
SINGLE-MOLECULE CONFORMATIONAL ANALYSIS OF APOLIPOPROTEIN E. Melissa D. Stuchell-Brereton, Berevan Baban, Greg DeKoster, Carl Frieden, **Andrea Soranno**

**830-PLAT 11:00 AM**  
A NEW STEP TO ELUCIDATE MOLECULAR MECHANISMS INVOLVED IN CARIES FORMATION: NMR CHARACTERIZATION OF THE C3 DOMAIN FROM *STREPTOCOCCUS MUTANS* ADHESIN P1. **Gwladys Riviere**, Joanna Long, Jeanine Brady

**831-PLAT 11:15 AM**  
FIBRIL STRUCTURE OF ABETA40 VISUALIZED BY CRYO-ELECTRON MICROSCOPY AND SOLID-STATE NMR. **Ujjayini Ghosh**, Robert Tycko

**832-PLAT 11:30 AM**  
MOLECULAR MODELING OF THE ALPHA GLOBIN/ENOS COMPLEX VIA CROSSLINKING MASS SPECTROMETRY. **T. C. Stevenson Keller**, Brant E. Isakson, Linda Columbus

**833-PLAT 11:45 AM**  
HYDROGEN EXCHANGE MASS SPECTROMETRY GUIDED DOCKING GENERATES ATOMIC RESOLUTION EPITOPES FOR SINGLE-CHAIN CAMELID ANTIBODY-ANTIGEN COMPLEXES. **Jing Zhou**, Jeliuzko Jeliuzkova, Yuqi Shi, David Weis, Jeff Gray

**834-PLAT 12:00 PM**  
REVEALING MULTIPLE CONFORMATIONS OF PROTEINS AT LONG DISTANCES BY USING SINGULAR VALUE DECOMPOSITION METHOD IN PULSED DIPOLAR ESR SPECTROSCOPY. **Madhur Srivastava**, Jack H. Freed

**835-PLAT 12:15 PM**  
COEVOLUTIONARY LANDSCAPES OF KINASE FAMILY PROTEINS. **Allan Haldane**, Peng He, William F. Flynn, Ronald M. Levy

**836-PLAT 12:30 PM**  
STRUCTURE BASED SEARCH FOR MULTIPLE BINDING SITES OF SOS1 PR DOMAIN RECOGNIZES AN UNCOVERED MOTIF FAVORING GRB2-SOS1 ASSOCIATION. **Tsung-Jen Liao**, Hyunbum Jang, Ruth Nussinov, David Fushman

## Platform Membrane Pumps, Transporters, and Exchangers

**10:45 AM - 12:45 PM, ROOM 316/317**

**Co-Chairs**  
*Jacob Keller, HHMI*  
*Rachelle Gaudet, Harvard University*

**837-PLAT 10:45 AM**  
ON THE NATURE OF THE HIGH-AFFINITY IODIDE BINDING SITE OF THE  $Na^+/I^-$  SYMPORTER (NIS). **Silvia Ravera**, Juan P. Nicola, Xuelang Mu, Ignacia Echeverría, Yuly E. Sanchez, L. Mario Amzel, Nancy Carrasco

**838-PLAT 11:00 AM**  
AN ELECTROSTATIC SWITCH FOR GATING THE ELECTROMECHANICAL ACTIVITY OF SLC26A5 (PRESTIN). **Dominik Oliver**, Dmitry Gorbunov, Julia Hartmann, Dominik Lenz, Vijay Renigunta

**839-PLAT 11:15 AM**  
MECHANICS OF AN NRAMP-FAMILY TRANSITION METAL TRANSPORTER. Aaron T. Bozzi, Christina M. Zimanyi, Lukas B. Bane, John M. Nicoludis, Brandon K. Lee, Casey H. Zhang, **Rachelle Gaudet**

**840-PLAT 11:30 AM TRAVEL AWARDEE**  
A MULTIDRUG AND TOXIN EFFLUX (MATE) TRANSPORTER INVOLVED IN ALUMINUM RESISTANCE IS MODULATED BY A CBL5/CIPK2 CALCIUM SENSOR/PROTEIN KINASE COMPLEX. **Julia Miller**, Alison Coluccio, Jan Niklas Offenborn, Anette Mähls, Jörg Kudla, Leon Kochian, Miguel Piñeros

**841-PLAT 11:45 AM**  
THE NEW "PATCH CLAMPING" FOR TRANSPORTERS: OSCILLATING PERFUSSION AND QUANTITATIVE FUNCTIONAL IMAGING OF BIOSENSORS FOR TRANSPORTER FUNCTIONAL MEASUREMENTS. **Jacob P. Keller**

**842-PLAT 12:00 PM**  
ALLOSTERIC MODULATION OF ATP HYDROLYSIS OF THE MOUSE P-GLYCOPROTEIN BY SUBSTRATES AND INHIBITORS. **Reza Dastvan**, Smriti Mishra, Yelena B. Peskova, Robert K. Nakamoto, Hassane S. Mchaourab

**843-PLAT 12:15 PM**  
VACUOLAR  $H^+$ -ATPASE IN THE NUCLEAR MEMBRANES REGULATE NUCLEO-CYTOSOLIC PROTON GRADIENTS. **Raul Martinez-Zaguilan**, Juliana Santos, Arnoldo Facanha, Souad R. Sennoune

**844-PLAT 12:30 PM TRAVEL AWARDEE**  
STRUCTURAL INSIGHTS INTO THE FUNCTION AND AUTO-REGULATION OF LIPID FLIPPASES. **Joseph A. Lyons**, Milena Laban, Dovile Januliene, Jakob Ulstrup, Cedric Montigny, Thibaud Dieudonne, Valentine Guinot, Werner Kuehlbrandt, Guillaume Lenoir, Arne Moeller, Poul Nissen

## Annual Meeting of the Student Chapters

**11:00 AM - 12:30 PM, ROOM 324/325/326**

BPS Student Chapter members are invited to attend the Student Chapter Meeting! At the event, Student Chapters from around the world will exchange best practices (and share challenges!) in marketing their chapters and recruiting members, performing community outreach in science, and hosting chapter events. This event is open only to students currently in a BPS Student Chapter.

**Moderators**  
*Allen Price, Emmanuel College*  
*Seth Weinberg, Virginia Commonwealth University*

## Career Development Center Workshop Networking for Nerds: How to Create Your Dream Career

11:30 AM - 12:30 PM, EXHIBIT HALL A

Wanna land your dream job? Get ready to network! Most jobs and other game-changing career opportunities are not advertised, and even if they are, there is usually a short-list of candidates already in mind. So how do you find out about and access the 90% of jobs and other opportunities that are “hidden”? In this workshop, we will focus on proven networking strategies and tactics to identify new opportunities, locate decision-makers within organizations, solidify your reputation and brand in the minds of those who hire, and gain access to hidden jobs and game-changing opportunities. Discover how networking and self-promotion can enable you to land or even create your dream job from scratch!

### Exhibitor Presentation Asylum Research

11:30 AM - 1:00 PM, ROOM 303

#### CAPTURING BIOCHEMICAL REACTIONS WITH VIDEO-RATE AFM

Oxford Instruments Asylum Research will present the latest data acquired with its Cypher VRS, the world’s first and only full-featured video-rate AFM. The Cypher VRS Atomic Force Microscope sets a new standard with easy operation—enabling high resolution imaging of dynamic events at high speeds, up to 625 lines/second which corresponds to about 10 frames per second. This speed is about 300x faster than typical AFMs and 10x faster than current “fast scanning” AFMs.

One of the strengths of traditional AFMs is its capability to monitor dynamic events in near-native conditions (i.e. in liquid at biologically relevant temperatures). However, capturing biological processes in real-time has been challenging up until now. Video rate AFMs provide that temporal resolution, allowing researchers to observe the progression of these reactions and capture kinetics. Video rate AFMs have allowed researchers to conduct a new set of experiments including biochemical reactions, membrane dynamics, conformational changes, self-assembly and degradation. In most cases, the spatial resolution is not compromised enabling researchers to locate the target or active site while tracking the progression of the reaction. They can observe structural dynamics of biomolecules and then correlate it to their function.

We will present a set of data to illustrate the potential of this new capability. Examples include DNA digestion and cleavage, DNA origami conformation changes, protein fiber assembly, membrane dynamics including molecular structure and rearrangement in the bacteriorhodopsin membrane, lipid bilayer growth, assembly of Type I collagen into fibrils and dynamic motion of CTAB hemi-micelles at the solid (HOPG) – liquid (aqueous buffer) interface.

#### Speaker

Sophia Hohlbauch, Applications Scientist, Asylum Research

### The Nuts and Bolts of Preparing Your NSF Grant

12:30 PM - 2:00 PM, ROOM 321/322/323

The National Science Foundation’s Biological Sciences Directorate strongly supports biophysics researchers through its Division of Molecular and Cellular Biosciences. The division has awarded over \$160 million in funding to researchers in 41 states. At this session, program directors and officers with expertise in biophysics will be providing details on the NSF grant-making process as it stands in 2019, with a particular emphasis on grant writing and submission for new and early career investigators.

#### Speaker

Engin Serspersu, Program Director, Division of Molecular and Cellular Biosciences, NSF

## Exhibitor Presentation Nanion Technologies

12:30 PM - 2:00 PM, ROOM 301

#### ION CHANNELS AND TRANSPORTERS IN THE SPOTLIGHT

Nanion Technologies is the leading solution provider for electrophysiologists since 2002. If you are studying ion channels and electrogenic transporters, our chip- and plate-based devices are well suited to advance your research and screening projects. In our portfolio, you will find instrumentation for automated patch clamp, bilayer recordings, SSM-based electrophysiology, impedance and extracellular field recordings, covering the needs for low, medium and high throughput assays. Our workshop will start with an introduction by Dr. Niels Fertig (CEO, Nanion) and Dr. Andrea Brüggemann (CSO, Nanion), as a guide through the overall capabilities of Nanion’s technology portfolio. In continuation, we will welcome our speakers, Dr. Jean-Francois Rolland (Axxam) and Prof. Dr. Randy Stockbridge (University of Michigan), among others.

As a part of our workshop, Dr. Rolland will focus on his recent work on assay development in ion channel drug discovery, using the high throughput automated patch clamp screening platform, the SyncroPatch 384/768PE. Application areas of this powerful system, recording from up to 768 cells simultaneously, range from high throughput screening (HTS), cardiac safety assessment and efficacy screening, to the analysis of ion channel mutations. The SyncroPatch 384/768PE supports voltage- and current clamp recordings, temperature control, and minimal cell usage. In addition to the use of stably transfected cell lines, more challenging cell assays including stem cell-derived cells, transiently transfected cells or primary cells can be used successfully. In this presentation Dr. Rolland will also discuss the highly promising approach of using optogenetics combined with automated patch clamp technology in HTS. This method, using light to modulate molecular events in a targeted manner in living cells, could lead to cheaper, faster and highly reliable assays, suitable for running the early steps of ion channels’ drug discovery programs, especially when combined to automated electrophysiology. Among others, data obtained from Axxam’s bPAC-HCN2 cell line that was successfully assayed on SyncroPatch 384PE, will be presented.

In continuation, Dr. Stockbridge will be focused on electrogenic transporter assay technology, the SURFE2R. The SURFE2R N1 (single channel) and SURFE2R 96SE (96 channels) technologies enable label-free real time measurements of electrogenic transporter protein activity. Employing SSM (solid supported membrane)-based electrophysiology, the SURFE2R instruments compensate for the low turnover rate of these proteins by measurement of up to 109 transporters in parallel. Dr. Stockbridge, as an expert in measuring membrane transport function, will present her recent data obtained on the SURFE2R N1 instrument. She has undertaken a comparative mechanistic analysis to understand how drug export function evolved in the SMR (small multidrug resistance) exporters family. This involved screening panels of potential substrates (drugs and other compounds) to understand how substrate specificity differs among the drug exporters, guanidinium exporters, and various evolutionary intermediates.

The Nanion team is excited to meet you at our workshop. Join us to learn more about how our “smart tools for electrophysiologists” can help take your research to the next level!

#### Speakers

Andrea Brüggemann, CSO, Nanion Technologies  
Niels Fertig, CEO, Nanion Technologies  
Jean-Francois Rolland, Head of Electrophysiology, Axxam  
Randy Stockbridge, Assistant Professor, University of Michigan

## Understanding the Congressional Budget Process

### How Science is Funded

1:00 PM - 2:30 PM, ROOM 318/319/320

In 2018, Congress approved a major budget deal that raised the discretionary spending caps for the first time since sequestration. However, when this budget deal expires in 2019, Congress will face a potential funding cliff. How will the National Institutes of Health (NIH), the National Science Foundation (NSF), and other science-related agencies do under the next budget deal? Will Congress even pass a new budget deal? Which agencies fund scientific research and how does Congress negotiate their funding levels? Join our panel of government and industry insiders as we explore how the Congressional budget is developed, historical trends in science funding, and what the future may hold!

#### Panelist

Tiffany Kaszuba, Deputy Director, Coalition for Health Funding

### Biophysics 101 Gene Editing

1:30 PM - 3:00 PM, ROOM 307/308

Gene editing refers to the modification of genetic material in living organisms by introducing insertions, deletions or base-pair changes. These modifications have been greatly facilitated by the discovery of the CRISPR/Cas9 system in bacteria and subsequent adaptations for higher organisms. The speakers in this session will focus on new methods being developed for gene editing using CRISPR/Cas9 and related CRISPR systems, including RNA editing, tissue-specific gene editing, therapeutic strategies, and applications to plant breeding and crop development.

#### Moderator

Sharyn Endow, Duke University

#### Presenters

Patrick Hsu, Salk Institute

Greg Gocal, Cibus

### Exhibitor Presentation Bruker Corporation

1:30 PM - 3:00 PM, ROOM 303

#### INVESTIGATING DYNAMIC BIOLOGICAL PROCESSES WITH HIGH-SPEED, HIGH-RESOLUTION CORRELATIVE AFM-LIGHT MICROSCOPY

The ability of atomic force microscopy (AFM) to obtain three-dimensional topography images of biological molecules and complexes with nanometer resolution and under near-physiological conditions remains unmatched by other imaging techniques. However, the typically longer image acquisition times required to obtain a single high-resolution image (~minutes) has limited the advancement of AFM for investigating dynamic biological processes. While recent years have shown significant progress in the development of high-speed AFM (HS-AFM), the ability to scan faster has typically been achieved at the cost of decreased scanner range and restricted sample size. As such, these HS-AFM systems have mainly been focused on studying single molecule dynamics and have been very limited in their ability to conduct live cell imaging.

The novel NanoWizard® ULTRA Speed A AFM not only enables high-speed studies of time-resolved dynamics associated with cellular processes, it's latest scanner technologies and compact design also allow full integration of AFM into advanced commercially available light microscopy techniques. Thus, fast AFM imaging of several frames per second can be seamlessly combined with methods such as epifluorescence, confocal, TIRF, STED microscopy, and many more.

Please join us for this informative seminar where we will present how the latest advances in the ULTRA Speed A AFM are being applied to study a wide-range of biological samples, from individual biomolecules to mammalian cells and tissues. We will also describe how this unique system is enabling new research opportunities with high-speed, high-resolution correlative AFM-light microscopy.

#### Speaker

Andrea Slade, BioAFM Product Manager, JPK BioAFM Center, Bruker Nano Surfaces

### Snack Break

1:45 PM - 3:00 PM, EXHIBIT HALL

### Poster Presentations and Late Posters

1:45 PM - 3:45 PM, EXHIBIT HALL

### Virtual Biophysics Virtual and Augmented Reality Meets Biophysics

2:15 PM - 3:45 PM, ROOM 324/325/326

As virtual reality has become cheaper and more accessible, the research and educational applications of this technology have grown. Virtual, augmented, and mixed reality (VR, AR, and MR) technologies offer immersive experiences by exposing human senses to computer-generated sounds, images, and haptic stimulations. This session will showcase to researchers, educators, and students how these technologies are being applied in biophysics research and education and offer participants a chance to test out these new tools and experience the power and prospects of VR and AR in the classroom and the research lab.

### Career Development Center Workshop The Strategic Postdoc: How to Find & Leverage your Postdoc Experience

2:30 PM - 3:30 PM, EXHIBIT HALL A

Many PhDs just kind of fall in to a postdoc, rather than thinking about it from a strategic perspective. Your postdoc is never an end in itself; rather it's a means to another end whether that goal is a faculty position at a research university, a small college, or perhaps a job in industry or government. Learn how to find postdoc opportunities that will best prepare you for that next step, and how to use your postdoc experience to facilitate the transition to your next position.

### Speed Networking

2:30 PM - 4:00 PM, MEZZANINE LEVEL

Career development and networking are important in science, but can be a big time commitment. In this session we offer the chance to speed network, an exciting way to connect with a large number of biophysicists (including Biophysical Society committee members) in a short amount of time. Mid-career and more experienced scientists could learn how to get more involved in the Society or network for open positions in their labs. Early career scientists could discuss career goals and challenges, get advice on tenure or grant writing, or find out how to gain recognition for their work. Graduate students and postdocs could make contacts to find their next position. After introductions, each person will have short 3-5 minute meetings with consecutive new contacts. During this time you can exchange information and ask questions. When time is up, you select the next person to talk to. By the end of the event, each participant will have had meaningful interactions with over half a dozen colleagues and the opportunity to meet many more. It's that simple! Space is limited for this event and pre-registration was recommended to ensure a spot.

## Designing and Implementing Strategies to Prevent and Recover from Burnout

2:30 PM - 4:00 PM, ROOM 321/322/323

The demands of research can lead to academic burnout at any career stage, significantly harming both our personal and professional lives. Given the challenges facing scientists in the lab, office, and at home, feelings of dissatisfaction, anxiety, exhaustion, and unproductivity can be difficult to avoid. Exiting and recovering from the burnout cycle can be even more challenging. In this interactive workshop, we will discuss concrete strategies to recognize, prevent, and counteract burnout. The goals of these strategies are to manage stress, promote a sense of well-being, improve efficiency, and to help participants revive their genuine enthusiasm for science.

### Panelists

Vasanthi Jayaraman, University of Texas Health Science Center  
Kenton Swartz, NINDS, NIH  
Eleonora Zakharian, University of Illinois

## Exhibitor Presentation Alvéole

2:30 PM - 4:00 PM, ROOM 301

### BIOENGINEERING RELEVANT CELLULAR MICROENVIRONMENTS WITH PRIMO®

In vivo, the cellular microenvironment has a crucial impact on the regulation of cell behavior and functions, such as cellular differentiation, proliferation and migration. One of the challenges confronting cell biologists is to mimic this microenvironment in vitro in order to more efficiently study living cells and model diseases. To this end, we present the PRIMO device developed by ALVEOLE. This contactless and maskless UV projection system based on the LIMAP technology(1) allows to control the biochemical and mechanical properties of in vitro microenvironments. We will first show that PRIMO is a suitable tool to print biomolecules on substrates (including glass, plastic, soft/stiff substrates, textured surfaces, etc.) with an exquisite control over protein densities (micropatterning). Then, we will also present how the projected UV light can be used in order to structure photosensitive resists (such as SU8) and create molds onto which elastomeric solutions can be polymerized (microfabrication).

Finally, one of our users will share his research conducted with PRIMO. He used this technology in order to structure and functionalize hydrogels (microstructuration combined with micropatterning) paving the way for 3D cell culture onto controlled, reproducible soft substrates(2). Visit [www.alveolelab.com](http://www.alveolelab.com) for more information.

### Speakers

Aurélien Pasturel, University of Bordeaux, CNRS, Alvéole  
Pierre-Olivier Strale, Senior Scientist, Alvéole

## Exhibitor Presentation NanoSurface Biomedical

3:30 PM - 5:00 PM, ROOM 303

### BIOMIMETIC CELL CULTURE PLATFORMS FOR ENHANCING CELL BIOLOGY STUDIES

Cells use structural and mechanical cues from the extracellular matrix (ECM) to regulate a broad spectrum of processes such as cell signaling, electrophysiology, differentiation, division, and even life and death. Over the past few decades, the literature has demonstrated that many cell types cultured in conventional flat, rigid, and static culture condi-

tions lack both structural and functional phenotypes seen in the body, and that the lack of extracellular cues contributes significantly to the disconnect between in vitro experimental results and in vivo observation. We will demonstrate that ECM-inspired substrate nanotopography drastically improves the structural and functional development of a variety of cell types. Specifically, we show how NanoSurface Cultureware and the NanoSurface Cytostretcher can be utilized to study the effects of cell-nanotopography interactions on adhesion, signaling, polarity, migration, physiology, and differentiation across many cell types and model systems including cancer biology, human epithelia, and cardiovascular function. Further, we will describe how the differentiation of induced pluripotent stem cells can be accelerated and enhanced by providing a more biomimetic culture environment. We will also illustrate how the combination of nanotopography and mechanical stretch can enhance the in vitro phenotypes of cells in culture.

### Speaker

Nicholas Geisse, Chief Science Officer, NanoSurface Biomedical

## Membership Committee Meeting

3:30 PM - 5:30 PM, ROOM 333

## Career Development Center Workshop Developing Your 30-Second Value Statement (aka Your Elevator Pitch)

4:00 PM - 5:00 PM, EXHIBIT HALL A

I have a brand and you have a brand. A brand is simply a promise of value and every successful professional and company is successful in part because they know how to articulate their brand. The ability to communicate your promise of value is vitally important for not only crafting your own career path, but also for finding out about hidden opportunities and jobs. In this workshop, we learn the fundamentals of branding as it relates to career development and planning strategy. We will work together to develop your own 30-second brand statement which you can use in networking, and informational and job interviews. We will discuss the connection between brand, attitude and reputation, and why every interaction with someone affects how people perceive your brand. You will leave this presentation with the ability to elucidate your own brand to whomever you meet, giving you a critical competitive edge in your career and the job market.

## Symposium

## Chromatin Organization and Regulation: From Physical Principles to Biological Phenomena

4:00 PM - 6:00 PM, BALLROOM I

### Chair

Karolin Luger, University of Colorado Boulder

845-SYMP 4:00 PM

DNA SHAPE SHIFTING AS A GENE THERAPY TOOL. Jonathan M. Fogg, Qian Wang, Allison Judge, Erik Stricker, B. Montgomery Pettitt, Lynn Zechiedrich

846-SYMP 4:30 PM

CHROMOSOME ORGANIZATION BY LOOP EXTRUSION AND PHASE SEPARATION. Leonid Mirny

847-SYMP 5:00 PM

HOW TO READ AND WRITE MECHANICAL INFORMATION IN DNA MOLECULES. Helmut Schiessel

NO ABSTRACT 5:30 PM

OFF TO THE RACES - QUANTITATING THE RECRUITMENT OF PROTEINS

## Symposium Synthetic Biology

4:00 PM - 6:00 PM, BALLROOM II

### Chair

*Luis Serrano, Centre for Genomic Regulation, Spain*

**NO ABSTRACT 4:00 PM**

SYNTHETIC BIOLOGY APPROACHES TO BIO-ORTHOGONAL CHEMISTRY. **Michelle Chang**

**848-SYMP 4:30 PM**

SYNTHETIC ELECTROPHYSIOLOGY. Harry McNamara, **Adam Cohen**

**849-SYMP 5:00 PM**

MECHANISMS, DIVERSITY AND OPTOGENETIC APPLICATIONS OF CHANNELRHODOPSINS FROM CRYPTOPHYTE ALGAE. **Elena G. Govorunova**, John L. Spudich

**NO ABSTRACT 5:30 PM**

ENGINEERING OF MYCOPLASMA PNEUMONIAE AS A THERAPEUTIC VEHICLE TO TREAT LUNG DISEASES. **Luis Serrano**

### Platform

## Ion Channels, Pharmacology and Disease

4:00 PM - 6:00 PM, BALLROOM III

### Co-Chairs

*Paola Vergani, University College London, United Kingdom*  
*Nurunisa Akyuz, Harvard Medical School*

**850-PLAT 4:00 PM**

TMC1 FORMS THE PORE OF THE MECHANOSENSITIVE TRANSDUCTION CHANNELS IN INNER EAR HAIR CELLS. **Nurunisa Akyuz**, David P. Corey

**851-PLAT 4:15 PM**

INHIBITION OF TMEM16A BY DOCOSAHEXAENOIC ACID PLAYS A CRUCIAL ROLE IN BLOOD VESSEL RELAXATION. **Kathryn E. Acheson**, Paolo Tammaro

**852-PLAT 4:30 PM**

FENESTRATIONS CONTROL THE RESTING STATE BLOCK OF A VOLTAGE GATED SODIUM CHANNEL. **Tamer M. Gamal El-Din**, Michael J. Lenaus, Ning Zheng, William A. Catterall

**853-PLAT 4:45 PM**

DOES DISRUPTION OF THE E873-R933 SALT BRIDGE IN CFTR AND ALTERATION OF THE MEMBRANE BILAYER AROUND IT PLAY A BIOLOGICAL ROLE? Emily Langron, Valentina Corradi, Peter D. Tieleman, **Paola Vergani**

**854-PLAT 5:00 PM**

GENERATING POTENT AND SELECTIVE INHIBITORS OF KV1.3 ION CHANNEL BY FUSING KNOTTINS (VENOM DERIVED MINI PROTEINS) INTO PERIPHERAL CDR LOOPS OF ANTIBODIES. **Aneesh Karatt-Vellatt**, Damian C. Bell, Sachin B. Surade, Tim Luetkens, Ed W. Masters, Alice M. Luther, Naja Møller M. Sørensen, Neil J. Butt, John McCafferty

**855-PLAT 5:15 PM**

IS THE HYDROPHOBIC GASKET A SECONDARY SELECTIVITY FILTER IN THE HUMAN VOLTAGE GATED PROTON CHANNEL HH<sub>v</sub>1? **Richard Banh**, Kethika Kulleperuma, Vladimir V. Cherny, Deri Morgan, Boris Musset, Sarah Thomas, Susan M.E. Smith, Régis Pomès, Thomas E. DeCoursey

**856-PLAT 5:30 PM**

**TRAVEL AWARDEE**  
INVESTIGATING FUNCTIONAL CONSEQUENCES OF NOVEL DISEASE-CAUSING MUTATIONS OF CLCN7 GENE. **Eleonora Di Zanni**, Alessandra Piccolo

**857-PLAT 5:45 PM**

INHIBITION OF HCN CHANNELS BY BETA-BLOCKER CARVEDILOL. **Pingzheng Zhou**, Ying Cao

### Platform

## Optical Microscopy and Superresolution Imaging II

4:00 PM - 6:00 PM, BALLROOM IV

### Co-Chairs

*Janet Sheung, Vassar College*  
*Paul Wiggins, University of Washington*

**858-PLAT 4:00 PM**

SINGLE PARTICLE TRAJECTORIES REVEAL ACTIVE ENDOPLASMIC RETICULUM LUMINAL FLOW. **Pierre Parutto**, Joseph E. Chambers, Marcus Fantham, Laurence Young, Stefan Marciniak, Clemens F. Kaminski, David Ron, David Holcman, Edward Avezov

**859-PLAT 4:15 PM**

CHROMATIN NANOSCALE ORGANIZATION INVESTIGATED BY FLIM-FRET AND STED SUPERRESOLUTION MICROSCOPY. **Simone Pelicci**, Michele Oneto, Melody Di Bona, Isotta Cainero, Paola Barboro, Alberto Diaspro, Luca Lanzano'

**860-PLAT 4:30 PM**

SINGLE NITROGEN-VACANCY IMAGING IN NANODIAMONDS FOR MULTIMODAL SENSING. **Maabur Sow**, Horst Steuer, Barak Gilboa, Laia Gines, Soumen Mandal, Sanmi Adekanye, Jason M. Smith, Oliver A. Williams, Achillefs N. Kapanidis

**861-PLAT 4:45 PM**

ACTIVE FEEDBACK TRACKING OF SINGLE VIRUSES AND FLUOROPHORES IN SOLUTION. **Kevin D. Welscher**

**862-PLAT 5:00 PM**

SUPER-RESOLUTION MICROSCOPY AS A TOOL FOR COUNTING PROTEINS IN A SUB-CELLULAR ENVIRONMENT. **Francesca Cella Zanacchi**, Raffaella Magrassi, Carlo Manzo, Nathan Derr, Alberto Diaspro

**863-PLAT 5:15 PM**

MOLECULAR COUNTING WITH DNA ORIGAMI - VERIFICATION AND VALIDATION TOWARDS BIOLOGICAL APPLICATIONS. **Daniel F. Nino**, Daniel Djarkarsana, Anton Zilman, Joshua Milstein

**864-PLAT 5:30 PM**

STRUCTURAL CONTRIBUTIONS TO HYDRODYNAMIC SIZE OF QUANTUM DOTS FOR IN-VIVO SINGLE MOLECULE TRACKING. **Janet Y. Sheung**, Pinghua Ge, Sung Jun Lim, Sang Hak Lee, Andrew Smith, Paul R. Selvin

**865-PLAT 5:45 PM**

THE OBSERVATION PROTEIN POSITION AND ORIENTATION DYNAMICS USING AN UNBLEACHABLE PROBE. **Paul A. Wiggins**

### Platform

## Membrane Receptors and Signal Transduction

4:00 PM - 6:00 PM, ROOM 307/308

### Co-Chairs

*Jinan Wang, University of Kansas*  
*Michael Brown, University of Arizona*

**866-PLAT 4:00 PM**

ACTIVATION AND CROSS-INTERACTION OF RECEPTOR TYROSINE KINASES STUDIED BY SINGLE-PARTICLE TRACKING. **Marie-Lena I. E. Harwardt**, Sebastian Strauss, Ralf Jungmann, Marina S. Dietz, Mike Heilemann

**867-PLAT 4:15 PM**

A THERMODYNAMIC FRAMEWORK FOR UNDERSTANDING RTK INTERACTION NETWORKS. **Michael D. Paul**, Kalina Hristova

**868-PLAT 4:30 PM**  
FUNCTIONAL AND STRUCTURAL ANALYSIS OF CELL-FREE SYNTHESIZED MEMBRANE PROTEINS. **Belay Gessesse**, Takuya Ueda, Yoshihiro Shimizu

**869-PLAT 4:45 PM**  
SPONGE MODEL OF G-PROTEIN BINDING AND UNBINDING IN MEMBRANES. **Anna R. Eitel**, Steven D.E. Fried, Suchithranga M.D.C. Perera, Udeep Chawla, Nipuna Weerasinghe, Carolanne E. Norris, Andrey V. Struts, Michael F. Brown

**870-PLAT 5:00 PM TRAVEL AWARDEE**  
MECHANISM OF SPECIFIC G PROTEIN COUPLING TO ADENOSINE RECEPTORS. **Jinan Wang**, Yinglong Miao

**871-PLAT 5:15 PM**  
STUDYING STRUCTURAL PLASTICITY UNDERLYING GPCR FUNCTION. **Matthew T. Eddy**

**872-PLAT 5:30 PM**  
A CONDITIONAL TRANSMEMBRANE PEPTIDE INHIBITS CELL MIGRATION BY ACTIVATION OF THE EPHA2 RECEPTOR TYROSINE KINASE. Daiane S. Alves, Justin M. Westerfield, Xiaojun Shi, Vanessa P. Nguyen, Katherine M. Stefanski, Adam W. Smith, **Francisco N. Barrera**

**873-PLAT 5:45 PM**  
TOWARDS MOLECULAR SIMULATIONS OF JUXTAPOSED BIOMEMBRANES. **Elizabeth E. Jefferys**, Bart Bruininks, Paulo Cesar T. Souza, Siewert-Jan Marrink, Mark S. Sansom

### Platform Myosin and Skeletal/Smooth Muscle Mechanics, Structure, and Regulation

4:00 PM - 6:00 PM, ROOM 309/310

#### Co-Chairs

*Wolfgang Linke, University of Muenster, Germany*  
*Aikaterini Kontrogianni-Konstantopoulos, University of Maryland Baltimore*

**874-PLAT 4:00 PM**  
MACROMOLECULAR CROWDING AFFECTS THE RATE OF ADP RELEASE FROM ACTOMYOSIN. **Jinghua Ge**, Akhil Gargay, Yuri Nesmelov

**875-PLAT 4:15 PM**  
THE MUSCLE MYOSIN ESSENTIAL LIGHT CHAIN IS NOT ESSENTIAL FOR MUSCLE FUNCTION. **Douglas M. Swank**, Bernadette M. Glasheen

**876-PLAT 4:30 PM**  
THE SKELETAL MUSCLE SUPER RELAXED STATE (SRX) IS LOCALIZED TO THE C-ZONE. **Shane R. Nelson**, Amy Li, Guy Kennedy, Samantha Beck-Previs, David M. Warshaw

**877-PLAT 4:45 PM**  
THE LONG GLU-RICH SEGMENTS OF TROPONIN T IN FLIGHT MUSCLES OF BIRDS AND INSECTS. **Tianxin Cao**, J.-P. Jin, Hanzhong Feng, Deena Damschroder, Robert Wessells

**878-PLAT 5:00 PM**  
THIN FILAMENT REGULATION BLENDS THERMODYNAMIC AND MECHANICAL MECHANISMS. **Henry G. Zot**, P. Bryant Chase, Javier E. Hasbun, J. Renato Pinto

**879-PLAT 5:15 PM**  
ELUCIDATING PRINCIPLES OF MOLECULAR ELASTICITY IN MUSCLE FILAMENT PROTEINS: FROM HIGH-RESOLUTION STRUCTURE TO *IN VIVO* PROOF. Philipp Hornburg, Spyros D. Chatziefthimiou, **Matthias Wilmanns**

**880-PLAT 5:30 PM TRAVEL AWARDEE**  
NOVEL TALES ABOUT THE MYOSIN VI TAIL. **Natalia Fili**, Alexander Cook, Yukti Hari Gupta, Christopher P. Toseland

**881-PLAT 5:45 PM**  
FUNCTIONAL IMPLICATIONS OF DCM END-TO-END BOND MUTATION IN A-TROPOMYOSIN. **Alice Ward Racca**, Nicholas LaFave, Stephanie Jones, Michael J. Rynkiewicz, William Lehman, Jeffrey R. Moore

### Platform Intrinsically Disordered Proteins (IDP) and Aggregates II

4:00 PM - 6:00 PM, ROOM 314/315

#### Co-Chairs

*Franziska Zosel, Novo Nordisk, Denmark*  
*Sarah Bondos, Texas A&M University*

**882-PLAT 4:00 PM**  
CHANGES TO THE INTRACELLULAR MILIEU CONTROL THE POPULATION AND RESIDUAL STRUCTURE OF UNFOLDED PROTEINS. Yuhang Wang, Caitlin Davis, Alex S. Holehouse, Martin Gruebele, **Shahar Sukenik**

**883-PLAT 4:15 PM**  
EVOLUTION OF THE INTRINSICALLY DISORDERED ACTIVATION DOMAIN IN A HOX TRANSCRIPTION FACTOR. Ying Liu, Annie Huang, Rebecca Booth, Gabriela Mendes, Zabeena Merchant, Kathleen S. Matthews, **Sarah E. Bondos**

**884-PLAT 4:30 PM**  
CONFORMATIONAL EFFECTS OF A DISEASE-ASSOCIATED HYDROPHOBIC-TO-HYDROPHOBIC SUBSTITUTION AND HISTIDINE PROTONATION STATE LOCATED AT THE MIDPOINT OF THE INTRINSICALLY DISORDERED REGION OF PROBDNF. **Ruchi Lohia**, Grace Brannigan

**885-PLAT 4:45 PM**  
A PROLINE SWITCH EXPLAINS KINETIC HETEROGENEITY IN A COUPLED FOLDING AND BINDING REACTION. **Franziska Zosel**, Davide Mercadante, Daniel Nettels, Benjamin Schuler

**886-PLAT 5:00 PM**  
SEQUENCE-BASED FINGERPRINTING OF INTRINSICALLY DISORDERED REGIONS. **Garrett M. Ginell**, Megan C. Cohan, Alex S. Holehouse

**887-PLAT 5:15 PM**  
FUNCTIONAL ADAPTATION MUTATIONS ALTER PROPENSITY FOR ALPHA-HELICAL CONFORMATION IN THE INTRINSICALLY DISORDERED GLUCOCORTICOID RECEPTOR TAU1CORE ACTIVATION DOMAIN. **Lennart Nilsson**, Anthony Wright, Kyou-Hoon Han

**888-PLAT 5:30 PM**  
THE DISORDERED PROTEIN BUGZ CONSERVES MITOTIC FUNCTION AND LIQUID-LIQUID PHASE SEPARATION ACROSS 1.6 BILLION YEARS OF EVOLUTION. **Alexander F. Chin**, Vincent J. Hilser, Yixian Zheng

**889-PLAT 5:45 PM TRAVEL AWARDEE**  
PROBING SPECIFICITY IN DISORDERED PROTEIN INTERACTIONS WITH SMALL MOLECULES USING INTEGRATIVE METHODS. **Gabriella T. Heller**, Francesco A. Aprile, Massimiliano Bonomi, Carlo Camilloni, Alfonso De Simone, Michele Vendruscolo



## Platform Macromolecular Interactions and Effects on Membranes

4:00 PM - 6:00 PM, ROOM 316/317

### Co-Chairs

Amanda Ward, University of Virginia

Syma Khalid, University of Southampton, United Kingdom

### 890-PLAT 4:00 PM

THE STRUCTURAL BASIS OF A MEMBRANE-BOUND ESCRT-III HELICAL ASSEMBLY. **Henry C. Nguyen**, Nathaniel Talledge, John McCullough, Wesley I. Sundquist, Adam Frost

### 891-PLAT 4:15 PM

CATCHING HIV IN THE ACT OF FUSION: INSIGHT FROM CRYO-ET INTERMEDIATES OF HIV MEMBRANE FUSION. **Amanda E. Ward**, Kelly A. Dryden, Lukas K. Tamm, Barbie K. Ganser-Pornillos

### 892-PLAT 4:30 PM

PROBING MEMBRANE FUSION INTERMEDIATES USING BILAYER COATED NANOPARTICLES. **Ana Villamil**, Peter Kasson

### 893-PLAT 4:45 PM

BACTERIAL OUTER MEMBRANE VESICLE INTERACTION WITH PLASMA MEMBRANES: INSIGHTS FROM MOLECULAR SIMULATIONS. Damien F. Jefferies, Anna L. Duncan, **Syma Khalid**

### 894-PLAT 5:00 PM

LIPID SPONGE-PHASE NANOPARTICLES AS ENZYME CARRIERS - STRUCTURE AND INTERMOLECULAR INTERACTION CONTROLLING THE ENZYME INCLUSION. Maria Valldeperas, Najet Mahmoudi, Susana C. M. Teixeira, Martynas Talaikis, Ieva Matulaitienė, Gediminas Niaura, Justas Barauskas, **Tommy Nylander**

### 895-PLAT 5:15 PM

PREPARING ENDOSOME-DERIVED SUPPORTED MEMBRANES TO STUDY EBOLA VIRUS GP-MEDIATED MEMBRANE BINDING AND FUSION. **Laura Odongo**

### 896-PLAT 5:30 PM

DETECTING AND CONTROLLING DYE AND ILLUMINATION EFFECTS IN SINGLE-VIRUS FUSION EXPERIMENTS. Robert J. Rawle, Steven G. Boxer, **Peter M. Kasson**

### 897-PLAT 5:45 PM

THE SARS-COV FUSION PEPTIDE FORMS AN EXTENDED BIPARTITE FUSION PLATFORM THAT PERTURBS MEMBRANE ORDER IN A CALCIUM-DEPENDENT MANNER. **Alex L. Lai**, Jean K. Miller, Susan Daniel, Gary R. Whittaker, Jack H. Freed

## Exhibitor Presentation Molecular Devices

4:30 PM - 6:00 PM, ROOM 301

### SUPERCHARGE YOUR PATCH-CLAMP DATA ACQUISITION AND ANALYSIS WITH THE NEW AXON pCLAMP 11 SOFTWARE

The patch-clamp technique remains the best method for examining ion channel physiology and membrane biophysics. Axon Instruments and pCLAMP software continue to push the envelope with new innovations with best-in-class systems and software. In this user meeting we learn about new features of pCLAMP 11 software and methods to optimize your workflow and simplify experiments.

### Speaker

Jeffrey Tang, Senior Global Axon Electrophysiological Application Scientist, Molecular Devices

## Exhibitor Presentation LUMICKS

5:30 PM - 7:00 PM, ROOM 303

### A VERSATILE PLATFORM FOR HIGH-RESOLUTION SINGLE-MOLECULE RESEARCH: EXPANDING CAPABILITIES AND EXPLORING NEW POSSIBILITIES

Proteins interact with nucleic acids and the cytoskeleton to perform biological processes that are key to cell metabolism and life. The direct observation of such interactions in real time and at the single-molecule enable scientists to make new discoveries and to test current biological models. Single-molecule studies of cytoskeleton filaments and their interaction to associated proteins are often developed in surface-based assays where the glass surface is used as a substrate to rigidly anchor the biological molecules of interest. To capture the dynamics of the system and its interactions, the samples are typically labeled with fluorescent dyes and are imaged with fluorescence methods. However, despite the versatility of fluorescent methods, label-free imaging methods are desirable to better mimic the native biological conditions and to reduce photo-damage due to fluorescence excitation during long experiments.

Here, we present our recent developments to further enable discoveries in the field of biology and biophysics with a special focus in surface-based assays. We present a novel instrument arrangement that includes optical tweezers in combination with Interference Reflection Microscopy (IRM) and Total Internal Reflection Fluorescence (TIRF) Microscopy. IRM is a recently introduced imaging method that allows visualization of biological structures in 3D without the need for fluorescence labeling and with sensitivity exceeding that of Differential Interference Contrast (DIC) microscopy.

In addition, we show the latest applications of these technologies and how they enhance our understanding of several fields of biology, including molecular motors and cytoskeleton filaments, DNA/RNA-protein interactions, protein folding/unfolding, cell membranes, and genome structure and organization. These applications show that the technological advances in hybrid single-molecule methods for imaging and manipulation can be turned into easy-to-use and stable instruments with the ability to open up new venues in many research areas.

### Speakers

Andrea Candelli, Application Scientist, LUMICKS

Sara Tafoya, Application Scientist, LUMICKS

Trey Simpson, Application Scientist, LUMICKS

## Dinner Meet-Ups

6:00 PM - 6:30 PM, SOCIETY BOOTH/CHARLES STREET LOBBY

Interested in making new acquaintances and experiencing the cuisine of Baltimore? Meet at the Society Booth each evening, Sunday through Tuesday, at 6:00 PM where a BPS member will coordinate dinner at a local restaurant.

## Awards and 2019 Biophysical Society Lecture

8:00 PM - 9:00 PM, BALLROOMS I-IV

## Reception and Dance

9:30 PM - 12:00 AM, HILTON, KEY/BALLROOM

## Reception and Quiet Room

9:30 PM - 12:00 AM, HILTON, PEALE A/C

# MONDAY POSTER SESSIONS

1:45 PM–3:45 PM, EXHIBIT HALL C

Below is the list of poster presentations for Monday of abstracts submitted by October 1. *The list of late abstracts scheduled for Monday is available in the Program Addendum, and those posters can be viewed on boards beginning with LB.*

Posters should be mounted beginning at 6:00 PM on Sunday and removed by 5:30 PM on Monday evening. Posters will be on view until 10:00 PM the night before presentation. Poster numbers refer to the program order of abstracts as they appear in the online Abstracts Issue. Board numbers indicate where boards are located in the Exhibit Hall.

ODD-NUMBERED BOARDS 1:45 PM–2:45 PM | EVEN-NUMBERED BOARDS 2:45 PM–3:45 PM

Board Numbers	Category
B1–B35	Protein Structure and Conformation II
B36–B60	Protein Stability, Folding, and Chaperones I
B61–B76	Protein Assemblies II
B77–B108	Intrinsically Disordered Proteins (IDP) and Aggregates I
B109–B134	Membrane Protein Dynamics I
B135–B146	Transcription
B147–B171	Protein-Nucleic Acid Interactions I
B172–B189	Membrane Dynamics I
B190–B211	Protein-Lipid Interactions: Channels
B212–B232	Membrane Structure II
B233–B239	Intracellular Transport
B240–B252	Cardiac Smooth and Skeletal Muscle Electrophysiology II
B253–B269	Membrane Receptors and Signal Transduction I
B270–B294	Calcium Signaling
B295–B310	Other Channels
B311–B342	Ion Channels, Pharmacology, and Disease
B343–B357	Cytoskeletal Assemblies & Dynamics
B358–B380	Microtubules, Structure, Dynamics, and Associated Proteins
B381–B391	Myosins and Smooth Muscle Mechanics, Structure, and Regulation
B392–B415	Cardiac Muscle Mechanics and Structure
B416–B443	Mitochondria in Cell Life and Death
B444–B453	Emerging Techniques and Synthetic Biology
B454–B461	Neuroscience: Experimental Approaches and Tools
B462–B475	Single-Molecule Spectroscopy II
B476–B502	Optical Microscopy and Superresolution Imaging II
B503–B512	EPR and NMR: Spectroscopy and Imaging
B513–B541	Computational Methods and Bioinformatics I
B542–B556	Micro- and Nanotechnology I
B557–B565	Biomaterials

It is the responsibility of the poster presenters to remove print materials from the board after their presentations. Please do not leave materials or belongings under poster boards or in the poster area. Posters will not be collected or stored for pick-up at a later time. The Biophysical Society is not responsible for any articles left in the poster area.

## Protein Structure and Conformation II (Boards B1 - B35)

- 899-Pos BOARD B1**  
MOLECULAR BASIS OF THE MARBURG VIRUS PROTEIN VP24 INTERACTIONS WITH HUMAN KEAP1. **Nisha Bhattarai**, Prem P. Chapagain, Bernard Gerstman
- 900-Pos BOARD B2**  
SOLUTION NMR STRUCTURE OF THE GTPASE ACTIVATING (GAP) DOMAIN OF VOPE, A VIBRIO CHOLERAE T3SS EFFECTOR PROTEIN. **Kyle P. Smith**, Woonghee Lee, Marco Tonelli, Priscilla S-W Yeung
- 901-Pos BOARD B3**  
CHARACTERIZATION AND IRON BINDING DYNAMICS OF HAEMOPHILUS INFLUENZAE FERRIC BINDING PROTEIN. **Goksin Liu**, Ezgi Altun, S. Mert Unal, Canan Atilgan, Zehra Sayers
- 902-Pos BOARD B4**  
DESIGNING SUPERHYDROPHILIC, DISORDERED PEPTIDES TO IMPROVE THE STABILITY AND EFFICACY OF PROTEIN THERAPEUTICS. **Joshua Smith**, Patrick McMullen, Zhefan Yuan, Shaoyi Jiang, Jim Pfaendtner
- 903-Pos BOARD B5**  
SYSTEMATIC ANALYSIS OF INTERNAL HYDRATION IN A PROTEIN. **Anne M. Rice**, Jaime L. Schlessman, Bertrand Garcia-Moreno
- 904-Pos BOARD B6**  
MARKOV MODELS OF FUNCTIONAL DYNAMICS OF HISTONE LYSINE METHYLTRANSFERASES BY MILLISECOND-TIMESCALE MOLECULAR SIMULATION AND CHEMICAL PROBING. **Rafal P. Wiewiora**, Shi Chen, Minkui Luo, John D. Chodera
- 905-Pos BOARD B7**  
STRUCTURAL MODULATION OF RYR1 BY MGATP AND FREE  $Mg^{2+}$  IN LIPID MEMBRANE USING CRYOEM. **Ashok R. Nayak**, Alex H. Will, Joshua Lobo, Pablo C. Hartmann, Montserrat Samso
- 906-Pos BOARD B8**  
CLASSIFYING OF ARRHYTHMOGENIC CARDIOMYOPATHY-LINKED DESMOPLAKIN VARIANTS THROUGH MOLECULAR MECHANISMS OF PATHOGENICITY. **Tyler L. Stevens**, Heather Manring, Taylor Albertelli, Ronald Ng, Nathan T. Wright, Stuart Campbell, Maegen Ackermann
- 907-Pos BOARD B9**  
CHARACTERIZATION OF PREDICTED SMALL PROTEINS. **Allison Whited**, Christina Cleveland, Jeffrey Allen, Irwin Jungreis, John Rinn, Loren Hough
- 908-Pos BOARD B10 TRAVEL AWARDEE**  
SIMULATION GUIDED DESIGN OF SPECTROSCOPY EXPERIMENTS VIA MAXIMIZING KINETIC INFORMATION GAIN. **Shriyaa Mittal**, Diwakar Shukla
- 909-Pos BOARD B11**  
STRUCTURAL BASIS UNDERLYING AUTOINDUCER ACTIVATION OF THE VIBRIO CHOLERAE VQMA QUORUM-SENSING RECEPTOR. **Jon Paczkowski**
- 910-Pos BOARD B12**  
REINFORCEMENT LEARNING OF PROTEIN CONFORMATIONAL ENSEMBLE. **Jiangyan Feng**
- 911-Pos BOARD B13**  
BIOINFORMATICS OF NEW SELECTIVE INSECTICIDE TARGET IN INSECT SPECIES. **Hassan M. Younis**
- 912-Pos BOARD B14**  
DISASSEMBLING AND REASSEMBLING COMPLEX STRUCTURE OF GLUTAMATE DEHYDROGENASE 1 (DGH-1), MONITORED BY TRYPTOPHAN AND 1-ANILINONAPHTHALENE-8-SULFONATE (ANS) FLUORIMETRY. **Bogumil Zelent**, David F. Wilson, Franz M. Matschinsky
- .913-Pos BOARD B15**  
IN-CELL FAST PHOTOCHEMICAL OXIDATION OF PROTEINS FOR PROTEOME WIDE STRUCTURAL BIOLOGY. **Emily E. Chea**, Lisa M. Jones
- 914-Pos BOARD B16**  
EXPLORE THE BINDING OF HEPATITIS B VIRUS CORE PROTEIN PEPTIDES WITH HLA-A2.1 BY MOLECULAR MODELING METHODS. Lianhua Piao, Zhou Chen, Shan Chang, Jian Li, **Ren Kong**
- 915-Pos BOARD B17**  
DIVULGING CHARACTERISTIC FEATURES OF THE NOVEL A-SYNUCLEIN OLIGOMERS AUGMENTING PARKINSON'S DISEASE. **Animesh Mondal**, Nakul Chandra Maiti
- 916-Pos BOARD B18**  
ATOMISTIC MECHANISMS UNDERLYING THE ACTIVATION OF G PROTEIN-COUPLED SWEET RECEPTOR HETERODIMER MEDIATED BY SUGAR ALCOHOL RECOGNITION. **Thanyada Rungrotmongkol**
- 917-Pos BOARD B19**  
INVESTIGATING THE RESPONSE OF TYPE IV PILINS AND TYPE IV PILUS FILAMENTS TO APPLIED FORCE USING ALL-ATOM STEERED MOLECULAR DYNAMICS SIMULATIONS. **Maria N. Fairfield**, Stephen J. Jones, Nicolas Biais, Joseph L. Baker
- 918-Pos BOARD B20**  
PROBING THE POLYMORPHIC TRANSITION OF TYPE IV PILUS FILAMENTS UNDER FORCE USING COARSE-GRAINED MOLECULAR DYNAMICS SIMULATIONS. **Bryan A. Bogin**, Christopher A. Lovenduski, Nicolas Biais, Joseph L. Baker
- 919-Pos BOARD B21**  
MOLECULAR DYNAMICS INVESTIGATIONS OF ENZYME CONFORMATIONAL CHANGES. **Prabin Baral**, Nisha Bhattarai, Rudramani Pokhrel, Bernard Gerstman, Prem P. Chapagain
- 920-Pos BOARD B22**  
HIGH YIELD PRODUCTION OF FUNCTIONAL HIF PROLYL HYDROXYLASE DOMAIN PROTEINS FROM INCLUSION BODY EXPRESSION IN *E. COLI*. **Nakoa K. Webber**, Thomas J. Fasano, Jacob T. Zangaro, Pamela N. Gallo, Kayla A. Schardien, Michelle M. Currie, Nathaniel V. Nucci
- 921-Pos BOARD B23**  
STUDYING THE DYNAMIC MOTIONS OF WATER SURROUNDING THE ICE-BINDING FACE OF M1.1 ANTIFREEZE PROTEIN. **Joseph C. Iovine**, Pamela N. Gallo, Kayla A. Callaway, Peter L. Davies, Nathaniel V. Nucci
- 922-Pos BOARD B24**  
SINGLE-MOLECULE FORCE SPECTROSCOPY OF M-VALUE MUTANTS OF STAPHYLOCOCCAL NUCLEASE INDICATES COMPLEX PROTEIN FOLDING LANDSCAPE. **James Rives**, Joseph Rehfus, Vincent J. Hilser
- 923-Pos BOARD B25**  
COMPUTATIONAL AND SPECTROSCOPIC INVESTIGATION OF COMMUNICATION MECHANISMS USED BY ACYL CARRIER PROTEINS. **Terra Sztain-Pedone**, Michael D. Burkart, James A. McCammon
- 924-Pos BOARD B26**  
DISSECTING THE ALLOSTERIC EFFECTS OF PVHL G123F MUTATION IN TYPE 2A PVHL DISEASE. **Hongsheng Qian**, Yu Zou, Qingwen Zhang
- 925-Pos BOARD B27**  
ION PAIRS BURIED IN HYDROPHOBIC ENVIRONMENTS WITHIN PROTEINS: ELECTROSTATIC CROSSTALK BETWEEN BURIED GROUPS. **Aaron Robinson**, Andrea Theodoru, Jamie L. Schlessman, Bertrand Garcia-Moreno
- 926-Pos BOARD B28**  
POLYMORPHISMS MODULATE SHEEP PRION PROTEIN SUSCEPTIBILITY TO MISFOLDING BY ALTERING THE RESIDUE NETWORK OF INTERACTIONS. **India Clafflin**, Noah Yoshida, Patricia Soto

**927-Pos BOARD B29**  
TOWARDS THE INHIBITION OF CALPAIN-DEPENDENT DESMOPLAKIN CLEAVAGE IN ARRHYTHMOGENIC CARDIOMYOPATHIES. **Taylor Albertelli**, Kendahl Ott, Heather R. Manring, Stuart G. Campbell, Maegen Borzok, Nathan T. Wright

**928-Pos BOARD B30**  
CRYO-EM STRUCTURAL ANALYSIS OF NEURONAL NITRIC OXIDE SYNTHASE. **Thomas H. Pospiech**, Yoshihiro Morishima, Yoichi Osawa, Daniel R. Southworth

**929-Pos BOARD B31**  
USING 4-CYANOPHENYLALANINE TO PROBE THE DEGREE OF WATER EXPOSURE IN A PEPTIDE HYDROGEL. **Benjamin F. Frost**, William E. Fox, Fiona Berry, Katherine Chung, Karin Akerfeldt

**930-Pos BOARD B32**  
EVALUATION OF THE HIV GENOME TO PROMOTE GAG HEXAMERIZATION. **Noel Getachew**

**931-Pos BOARD B33**  
OBSCURIN ACTS AS A SEMI-FLEXIBLE CHAIN IN SOLUTION. **Jake Whitley**, Aidan Ex-Willey, Daniel Marzolf, Oleksandr Kokhan, Maegen Ackermann, Anthony Tongen, Nathan T. Wright

**932-Pos BOARD B34**  
LARGE-SCALE ALL-ATOM SIMULATIONS OF T4P FILAMENTS REVEAL CRITICAL INTERACTIONS FOR T4P STABILITY. Rebecca B. Goncalves, Nicolas Biais, **Joseph L. Baker**

**933-Pos BOARD B35**  
EFFECTS OF LOCAL AND GLOBAL DYNAMICS ON THE SUPERTERTIARY ORGANIZATION OF POSTSYNAPTIC DENSITY PROTEIN 95. **George L. Hamilton**, Jakub Kubiak, Claus A.M. Seidel, Hugo Sanabria

## Protein Stability, Folding, and Chaperones I (Boards B36 - B60)

**934-Pos BOARD B36**  
UV PEROXIDATION REDUCES POLOXAMINE T1107 CAPABILITY TO DISAGGREGATE LYSOZYME. **Michelle X. Ling**, Colin A. Mcfaul, Raphael C. Lee

**935-Pos BOARD B37**  
NEW APPROACH TO EVALUATING THE STABILITY OF ANTIBODIES USING CIRCULAR DICHROISM SPECTROSCOPY SCREENING. **Satoko Suzuki**, Yasuo Horiguchi, Leah Pandiscia, Koushi Nagamori, Hiroshi Nakayama, Kouhei Tsumoto

**936-Pos BOARD B38**  
PROBING (UN)FOLDING TRANSITION PATHS OF FAST-FOLDING PROTEINS BY SINGLE-MOLECULE FLUORESCENCE: EXPLORING THE ROLE OF SECONDARY STRUCTURE, FOLD TOPOLOGY AND SEQUENCE. **Nivin Mothi**, Mourad Sadqi, Victor Munoz

**937-Pos BOARD B39**  
MONITORING DYNAMICS OF PROTEIN NASCENT CHAIN ON THE RIBOSOME USING PET-FCS. **Marija Liutkute**, Ekaterina Samatova, Manisankar Maiti, Wolf H. Holtkamp, Jörg Enderlein, Marina V. Rodnina

**938-Pos BOARD B40**  
ENHANCED PH DEPENDENT MODULATION OF ALPHA CRYSTALLIN CHAPERONE FUNCTION AND SUBUNIT EXCHANGE IN AN N-TERMINAL PHOSPHORYLATION MIMIC. Kashmeera Baboolall, Belelot Birhanu, Natalie Braun, Yusrah Kaudeer, **Patricia B. O'Hara**

**939-Pos BOARD B41**  
H2OY MUTATION STABILIZES STRUCTURE OF THE PRIMARY DNA RECOGNITION DOMAIN OF THE SLEEPING BEAUTY TRANSPOSASE. **Chenbo Yan**, Gage O. Leighton, Janna Lustig, Zoltán Ivics, Irina V. Nesmelova

**940-Pos BOARD B42**  
A STRUCTURAL, DYNAMIC, AND THERMODYNAMIC EXPLANATION OF THERMOSTABILITY IN A DE NOVO DESIGNED THREE-HELIX BUNDLE. **Natali Gonzalez**, Emily Hamlin, Parwana Khazi, Catrina Nguyen, Jennifer Young, **Michelle E. McCully**

**941-Pos BOARD B43**  
LONG-RANGED PROTEIN-GLYCAN INTERACTIONS STABILIZE VON WILLEBRAND FACTOR A2 DOMAIN FROM MECHANICAL UNFOLDING. **Chuoqiao Dong**, Jumin Lee, Seonghoon Kim, Whitney Lai, Edmund B. Webb, Alparslan Oztekin, Xiaohui Zhang, Wonpil Im

**942-Pos BOARD B44**  
STUDYING THE FOLDING BEHAVIOR OF A 3D LATTICE PROTEIN UNDER OSCILLATORY CONDITIONS. **Qizhang Jia**, Xuanye Zhu, Austin Cheng, Cory J. Kim, Amy Y. Wang, Kateri H. DuBay

**943-Pos BOARD B45**  
A COMPREHENSIVE INVESTIGATION OF THE STABILIZATION OF MONOMERIC HFGF1 BY HEPARIN HEXASACCHARIDE USING MICROSECOND-LEVEL MD SIMULATIONS AND ENHANCED SAMPLING TECHNIQUES. **Vivek Govind Kumar**, Shilpi Agrawal, T.K.S. Kumar, Mahmoud Moradi

**944-Pos BOARD B46**  
IDENTIFYING INTERMEDIATE STATES IN PRION PROTEIN FOLDING PATHWAY: A POSSIBLE PRECURSOR TO THE MISFOLDED STATE ? **Balaka Mondal**

**945-Pos BOARD B47**  
DISULFIDE BONDS MODULATE LYSOZYME FOLDING PATHWAYS. **Aswathy Muttathukattil Narayanan**

**946-Pos BOARD B48**  
PROBING THE CHAPERONE ACTIVITY OF ERYTHROID SPECTRIN. **Dipayan Bose**, Abhijit Chakrabarti

**947-Pos BOARD B49**  
MOLTENPROT: A HIGH-THROUGHPUT ANALYSIS PLATFORM TO ASSESS THERMODYNAMIC STABILITY OF MEMBRANE PROTEINS AND COMPLEXES. **Vadim Kotov**, Oliver Vesper, Maria Garcia Alai, Christian Loew, Thomas C. Marlovits

**948-Pos BOARD B50**  
STRUCTURAL DYNAMICS OF C-MYB DNA-BINDING DOMAIN REVEALED BY DXT AND THERMAL ANALYSIS. **Satomi Inaba**, Yuhi Hosoe, Yuji C. Sasaki, Hiroshi Sekiguchi, Masayuki Oda

**949-Pos BOARD B51**  
THE EARLIEST STAGES OF A PROTEIN'S LIFE INFLUENCES ITS LONG-TERM SOLUBILITY AND STRUCTURAL ACCURACY. **Matthew D. Dalphin**, Angela Varela, Andrew Stangl, Robert Kirchdoerfer, Rayna Addabbo, Yoo Jin Song, Yue Liu, Silvia Cavagnero

**950-Pos BOARD B52**  
N-HXMS: A METHOD TO DIRECTLY MEASURE PROTEIN FOLDING AND STABILITY UNDER NATIVE CONDITIONS. **Nejc Nagelj**, Minjee Kim, Kaeli Mathias, Sheila Jaswal

**951-Pos BOARD B53**  
INVESTIGATING THE EFFECTS OF MISSENSE MUTATIONS IN MSH2 GENE ASSOCIATED WITH LYNCH SYNDROME. **Bohua Wu**, Yunhui Peng, Julia A. Eggert, Emil Alexov

**952-Pos BOARD B54**  
UNSUPERVISED LEARNING FOR DECOY SELECTION IN PROTEIN STRUCTURE PREDICTION. **Nasrin Akhter**, Gopinath Chennupati, Hristo Djidjev, Amarda Shehu

**953-Pos BOARD B55**  
BIOPHYSICAL CHARACTERIZATION OF DIFFERENCES IN DOMAIN-DOMAIN INTERACTIONS BETWEEN THE APOLOPOPROTEIN E4 AND E3. **Subhrajyoti Dolai**, Kanchan Garai

**954-Pos BOARD B56**  
NATIVE QUANTITATIVE DETERMINATION OF ANTIBODY-DRUG CONJUGATE AFFINITY AND STABILITY. **Colette Quinn**, Shawn Owen, Keith Arlotta

**955-Pos BOARD B57 TRAVEL AWARDEE**  
USING COMPUTATIONAL MODELING TO UNDERSTAND THE BINDING MECHANISM OF DESIGNED CYCLIC B-HAIRPIN TO MDM2. **Yunhui Ge**, Vincent Voelz

**956-Pos BOARD B58**  
SINGLE-MOLECULE FORCE SPECTROSCOPY SHOWS THAT THE ANTI-PRION COMPOUND PENTOSAN POLYSULFATE BINDS HETEROGENEOUSLY TO FOLDED AND UNFOLDED PRION PROTEIN. **Rafayel Petrosyan**, Patra Shubhadeep, Negar Rezajooei, Craig Garen, Michael T. Woodside

**957-Pos BOARD B59**  
SITE-SPECIFIC CHARACTERIZATION OF INTERMEDIATES IN FOLDING-TETRAMERIZATION OF MELITTIN BY THE RAPID MIX/FREEZE METHOD AND MAGIC ANGLE SPINNING DYNAMIC NUCLEAR POLARIZATION (MAS-DNP) NMR AT LOW TEMPERATURE (25K). **Jaekyun Jeon**, Kent Thurber, Wai-Ming Yau, Robert Tycko

**958-Pos BOARD B60**  
RADIOLIGAND THERMOSTABILITY ASSESSMENT OF AGONIST-BOUND HUMAN TYPE 2 CANNABINOID RECEPTOR. **Ryan L. Beckner**, Klaus Gawrisch, Alexei Yeliseev

## Protein Assemblies II (Boards B61 - B76)

**959-Pos BOARD B61**  
TOWARDS UNDERSTANDING AMYLOID FORMATION MECHANISM OF BETA2-MICROGLOBULIN INDUCED BY COPPER IONS. **Chungwen Liang**

**960-Pos BOARD B62**  
STUDYING MULTI-PROTEIN INTERACTIONS BY FLUORESCENCE DETECTED SEDIMENTATION VELOCITY COMBINING HYDRODYNAMIC SEPARATION OF COMPLEXES WITH FLUORESCENCE QUENCHING ANALYSIS. **Huaying Zhao**, Siddhartha A. Datta, Sung Kim, Sumit K. Chaturvedi, Alan Rein, Peter Schuck

**961-Pos BOARD B63**  
NON-CLASSICAL NUCLEATION OF TUMOR SUPPRESSOR P53 FIBRILS HOSTED BY MESOSCOPIC PROTEIN-RICH CLUSTERS. **Peter G. Vekilov**

**962-Pos BOARD B64**  
CORRELATING AMINO ACID SEQUENCE AND SOLVATION TO DISORDERED PROTEIN COLLAPSE TRANSITIONS AND PHASE SEPARATION. **Erik W. Martin**, Alex S. Holehouse, Ivan Peran, Anne Bremer, Rohit V. Pappu, Tanja Mittag

**963-Pos BOARD B65**  
MULTI-STEP 2D PROTEIN CRYSTALLIZATION VIA STRUCTURAL CHANGES WITHIN AN ORDERED LATTICE. **Jonathan Herrmann**, Colin J. Comerci, Fatemeh Jabbarpour, Lucy Shapiro, William E. Moerner, Soichi Wakatsuki

**964-Pos BOARD B66**  
MODELING THE ASSEMBLY ORDER OF MULTIMERIC HETEROPROTEIN COMPLEXES. Lenna Peterson, Yoichiro Togawa, Juan Esquivel-Rodriguez, Genki Terashi, Charles Christoffer, Amitava Roy, Woong-Hee Shin, **Daisuke Kihara**

**965-Pos BOARD B67**  
VARIABLE BINDING OF THIOFLAVIN T TO AMYLOID FIBRILS. **Hiroaki Komatsu**, Claire Meurice, Paul H. Axelsen

**966-Pos BOARD B68**  
P-NITROPHENYLALANINE AS A NOVEL PROBE OF HYDROGEN BONDING IN PEPTIDE HYDROGELS AND PROTEINS. **Nicholas R. John**, Casey H. Londorgan, Karin Akerfeldt, Eliana V. von Krusenstiern

**967-Pos BOARD B69**  
IS THE SICKLE HEMOGLOBIN POLYMER STRUCTURE A FRUSTRATED SPIN-GLASS? Emily Harkness, Mark Davis, Marilyn F. Bishop, Kimberly C. Grasty, Patrick J. Loll, **Frank A. Ferrone**

**968-Pos BOARD B70**  
THE ROLE OF CHARGE INTERACTIONS IN LIQUID-LIQUID PHASE TRANSITIONS. Iuliia A. Antifeeva, **Alexander V. Fonin**, Olesya G. Shpironok, Irina M. Kuznetsova, Konstantin K. Turoverov

**969-Pos BOARD B71**  
MECHANISMS OF PROTEIN FIBRIL FORMATION IN AMYLOID BETA AND LYSOZYME PROTEINS. **Carlos M. Perez**, Ghanim Ullah, Tatiana Miti, Martin Muschol

**970-Pos BOARD B72**  
THE EFFECT OF SOLUTION PH ON THE STRUCTURE AND STABILITY OF LYSOZYME AMYLOID FIBRILS. **Anna I. Sulatskaya**, Olga I. Povarova, Maksim I. Sulatsky, Irina M. Kuznetsova, Konstantin K. Turoverov

**971-Pos BOARD B73**  
ON THE RELATIONSHIP BETWEEN AGGREGATION RATE AND MECHANICAL STABILITY IN PROTEIN AGGREGATION. **Maksim Kouza**, Andrzej Kolinski, Andrzej Kloczkowski, Irina Buhimschi

**972-Pos BOARD B74**  
INTEGRATING REACTION-DIFFUSION DYNAMICS WITH A BIOPHYSICALLY DRIVEN DEFORMABLE MEMBRANE MODEL. **Yiben Fu**, Margaret Johnson

**973-Pos BOARD B75**  
STUDY OF SELF-ASSEMBLY IN PROTEIN-PROTEIN INTERACTIONS IN ULTRAFAST ENDOCYTOSIS. **Yasaman Moghadamnia**

**974-Pos BOARD B76**  
USER-FRIENDLY SOFTWARE FOR SIMULATING NON-EQUILIBRIUM SELF-ASSEMBLY USING REACTION-DIFFUSION. **Matthew J. Varga**, Margaret E. Johnson

## Intrinsically Disordered Proteins (IDP) and Aggregates I (Boards B77 - B108)

**975-Pos BOARD B77**  
THE INTRINSIC FOLDING MECHANISM AFFECTS THE COUPLED FOLDING-BINDING PROCESS OF UNFOLDED PROTEINS. Meng Gao, Zhengding Su, **Yongqi Huang**

**976-Pos BOARD B78**  
RECOGNITION MECHANISM OF THE INTRINSICALLY DISORDERED DSRNA BINDING DOMAIN DCL1-A WITH ITS SUBSTRATE FROM MOLECULAR DYNAMICS SIMULATIONS. **Yuwen Chen**, Meng Gao, Yongqi Huang

**977-Pos BOARD B79**  
MECHANISM OF COUPLED FOLDING OF DISORDERED COLICIN E3 RRNASE DOMAIN UPON BINDING WITH IM3. **Xingyu Chen**, Yongqi Huang, Zhengding Su, Meng Gao

**978-Pos BOARD B80**  
THE RATIONAL DISCOVERY AND DESIGN OF DISORDERED PROTEIN LIGANDS. **David W. Baggett**, Abhinav Nath

**979-Pos BOARD B81 TRAVEL AWARDEE**  
POLYMER THEORY FOR SEQUENCE-SPECIFIC PHASE SEPARATION BEHAVIORS OF CHARGED INTRINSICALLY DISORDERED PROTEINS. **Yi-Hsuan Lin**, Julie D. Forman-Kay, Hue Sun Chan

- 980-Pos BOARD B82**  
THE COUPLED FOLDING-BINDING MECHANISMS OF INTRINSICALLY DISORDERED PROTEINS WITH DIFFERENT FOLDED STRUCTURES. **Jing Yang**, Meng Gao, Zhengding Su, Yongqi Huang
- 981-Pos BOARD B83 TRAVEL AWARDEE**  
CHARACTERIZING TIME-OF-DAY CONFORMATIONAL CHANGES IN THE IDP FREQUENCY AT THE HEART OF THE CIRCADIAN CLOCK IN *N. CRASSA* USING THE CRAFTY PROTOCOL. **Jacqueline Pelham**, Alexander E. Mosier, Jennifer M. Hurley
- 982-Pos BOARD B84**  
STUDY OF POTENTIAL KINETIC ADVANTAGES OF INTRINSICALLY DISORDERED REGIONS FOR PROTEIN ASSOCIATION. **Mikita Misiura**, Anatoly B. Kolomeisky
- 983-Pos BOARD B85**  
BIOPHYSICAL CHARACTERIZATION OF THE TRANSLATIONAL ISOFORMS OF THE HUMAN GLUCOCORTICOID RECEPTOR. **Emily M. Grasso**, Ananya Majumdar, Dominique P. Frueh, Vincent J. Hilser
- 984-Pos BOARD B86**  
COARSE-GRAINED SIMULATIONS OF DISORDERED PROTEINS: EFFECT OF INTERACTION POTENTIALS AND CHARGE PATTERN PARAMETERS. **Suman Das**
- 985-Pos BOARD B87**  
MODELING THE EFFECTS OF LIGAND BINDING ON THE PHASE BEHAVIOR OF AGGREGATION-PRONE PROTEINS. **Kiersten M. Ruff**, Ammon E. Posey, Rohit V. Pappu
- 986-Pos BOARD B88**  
REDOX OF CYSTEINES AND PROTEIN FOLDING OF SNAP-25. **Aidan H. Mourik**, Matt Pettit, Robert E. Coffman, Graham M. Pingree, Chandler B. McSpadden, Dixon J. Woodbury
- 987-Pos BOARD B89**  
THEORETICAL SAXS SIGNATURES OF CONFORMATIONAL HETEROGENEITY AND HOMOGENEITY OF DISORDERED PROTEIN ENSEMBLES. Jianhui Song, **Hue Sun Chan**
- 988-Pos BOARD B90**  
INVESTIGATING THE ROLE OF CHARGE-ALTERING POST-TRANSLATIONAL MODIFICATIONS ON  $\tau$  PEPTIDE CONFORMATIONAL ENSEMBLES USING POLARIZABLE MOLECULAR DYNAMICS SIMULATIONS. **Darcy S. Davidson**, Justin A. Lemkul
- 989-Pos BOARD B91**  
PROTEIN UNFOLDED STATES ARE CHARACTERIZED BY THE DUALITY OF SEQUENCE-SPECIFIC CONFORMATIONAL PREFERENCES AND ENSEMBLE-AVERAGED FEATURES OF CANONICAL RANDOM COILS. **Alex S. Holehouse**, Ivan Peran, Natalie E. Stenzoski, Junjie Zou, Andrea Piserchio, Ranajeet Ghose, Isaac S. Carrico, Osman Bilsel, Daniel P. Raleigh, Rohit V. Pappu
- 990-Pos BOARD B92**  
A HIGH THROUGHPUT METHOD FOR EXPLORING THE SEQUENCE SPACE OF POLYPEPTIDES THAT EXHIBIT THERMORESPONSIVE PHASE BEHAVIOR. **Xiangze Zeng**, Martin J. Fossat, Nicholas Tang, Ashutosh Chilkoti, Rohit V. Pappu
- 991-Pos BOARD B93**  
COMPUTATIONAL SIMULATIONS OF THE  $N_{TAIL}$ -XD COMPLEX FROM THE NIPAH VIRUS FOR CONSTRUCTING EXPERIMENTALLY-VALIDATED STRUCTURAL ENSEMBLE. **ChuHui Fu**, Casey H. Londergan, Rosalind J. Xu
- 992-Pos BOARD B94**  
MEASURES ADAPTED FROM INFORMATION THEORY AND ENERGY LANDSCAPE THEORY FOR QUANTIFYING SEQUENCE-TO-CONFORMATION RELATIONSHIPS OF INTRINSICALLY DISORDERED REGIONS. **Megan Cohan**, Alex S. Holehouse, Rohit V. Pappu

- 993-Pos BOARD B95**  
CHARACTERISTICS OF THE BINDING INTERACTION BETWEEN PDX1 AND SPOD. **Grace A. Usher**, Roman Rohac, Amie K. Boal, Scott A. Showalter
- 994-Pos BOARD B96 TRAVEL AWARDEE**  
DYNAMIC INTERACTIONS BETWEEN AN INTRINSICALLY DISORDERED PROTEIN AND ITS BINDING PARTNERS PROBED BY MULTIPARAMETER SINGLE-MOLECULE FLUORESCENCE. **Taehyung Chris Lee**, Gregory-Neal Gomes, John Darvy M. Castroverde, Claudiu C. Gradinaru
- 995-Pos BOARD B97**  
THE IMPORTANCE OF SEQUENCE ORDER VERSUS COMPOSITION IN THE CRYOPROTECTIVE FUNCTION OF AN INTRINSICALLY DISORDERED PROTEIN. **Steffen P. Graether**, Sharall Palmer, Ray De Villa, Andrew Harris, Leonid S. Brown
- 996-Pos BOARD B98**  
A MEMBRANE-BOUND SELENOPROTEIN REGULATES ITS ACTIVITY BY AUTOPROTEOLYSIS. **Rujin Cheng**, Marina Grossi, Jun Liu, Peter R. Hoffmann, Sharon Rozovsky
- 997-Pos BOARD B99**  
LOCAL CHAIN DYNAMICS OF INTRINSICALLY DISORDERED SIC1 PROTEIN INFERRED FROM FLUORESCENCE ANISOTROPY DECAY MEASUREMENTS. **John Darvy M. Castroverde**, Gregory-Neal W. Gomes, Taehyung C. Lee, Julie Forman-Kay, Claudiu C. Gradinaru
- 998-Pos BOARD B100**  
EXPLORING THE STRUCTURAL PROPERTIES OF SYNAPTOTAGMIN'S INTRINSICALLY DISORDERED REGION. **Michael E. Fealey**, Anne Hinderliter, David D. Thomas
- 999-Pos BOARD B101**  
INTRINSICALLY DISORDERED HAX-1 REGULATES PHOSPHOLAMBAN IN MEMBRANES. **Erik K. Larsen**, Daniel Weber, Songlin Wang, Seth Robia, Evangelia Kranias, Gianluigi Veglia
- 1000-Pos BOARD B102**  
SOLVENT EFFECTS ON THE SELF-ASSEMBLY AND MECHANICAL PROPERTIES OF ELASTIN-LIKE PEPTIDES. **Ananya Srivastava**, ZhuYi Xue, Lisa D. Muiznieks, Fred W. Keeley, Regis Pomes
- 1001-Pos BOARD B103**  
EXPERIMENTAL AND COMPUTATIONAL CHARACTERIZATION OF THE CONFORMATIONAL ENSEMBLE AND INTERACTION MOTIFS OF CHIZ N-TERMINAL INTRINSICALLY DISORDERED REGION. **Alan Hicks**, Cristian Escobar, Timothy A. Cross, Huan-Xiang Zhou
- 1002-Pos BOARD B104**  
EXTRACTING SEQUENCE-DEPENDENT INTRA-PROTEIN INTERACTION PARAMETERS FROM PHOTO-INDUCED ELECTRON TRANSFER MEASUREMENTS OF IDPS. Felicia Gibson, Andrea Soranno, Wenwei Zheng, **Sara M. Vaiana**
- 1003-Pos BOARD B105**  
THE AMINO ACID SEQUENCE FEATURES OF THE FG NUCLEOPORINS AFFECT THE MOVEMENT OF CARGO COMPLEX INSIDE THE NPC. **Mohaddeseh Peyro**, Mohammad Mofrad
- 1004-Pos BOARD B106**  
SENSITIVITY-ENHANCED DNP NMR FOR *IN SITU* STRUCTURAL BIOLOGY. **Kendra K. Frederick**
- 1005-Pos BOARD B107**  
THE FUNCTIONAL SIGNIFICANCE OF INTRINSICALLY DISORDERED PROTEIN REGIONS ENCODED BY THE DIABETES GENE *CLEC16A*. **Morgan Gingerich**, Xueying Liu, Michael Vincent, Bioxian Chai, Tracy Vozheiko, Gemma Pearson, Daniel Klionsky, Santiago Schenll, Soleimanpour Scott

**1006-Pos BOARD B108**  
MOLECULAR MECHANISMS OF THE INTERACTION BETWEEN THE RNA-BINDING PROTEIN NAB2 AND THE NUCLEAR BASKET PROTEIN MLP1 IN MRNA QUALITY CONTROL. **Mohammad Soheilypour**, Mohaddeseh Peyro, Hengameh Shams, Stephanie Rider, Ali R. Kaazempur-Mofrad, Mohammad Mofrad

## Membrane Protein Dynamics I (Boards B109 - B134)

**1007-Pos BOARD B109**  
SPATIAL CONFINEMENT EFFECTS ON LIPID KINASE AND PHOSPHATASE REACTIONS ON MEMBRANE SURFACES. **Albert A. Lee**

**1008-Pos BOARD B110**  
DYNAMIN PH DOMAIN INTERACTIONS WITH LIPID MEMBRANE. **Joseph A. Marte**, Dalia Hassan, Frank X. Vazquez

**1009-Pos BOARD B111**  
BINDING FROM BOTH SIDES: TOLR AND FULL-LENGTH OMPA BIND AND MAINTAIN THE LOCAL STRUCTURE OF THE *E. COLI* CELL WALL. **Alister T. Boags**

**1010-Pos BOARD B112**  
THE OPEN STATE OF THE BAM COMPLEX IS STABILIZED BY ITS ACCESSORY PROTEINS. **Zijian Zhang**, David Ryoo, Karl Lundquist, James Gumbart

**1011-Pos BOARD B113 TRAVEL AWARDEE**  
INVESTIGATING THE ACTIVATION MECHANISM ALTERATION OF RECEPTOR TYROSINE KINASE MUTANTS. **Soyeon Kim**, ZHENFANG DU, Christine Lovly, Adam W. Smith

**1012-Pos BOARD B114**  
RETINAL FLIPPING DURING RHODOPSIN ACTIVATION REVEALED BY SOLID STATE  $^2\text{H}$  NMR AND QM/MM SIMULATIONS. **Andrey V. Struts**, Mikhail N. Ryazantsev, Xiaolin Xu, Trivikram R. Molugu, Suchithranga M.D.C. Perera, Charitha Guruge, Samira Faylough, Carolina Nascimento, Nasri Nesnas, Michael F. Brown

**1013-Pos BOARD B115**  
UBIQUITINATION OF MHC II CHANGES DYNAMICS OF ITS RECOGNITION STRUCTURE. **Haruo Kozono**, Takashi Kawamoto, Yuko Kozono, masahiro kuramochi, Yuji C. Sasaki

**1014-Pos BOARD B116**  
EXPLORING THE INTERHELICAL LANDSCAPE OF THE B-2 ADRENERGIC RECEPTOR TO IDENTIFY DRUGGABLE INTERMEDIATE STATES USING ENHANCED-SAMPLING MOLECULAR DYNAMICS AND SITE IDENTIFICATION BY LIGAND COMPETITIVE SATURATION (SILCS). **Christoffer Lind**, Deepak Deshpande, Alexander D. MacKerell

**1015-Pos BOARD B117**  
STUDY OF ULTRA-FAST RHODOPSIN ACTIVATION DYNAMICS WITH MOLECULAR DYNAMICS SIMULATIONS. **Letty Salas**, Derek Mendez, José Domingo Meza-Aguilar, Suchithranga M. D. C. Perera, Abhishek Singharoy, Andrey V. Struts, Nadia A. Zatsepin, Richard A. Kirian, Thomas D. Grant, Petra Fromme, Michael F. Brown, Alan Grossfield

**1016-Pos BOARD B118 TRAVEL AWARDEE**  
MOLECULAR SIMULATIONS GIVE INSIGHTS INTO THE NDM-1/MEMBRANE INTERACTION THAT CAUSES RISE OF A SUPER-BACTERIUM. **Alessio Prunotto**, Guillermo Bahr, Lisandro González, Alejandro Vila, Matteo Dal Peraro

**1017-Pos BOARD B119**  
RAF-1 CYSTEINE-RICH DOMAIN (CRD) PROMOTES ACTIVE ORIENTATION AND DIMERIZATION OF KRAS4B AT THE MEMBRANE. **Hyunbum Jang**, Ruth Nussinov

**1018-Pos BOARD B120**  
DYNAMIC "MOLECULAR PORTRAITS" OF PROTEINS AND CELL MEMBRANES: A COMPUTATIONAL VIEW. **Roman G. Efremov**, Anton A. Polyansky, Anton Chugunov, Nikolay A. Krylov, Dmitry Nolde, Pavel E. Volynsky, Andrey Kuznetsov, Pascal Maurice

**1019-Pos BOARD B121**  
STRUCTURAL INSIGHTS INTO THE SUBTYPE-SELECTIVE ANTAGONIST BINDING TO THE M2 MUSCARINIC RECEPTOR. **Sangbae Lee**, Suno Ryoji, Maeda Shoji, Takuya Kobayashi, Brian K. Kobilka, Nagarajan Vaidehi

**1020-Pos BOARD B122**  
INTERPLAY BETWEEN THE CONFORMATIONAL DYNAMICS OF A BACTERIAL ABC-TRANSPORTER AND SURROUNDING MEMBRANE MECHANICAL PROPERTIES. **Alicia Damm**, Su-Jin Paik, Ajay Kumar Mahalka, John Manzi, Daniel Levy, Patricia M. Bassereau, Maxime Dahan

**1021-Pos BOARD B123**  
INTRAMEMBRANE PROTEOLYSIS BY GAMMA-SECRETASE: EFFICIENCY AS A MATTER OF SUBSTRATE FLEXIBILITY. **Philipp A. Högel**, Dieter Langosch

**1022-Pos BOARD B124**  
DRUG PERMEATION ACROSS THE BACTERIAL MEMBRANE: COMBINING THEORETICAL AND EXPERIMENTAL APPROACHES. **Paula Gameiro**, Carla F. Sousa, João TS Coimbra, Pedro A. Fernandes, Maria J. Ramos

**1023-Pos BOARD B125 TRAVEL AWARDEE**  
DYNAMIC ACTIN MEDIATED NANOCUSTERING OF CD44 REGULATES ITS MESO-SCALE ORGANIZATION AT THE PLASMA MEMBRANE. **Parijat Sil**, Sangeeta Nath, Nicolas Mateos, Takahiro Fujiwara, Maria F. Garcia-Parajo, Akihiro Kusumi, Satyajit Mayor

**1024-Pos BOARD B126 TRAVEL AWARDEE**  
G-PROTEIN-COUPLED RECEPTOR ACTIVATION MEDIATED BY INTERNAL HYDRATION. **Steven D.E. Fried**, Anna R. Eitel, Nipuna Weerasinghe, Carollanne E. Norris, Johnathan D. Somers, Gabrielle I. Fitzwater, Michael C. Pitman, Andrey V. Struts, Suchithranga M.D.C. Perera, Michael F. Brown

**1025-Pos BOARD B127**  
DYNAMICS AND ENERGETICS OF GATING MECHANISM IN MECHANOSENSITIVE CHANNEL OF LARGE CONDUCTANCE (MSCL). **Rajitha R. Tatikonda**, Juan M. Vanegas

**1026-Pos BOARD B128**  
SELECTIVITY AND SUBSTRATE TRANSLOCATION MECHANISM IN EUKARYOTIC SWEET PROTEINS: BIOINFORMATICS AND MOLECULAR DYNAMICS STUDIES. **Ankita Gupta**, Ramasubbu Sankararamakrishnan

**1027-Pos BOARD B129**  
TOPOGRAPHIC MODULATION OF ACETYLCHOLINE RECEPTORS DIFFUSION DYNAMICS ON LIVE CELL MEMBRANE. **Yusheng Shen**, Chengjie Luo, Penger Tong

**1028-Pos BOARD B130**  
ELECTROMIGRATION OF CELL SURFACE MACROMOLECULES DURING GALVANOTAXIS. **Anyesha Sarkar**, Brian M. Kobykevich, David M. Graham, Mark A. Messerli

**1029-Pos BOARD B131**  
ANALYSIS OF ION CHANNEL DYNAMICS BY SINGLE MOLECULE TRACKING IN LIVE CELLS. **Yeonki Hong**, Jiseong Park, Daeha Seo

**1030-Pos BOARD B132**  
GATING MECHANISM OF A POTASSIUM CHANNEL, EXPERIMENTAL AND THEORETICAL STUDIES. **Charline Fagnen**, Ludovic Bannwarth, Iman Oubella, Yasmina Mhoumadi, Aline De Araujo, Eric Forest, David Parahia, Catherine Vénien-Bryan

**1031-Pos BOARD B133**

DYNAMIC COUPLING OF THE AROMATIC ROTAMER CONFORMATION WITH THE BACTERIORHODOPSIN PHOTOCYCLE AS REVEALED BY THE CHEMICAL SHIFT ASSISTED QM/MM CALCULATIONS. Sijin Chen, Xiaoyan Ding, Chao Sun, Haolin Cui, Anthony Watts, Xiao He, **Xin Zhao**

**1032-Pos BOARD B134**

EXPLORING THE HYDROPHOBIC BARRIER OF HUMAN K2P CHANNEL TWIK1 WITH STEERED MD SIMULATIONS. **Bharat Poudel**, Rajitha R. Tatikonda, Juan M. Vanegas

**Transcription (Boards B135 - B146)****1033-Pos BOARD B135**

NUCLEAR MYOSIN VI STABILIZES RNA POLYMERASE II IN TRANSCRIPTION FACTORIES. Yukti Hari Gupta, Natalia Fili, Alia dos Santos, Teng-Leong Chew, Jesse Aaron, Lin Wang, **Christopher P. Toseland**

**1034-Pos BOARD B136**

NUCLEAR MYOSIN VI REGULATES ESTROGEN RECEPTOR DRIVEN GENE EXPRESSION. **Yukti Hari Gupta**, Natalia Fili, Alia dos Santos, Teng-Leong Chew, Jesse Aaron, Lin Wang, Christopher P. Toseland

**1035-Pos BOARD B137**

DETERMINING DYNAMICS OF RNA POLYMERASE ELONGATION AND PAUSING USING NANOPORE TWEEZERS. **Ian C. Nova**, Jonathan M. Craig, Andrew H. Laszlo, Abhishek Mazumder, Henry Brinkerhoff, Ian M. Derington, Matthew T. Noakes, Jonathan W. Mount, Jesse Huang, Jasmine Bowman, Richard H. Ebricht, Jens H. Gundlach

**1036-Pos BOARD B138**

RNA ISOFORM IDENTIFICATION VIA SEQUENTIAL HYBRIDIZATION AND STRAND DISPLACEMENT BASED AMPLIFICATION IN THE CAENORHABDITIS ELEGANS GERMLINE. **Gable M. Wadsworth**, Harold D. Kim

**1037-Pos BOARD B139**

G-QUADRUPLEX FORMING SEQUENCE MODULATED TRANSCRIPTION. **Chun-Ying Lee**, Christina McNerney, Kevin Ma, Sua Myong

**1038-Pos BOARD B140**

TRANSCRIPTION MACHINE STUDIED IN A NUTSHELL ON T7 RNA POLYMERASE MECHANOCHEMISTRY, FIDELITY CONTROL, AND BURSTING ACTIVITY. **Jin Yu**

**1039-Pos BOARD B141**

TFIIH GENERATES A SIX-BASE-PAIR OPEN COMPLEX DURING EUKARYOTIC TRANSCRIPTION INITIATION. **Eric A. Galburt**, Eric J. Tomko, James Fishburn, Steven Hahn

**1040-Pos BOARD B142**

NUCLEAR NDP52 - A PUTATIVE TRANSCRIPTION REGULATOR. **Alia dos Santos**, Lin Wang, Christopher P. Toseland

**1041-Pos BOARD B143 TRAVEL AWARDEE**

CHARACTERIZING TRANSIENT INTERMEDIATES IN PRODUCTIVE RNAP TRANSCRIPTION INITIATION. **Claire E. Evensen**, Kate Henderson, M. Thomas Record

**1042-Pos BOARD B144**

EFFECTS OF DISCRIMINATOR CHANGES ON OPEN COMPLEX FORMATION, STABILIZATION, AND TRANSCRIPTION INITIATION. **Hao-Che Wang**

**1043-Pos BOARD B145 TRAVEL AWARDEE**

REGULATION OF MYCOBACTERIAL RNA POLYMERASE PROMOTER ESCAPE KINETICS BY TRANSCRIPTION FACTORS CARD AND RBPA. **Drake Jensen**, Ana Ruiz Manzano, Christina L. Stallings, Eric A. Galburt

**1044-Pos BOARD B146**

TRANSCRIPTION FACTOR REGULATION OF RNA POLYMERASE'S TORQUE GENERATION CAPACITY. Jie Ma, **Chuang Tan**, Xiang Gao, Robert M. Fulbright, Jeffrey W. Roberts, Michelle D. Wang

**Protein-Nucleic Acid Interactions I (Boards B147 - B171)****1045-Pos BOARD B147**

PREDICTING DIFFUSION COEFFICIENTS OF DNA-PROTEIN COMPLEXES BY CONVEX HULL MODELLING. **Miles Lee**, Quan Wang

**1046-Pos BOARD B148**

LOOPS ENHANCE TRANSCRIPTIONAL ROADBLOCKS. **Wenxuan Xu**, Yan Yan, David D. Dunlap, Laura Finzi

**1047-Pos BOARD B149**

DNA BENDING/UNBENDING RATES REVEALED FOR NONSPECIFIC ARCHITECTURAL DNA-BINDING PROTEIN YNHP6A. **Viktoriya Zvoda**, Manas K. Sarangi, Molly Nelson Holte, Nicole A. Becker, Justin P. Peters, Louis J. Maher, III, Anjum Ansari

**1048-Pos BOARD B150**

DIRECT OBSERVATION OF DNA TARGET SEARCHING AND CLEAVAGE BY CRISPR-CAS12A. Yongmoon Jeon, You Hee Choi, Yunsu Jang, Jiyoung Gu, **Cherlhyun Jeong**, Sanghwa Lee, Sangsu Bae

**1049-Pos BOARD B151**

ELECTRIC-FIELD-DRIVEN TRANSLOCATION OF SSDNA THROUGH HYDROPHOBIC NANOPORES. **Taylor Haynes**, Iain P. S. Smith, Jayne Wallace, Jemma Trick, Mark S. Sansom, Syma Khalid

**1050-Pos BOARD B152**

TIN2 IS AN ARCHITECTURAL PROTEIN STABILIZING TRF1 AT TELOMERE. **Hai Pan**, Saroj Dangi, Parminder Kaur, Pengyu Hao, Keith Weninger, Robert Riehn, Patricia Opresko, Hong Wang

**1051-Pos BOARD B153**

SOLUTION DYNAMICS IN HISTONE-BASED ARCHAEAL CHROMATIN. **Samuel Bowerman**, Karolin Luger, Jeff Wereszczynski

**1052-Pos BOARD B154**

MUTATION OF THE DEAD-BOX ATPASE PRP5 IMPACTS DYNAMICS OF THE RECA-LIKE DOMAINS AND BRANCH SITE USAGE DURING PRE-MRNA SPLICING. David H. Beier, Tucker J. Carrocci, **Aaron A. Hoskins**

**1053-Pos BOARD B155**

BRIDGE HELIX OF CAS9 IMPACTS TARGET DNA CLEAVAGE. **Rakhi Rajan**

**1054-Pos BOARD B156**

MOLECULAR DYNAMICS SIMULATIONS OF RNA-RECOGNITION MOTIF COMPLEXED WITH CAC-CONTAINING RNA. **Shan Chang**, Hang Shi, Ren Kong

**1055-Pos BOARD B157**

INVESTIGATING THE EFFECT OF VARIOUS FMRP ISOFORMS ON MICRORNA BIOGENESIS. **Joshua A. Imperatore**, John Roth, Mihaela Rita Mihailescu

**1056-Pos BOARD B158**

MISMATCH RECOGNITION BY MSH2-MSH6: ROLE OF STRUCTURE AND DYNAMICS. **Zane Lombardo**, Yan Li, Meera Joshi, Manju M. Hingorani, Ishita Mukerji

**1057-Pos BOARD B159**

MOLECULAR SIMULATIONS DISCERN THE COOPERATIVE BINDING OF HUMAN BRAHMA-RELATED GENE 1 BROMODOMAIN AND AT-HOOK REGIONS IN DNA BINDING. **Stefania Evoli**, Jeffery M. Wereszczynski

**1058-Pos BOARD B160**

STUDYING NUCLEOSOME ASSEMBLY VIA FRET. **Caitlin Aguirre**, Loïsele Gonzalez Baez, Elizabeth Jamieson, Megan E. Nunez

**1059-Pos BOARD B161**

WILD-TYPE FUS RESCUES ALTERED RNA BINDING OF ALS-LINKED FUS MUTANT. **Kevin Rhine**, Jaya Sarkar, Amirhossein Ghanbari Niaki, Xinyi Cai, Gabby Vidaurre, Sua Myong



**1060-Pos BOARD B162**  
CHARACTERIZING THE BINDING OF THE HIV-1 NC PROTEIN TO HAIRPINS FORMED BY CAG REPEATS. **Melanie Dillon**, Yustinah Ndambakuwa, Henrietta Ehirim, Catherine B. Volle

**1061-Pos BOARD B163**  
DNA SEQUENCE AND HISTONE CORE COMPOSITION CONTROL THE UNWRAPPING OF DNA FROM NUCLEOSOME CORE PARTICLES. **Alex Mauney**, Joshua Tokuda, Yujie Chen, Lois Pollack

**1062-Pos BOARD B164**  
OBSERVATION OF ALLOSTERIC SIGNALING THROUGH DNA WITH SINGLE-MOLECULE FRET AND CRYO-EM. **Gabriel Rosenblum**, Nadav Elad, Felix Wiggers, Hagen Hofmann

**1063-Pos BOARD B165**  
STRUCTURAL AND FUNCTIONAL INSIGHTS INTO CRISPR/CAS9 CATALYTIC ACTIVATION AND SPECIFICITY ENHANCEMENT. **Zhicheng Zuo**, Jin Liu

**1064-Pos BOARD B166**  
A VERSATILE METHOD TO QUANTIFY DNA-PROTEIN INTERACTIONS ON NEGATIVELY SUPERCOILED DNA. **Graeme A. King**, Federica Burla, Erwin J.G. Peterman, Gijs J.L. Wuite

**1065-Pos BOARD B167**  
ATOMIC-LEVEL CHARACTERIZATION OF AN ALLOSTERIC GENE REGULATORY SYSTEM. **Michael V. LeVine**, Stefano Piana, Maxwell Tucker, Jesus Izaguirre, David E. Shaw

**1066-Pos BOARD B168**  
REGULATION OF REP HELICASE UNWINDING BY AN AUTO-INHIBITORY SUBDOMAIN. **Monika A. Makurath**, Kevin D. Whitley, Binh Nguyen, Timothy M. Lohman, Yann R. Chemla

**1067-Pos BOARD B169**  
SPECIFIC AT ONE SIDE WHILE UNSPECIFIC AT THE OTHER: THE INTERACTION OF A BLOOD PROTEIN WITH EXTRACELLULAR DNA. **Angelica Sandoval-Perez**, Camilo A. Aponte-Santamaria

**1068-Pos BOARD B170**  
EXPANDING RNA-DNA HYBRID AFFINITY BY MULTIMERIZATION OF A CONSERVED FOLD. **Alex Stopar**, Rhonda Nicholson, Matteo Castronovo, Allen W. Nicholson

**1069-Pos BOARD B171**  
ELUCIDATING THE MOLECULAR BINDING MECHANISM OF THE TATA-BINDING PROTEIN USING PIE-PIFE. **Evelyn Ploetz**, Anders Barth, Lena Voith von Voithenberg, Ganesh Agam, Don C. Lamb

## Membrane Dynamics I (Boards B172 - B189)

**1070-Pos BOARD B172 TRAVEL AWARDEE**  
ACTIVE TRANSPORT OF MEMBRANE COMPONENTS BY DYNAMIC MIN PROTEIN WAVES. **Yu-Ling Shih**, Ling-Ting Huang, Yu-Ming Tu, Bo-Fan Lee, Yu-Chiuan Bau, Chia Yee Hong, Hsiao-lin Lee, Yan-Ping Shih, Min-Feng Hsu, Jui-Szu Chen, Zheng-Xin Lu, Ling Chao

**1071-Pos BOARD B173**  
DYNAMIC EFFECTS OF CALCIUM ON MEMBRANES CONTAINING PHOSPHATIDYL SERINE. **Mason L. Valentine**, Alfredo E. Cardenas, Ron Elber, Carlos R. Baiz

**1072-Pos BOARD B174**  
OPTICAL DYES TO MONITOR TENSION AND GROWTH IN MODEL MEMBRANES. **Margrethe Boyd**

**1073-Pos BOARD B175**  
SPATIAL RELATIONSHIP AND FUNCTIONAL RELEVANCE OF THREE LIPID DOMAIN POPULATIONS AT THE ERYTHROCYTE SURFACE. **Louise Conrard**, Amaury Stommen, Hélène Pollet, Donatienne Tyteca

**1074-Pos BOARD B176**  
PROPERTIES OF NEUROTOXICANT ANTIDOTE TRANSPORT ACROSS THE BLOOD-BRAIN BARRIER. **Christian Jorgensen**, Martin B. Ulmschneider, Peter C. Searson

**1075-Pos BOARD B177**  
SPECTROSCOPIC AND MICROSCOPIC APPROACH TO MONITOR THE CHANGES IN BILAYER RIGIDITY DURING CELL PENETRATING PEPTIDE INDUCED SELF-REPRODUCTION OF PHOSPHOLIPID VESICLES. **Pavel Banerjee**, Siddhartha Pal, Niloy Kundu, Dipankar Mondal, Nilmoni Sarkar

**1076-Pos BOARD B178**  
EMERGENT SHAPE SENSING OF DYNAMIC MEMBRANES. **Brian A. Camley**

**1077-Pos BOARD B179**  
TUNING OF MEMBRANE SPHINGOLIPID CONTENT INFLUENCES THE LINKS OF OUTER-LEAFLET MEMBRANE LIPID DYNAMICS TO CHOLESTEROL AND CYTOSKELETON. **Anjali Gupta**, Federico Torta, Markus Wenk, Thorsten Wohland

**1078-Pos BOARD B180**  
CALCULATING ETHANOL PERMEABILITY OF MEMBRANES THROUGH MOLECULAR DYNAMIC SIMULATIONS. **Mahdi Ghorbani**, Eric Wang, Jeffery B. Klauda

**1079-Pos BOARD B181 TRAVEL AWARDEE**  
EFFECT OF CHITOSAN ON MECHANICAL PROPERTIES OF LIPID BILAYERS USING MICROPIPETTE ASPIRATION. **Honey Priya James**, Sameer R. Jadhav

**1080-Pos BOARD B182**  
DESTRUCTION OF NEMATODE OVA IN WASTEWATER USING ELECTROPORATION. **Michael Dryzer**, Caitlin Niven, Scott Wolter, Christopher Arena, Edgard Ngaboyamahina, Charles Parker, Brian Stoner

**1081-Pos BOARD B183**  
LIPID NANOTUBES: A POSSIBLE ROUTE TO PROTOCELL FORMATION AND GROWTH. **Elif S. Koksal**, Susanne Liese, Ilayda Kantarci, Ragni Olsson, Andreas Carlson, Irep Gozen

**1082-Pos BOARD B184**  
MALARIA PARASITES BREAK AND DEGRADE TWO MEMBRANES TO EGRESS FROM HUMAN ERYTHROCYTE. **Svetlana E. Glushakova**, Josh Beck, Matthias Garten, Brad Busse, Armiyaw S. Nasamu, Tatyana Tenkova-Heuser, John E. Heuser, Daniel E. Goldberg, Joshua Zimmerberg

**1083-Pos BOARD B185**  
NOVEL METHOD OF ANALYZING LIPID BILAYER ELASTIC MODULI USING MEMBRANE FLUCTUATIONS. **Muhammed F. Erguder**, Markus Deserno

**1084-Pos BOARD B186**  
A NEW COMPUTATIONAL METHOD FOR MEMBRANE COMPRESSIBILITY: BILAYER MECHANICAL THICKNESS REVISITED. **Milka Doktorova**, Michael V. LeVine, George Khelashvili, Harel Weinstein

**1085-Pos BOARD B187**  
DIFFERENTIAL ACTIN BINDING AFFINITY LEADS TO PROTEIN SORTING IN A RECONSTITUTED ACTIVE COMPOSITE LAYER. **Abbar A. Bhat**, Amit Das, Kabir Husain, Madan Rao, Darius Koester, Satyajit Mayor

**1086-Pos BOARD B188**  
PATHWAYS AND MOLECULAR MECHANISMS OF MICRODOMAIN-DEPENDENT MEMBRANE TRAFFICKING. Barbara Diaz-Rohrer, Joseph Lorent, Ivan Castello-Serrano, Kandice Levental, **Ilya Levental**

**1087-Pos BOARD B189**  
HOPANOIDS, THE BIG 'SMALL THINGS' IN OLIGOMERIZATION OF PROTEORHODOPSIN. **Eric Sefah**, Blake Mertz

## Protein-Lipid Interactions: Channels (Boards B190 - B211)

**1088-Pos**      **BOARD B190**  
STRUCTURE-BASED ESTIMATE OF CONNEXIN 26 CONDUCTANCE. **Nathan H. Zimmerberg**, Satyan Sharma, Manfred Lindau

**1089-Pos**      **BOARD B191**  
INTERFACIAL EFFECTS OF ION CHANNELS IN LIPID MEMBRANES: MEAN-FIELD COMPUTATION FROM 3D ATOMIC STRUCTURES VERSUS ANALYTICAL ESTIMATES. Marcel Aguilera-Arzo, Antonio Alcaraz, Maria Lidon Lopez-Peris, Maria Queral-Martín, **Vicente M. Aguilera**

**1090-Pos**      **BOARD B192**  
PROBING THE MECHANOSENSING FEATURES OF MAMMALIAN PIEZO CHANNELS AND PLANT OSCA CHANNELS VIA MOLECULAR DYNAMICS SIMULATIONS. **Che Chun (Alex) Tsui**, Kei Saotome, Sebastian Jojoa Cruz, Andrew B. Ward, Mark S. P. Sansom

**1091-Pos**      **BOARD B193**  
DRUG REGULATION OF ION CHANNEL FUNCTION INVOLVES BOTH DIRECT AND BILAYER-MEDIATED MECHANISMS. **Radda Rusinova**, Olaf Andersen

**1092-Pos**      **BOARD B194**  
PREDICTING THE PROMISCUOUS EFFECT OF AMPHIPATHIC DRUGS ON GRAMICIDIN CHANNEL STABILITY WITH SIMULATIONS AND EXPERIMENTS. **Delin Sun Sun**

**1093-Pos**      **BOARD B195**  
PROTEIN-LIPID INTERFACES DRIVE DKT<sub>X</sub>-MEDIATED TRPV1 CHANNEL ACTIVATION. **Debayan Sarkar**, Yashaswi Singh, Jeet Kalia

**1094-Pos**      **BOARD B196**  
EFFECTS OF MEMBRANE PROTEIN NACHRS ON PHASE SEPARATED MODEL MEMBRANES. **Jigesh Patel**

**1095-Pos**      **BOARD B197**  
BOUNDARY LIPIDS OF THE NICOTINIC ACETYLCHOLINE RECEPTOR IN QUASI-NATIVE MEMBRANES. **Liam M. Sharp**, Reza Salari, Grace Branigan

**1096-Pos**      **BOARD B198**  
EFFECT OF LATE ENDOSOMAL DOBMP LIPID AND TRADITIONAL MODEL LIPIDS OF ELECTROPHYSIOLOGY ON THE ANTHRAX TOXIN CHANNEL ACTIVITY. Nnanya Kalu, Yoav Atsmon-Raz, Sanaz Momben Abolfath, Laura Lucas, Clare Kenney, Stephen H Leppla, D. Peter Tieleman, **Ekaterina M. Nestorovich**

**1097-Pos**      **BOARD B199**  
NOISE PROPERTIES OF ION CHANNELS FORMED BY PESTIVIRUS VIROPORIN P7. **Antonio Alcaraz**, Vicente M. Aguilera, Eneko Largo, Jose L. Nivia

**1098-Pos**      **BOARD B200**  
REGULATION OF KCSA BY ANIONIC PHOSPHOLIPIDS. **Carmen Domene**, Victoria Oakes, Simone Furini

**1099-Pos**      **BOARD B201**  
ELUCIDATING CONFORMATIONAL CHANGES UNDERLYING THE CONVERSION OF TMEM16A MUTANTS FROM ANION CHANNELS TO SCRAMBLASES. **Archit K. Vasan**, Tao Jiang, H Criss Hartzell, Emad Tajkhorshid

**1100-Pos**      **BOARD B202**  
INDUCING CHEMICAL CONCENTRATION GRADIENTS TO INVESTIGATE GAS PERMEABILITY OF RH-PROTEIN CONTAINING MEMBRANES. **Eric Shinn**, Emad Tajkhorshid

**1101-Pos**      **BOARD B203**  
ION TRANSPORT THROUGH LARGE-DIAMETER DNA ORIGAMI NANOTUBE CHANNELS ACROSS SYNTHETIC MEMBRANES. **Naresh N. Dhanasekar**, Rebecca B. Schulman

**1102-Pos**      **BOARD B204**  
EFFECTS OF LIPID AND DETERGENT ENVIRONMENTS ON CYSTIC FIBROSIS TRANSMEMBRANE CONDUCTANCE REGULATOR (CFTR) FUNCTION AND STRUCTURE. **Kerry M. Strickland**, Brandon B. Stauffer, Yusuf M. Uddin, Barry R. Imhoff, Ingeborg Schmidt-Krey, Nael A. McCarty

**1103-Pos**      **BOARD B205**  
ALLOSTERIC MODULATION OF CA<sup>2+</sup>-ACTIVATED CL CHANNELS TMEM16A BY PIP<sub>2</sub> AND CAMKII. **Woori Ko**, Seung-Ryoung Jung, Cheon-Gyu Park, Joo Hyun Nam, Bertil Hille, Byung C. Suh

**1104-Pos**      **BOARD B206**      **TRAVEL AWARDEE**  
PIP<sub>2</sub> POTENTIATES THE CA<sup>2+</sup>-ACTIVATED CL CHANNEL TMEM16A IN *XENOPUS LAEVIS* OOCYTES. **Maiwase Tembo**, Rachel E. Bainbridge, Anne E. Carlson

**1105-Pos**      **BOARD B207**  
DETERMINING THE MECHANISM OF SMASE-MEDIATED INHIBITION OF CFTR CURRENT IN PRIMARY BRONCHIAL EPITHELIAL CELLS. **Kirsten A. Cottrill**, Brandon B. Stauffer, Nael A. McCarty

**1106-Pos**      **BOARD B208**      **TRAVEL AWARDEE**  
IMPLICATION OF CHOLESTEROL IN REGULATING THE MEMBRANE-INTERACTION MECHANISM OF *VIBRIO CHOLERAE* CYTOLYSIN, A BETA-BARREL PORE-FORMING TOXIN. **Reema Kathuria**, Kausik Chattopadhyay

**1107-Pos**      **BOARD B209**  
DIFFERENTIAL STATE-DEPENDENT CROSSLINKING OF AZI-CHOLESTEROL WITH HUMAN A1 GLYCINE RECEPTOR USING MASS SPECTROMETRY. **Nicholas A. Ferraro**, Michael Cascio

**1108-Pos**      **BOARD B210**  
HIGH CHOLESTEROL DIET UP-REGULATES ATRIAL AND NEURONAL GIRK CHANNEL ACTIVITY. Anna N. Bukiya, **Avia Rosenhouse-Dantsker**

**1109-Pos**      **BOARD B211**  
PHOSPHOLIPID SCRAMBLING ACTIVITY BY TMEM16E/ANO5: OPPOSITE EFFECTS OF MUTATIONS CAUSING BONE DYSPLASIA AND MUSCULAR DYSTROPHY. Eleonora Di Zanni, Antonella Gradogna, Cristiana Picco, Joachim Scholz-Starke, **Anna Boccaccio**

## Membrane Structure II (Boards B212 - B232)

**1110-Pos**      **BOARD B212**      **TRAVEL AWARDEE**  
SINGLE-LIPID SORTING AND DYNAMICS AT MEMBRANE CURVATURE SITES: THE EFFECTS OF FLUORESCENCE LABELING, COMPOSITION, PHASE, AND TEMPERATURE. **Xinxin Woodward**, Christopher V. Kelly

**1111-Pos**      **BOARD B213**  
PREDICTING SPECTRAL PROPERTIES OF POLARITY SENSITIVE DYES WITH QM/MM SIMULATION. **Swapnil Baral**, Lars Gundlach, Bjorn Baumeier, Edward R. Lyman

**1112-Pos**      **BOARD B214**  
MODELING THE INTERPLAY BETWEEN CURVATURE-INDUCING PROTEINS AND MEMBRANE GEOMETRY IN ORGANELLE STRUCTURES: CATENOID-LIKE NECKS AND HELICOIDAL RAMPS. **Morgan Chabanon**, Padmini Rangamani

**1113-Pos**      **BOARD B215**  
MECHANISTIC STUDIES OF MEMBRANE REMODELING IN RECEPTOR MEDIATED ENDOCYTOSIS. **Samsuzzoha Mondal**, Sankalp Shukla, Tobias Baumgart

**1114-Pos**      **BOARD B216**  
DRIVING SPONTANEOUS MEMBRANE CURVATURE BY TUNING CARDIOLIPIN CONCENTRATION AND SPATIAL DISTRIBUTION IN MODEL MITOCHONDRIAL MEMBRANES. **Moeen Meigooni**, Emad Tajkhorshid

**1115-Pos BOARD B217**  
LIPID PHASE ASYMMETRY IN MAMMALIAN BILAYER MEMBRANES.  
**Joseph H. Lorent**, Lakshmi Ganesan, Ilya Levental

**1116-Pos BOARD B218**  
STRUCTURE OF GEL PHASE DPPC DETERMINED BY X-RAY DIFFRACTION.  
**John F. Nagle**, Pierre Cognet, Fernando G. Dupuy, Stephanie A. Tristram-Nagle

**1117-Pos BOARD B219**  
THE INFLUENCE OF PERIODIC SIZE EFFECTS AND MEMBRANE UNDULATION ON PHASE SEPARATION IN A DPPC/DOPC/CHOL COARSE GRAIN MARTINI SYSTEM.  
**Timothy S. Carpenter**, Helgi I. Ingolfsson, Cesar Lopez, Chris Neale, Sandrasegaram Gnanakaran, Felice C. Lightstone

**1118-Pos BOARD B220**  
RIPPLE AND GEL PHASES OF SATURATED PHOSPHOCHOLINE BILAYERS INVESTIGATED WITH SIMULATIONS.  
Pouyan Khakbaz, **Jeffery B. Klauda**

**1119-Pos BOARD B221**  
VITAMIN E PROMOTES THE INVERSE HEXAGONAL PHASE PROVIDING INSIGHTS ON LIPID PACKING STRESSES: STUDIES BY SAXS AND <sup>2</sup>H NMR.  
**Andres T. Cavazos**, Paul E. Harper, Jacob J. Kinnun, Horia I. Petrache, Stephen R. Wassall

**1120-Pos BOARD B222**  
PH-TUNABLE FLOATING LIPID BILAYERS.  
**Dennis J. Michalak**, Mathias Lösche, David Hoogerheide

**1121-Pos BOARD B223**  
MODEL FOR STABILITY OF LIPID DROPLET CONNECTION TO THE MEMBRANE OF ENDOPLASMIC RETICULUM.  
**Gonen Golani**, Michael M. Kozlov

**1122-Pos BOARD B224**  
DEWETTING-INDUCED FORMATION OF BACTERIAL MODEL MEMBRANES USING SUBMICRON SHELL DOUBLE EMULSIONS.  
**Sepehr Maktabi**, Noah Malmstadt, Jeffrey Schertzner, Paul Chiarot

**1123-Pos BOARD B225 TRAVEL AWARDEE**  
NANOTUBES TRANSFORM INTO DOUBLE-MEMBRANE SHEETS AT THE INTERFACE BETWEEN TWO AQUEOUS POLYMER SOLUTIONS.  
**Ziliang Zhao**, Roland Knorr, Jaime Agudo-Canalejo, Tom Robinson, Reinhard Lipowsky, Rumiana Dimova

**1124-Pos BOARD B226**  
HIGH YIELD ASSEMBLY OF GIANT UNILAMELLAR VESICLES USING CELLULOSE PAPER AND COTTON FABRIC.  
**Joseph Pazzi**

**1125-Pos BOARD B227**  
REGULATION OF HORIZONTAL GENE TRANSFER VIA BACTERIAL EXTRACELLULAR VESICLES.  
**James Boedicker**, Frances Tran

**1126-Pos BOARD B228**  
FATTY ACID COMPOSITIONS OF CERAMIDES AND SPHINGOMYELINS IN MAMMALIAN TISSUES AND CULTURED CELLS.  
**Felix M. Goni**, Marco M. Manni, Jesus Sot, Enara Arretxe, Ruben Gil-Redondo, Juan Falcon, David Balgoma, Cristina Alonso, Alicia Alonso

**1127-Pos BOARD B229**  
IMAGING ORGANIZATION IN THE *ESCHERICHIA COLI* OUTER MEMBRANE.  
**Sandip Kumar**, Nicholas G. Housden, Patrick Inns, Colin Kleanthous

**1128-Pos BOARD B230**  
BIOPHYSICAL CHARACTERIZATION OF THE PLASMA MEMBRANE IN LIVE *CRYPTOOCOCCUS NEOFORMANS*.  
**Amid Vahedi**, Amir M. Farnoud

**1129-Pos BOARD B231 TRAVEL AWARDEE**  
A NOVEL NITRONE-TROLOX CONJUGATE INHIBITS MEMBRANE LIPID OXIDATION THROUGH SYNERGISTIC ANTIOXIDANT EFFECTS.  
**Larissa Socrier**, Marie Rosselin, Ana Milena Gomez Giraldo, Benjamin Chantemargue, Florent Di Meo, Patrick Trouillas, Grégory Durand, Sandrine Morandat

**1130-Pos BOARD B232**  
A ROLE FOR LIPID-LIPID INTERACTIONS IN VITAMIN E'S FUNCTION AS A MEMBRANE ANTIOXIDANT.  
**Samuel W. Canner**, Fangqiang Zhu, Scott E. Feller, Stephen R. Wassall

## Intracellular Transport (Boards B233 - B239)

**1131-Pos BOARD B233**  
ANOMALOUS DIFFUSION OF ENDOPLASMIC RETICULUM CONSTITUENTS.  
**Konstantin Speckner**, Lorenz Stadler, Matthias Weiss

**1132-Pos BOARD B234**  
TRANSPORT MODES OF VIRAL NUCLEOPROTEINS IN LIVE CELLS.  
**George M. Holzwarth**, Lucas Tommervik, Arnav Bhandari, David Ornelles, Douglas Lyles

**1133-Pos BOARD B235**  
THE ROLE OF GLYCOGEN SYNTHASE KINASE 3 (GSK3) IN REGULATING INTRACELLULAR TRANSPORT.  
**Ibtissem Nabti**, George T. Shubeita

**1134-Pos BOARD B236**  
INVESTIGATING THE INTERPLAY BETWEEN PIKFYVE/PI(3,5)P2 AND CLC-7 IN LYSOSOMAL ACIDIFICATION AND TRAFFIC.  
**Xavier Leray**, Anowarul Amin, Mary Weston, Joseph A. Mindell

**1135-Pos BOARD B237**  
THE ROLE OF THE CHLORIDE TRANSPORTER CLC-7 IN ACIDIFICATION IN MOUSE LIVER LYSOSOMES.  
**Anowarul Amin**, Joseph A. Mindell

**1136-Pos BOARD B238**  
SNARE PRIMING INHIBITION VIA PHOSPHATIDIC ACID INDUCED SEC18 CONFORMATIONAL CHANGES AND COMPETITIVE SMALL MOLECULE BINDING TO SEC18.  
**Andres S. Arango**, Robert P. Sparks, Matthew L. Starr, Zhiyu Zhao, Muyun Lihan, Rutilio Fratti, Emad Tajkhorshid

**1137-Pos BOARD B239**  
EVIDENCE FOR ATP INTERACTION WITH PHOSPHATIDYLCHOLINE BILAYERS.  
**Alvaro Garcia**, Ronald J. Clarke

## Cardiac Smooth and Skeletal Muscle Electrophysiology II (Boards B240 - B252)

**1138-Pos BOARD B240**  
COUPLING OF CALCIUM- AND MEMBRANE CLOCKS IGNITES DE NOVO SPONTANEOUS ACTION POTENTIAL IN DORMANT GUINEA PIG SINUS ATRIAL NODAL CELLS VIA CAMP-PKA SIGNALING.  
**Kenta Tsutsui**, Oliver Monfredi, Mary Kim, Ashley Wirth, Cristina Florio, Annie Yang, Dongmei Yang, Bruce Ziman, Victor A. Maltsev, Edward G. Lakatta

**1139-Pos BOARD B241**  
ADENOSINE DECREASES SINUS ATRIAL NODE CELL FIRING RATE BY UNCOUPLING ITS MEMBRANE AND CALCIUM CLOCKS.  
**Ashley Wirth**

**1140-Pos BOARD B242**  
MECHANISM FOR CAMP OVERSHOOT IN VENTRICULAR MYOCYTES FOLLOWING B1-ADRENERGIC STIMULATION.  
**Emily E. Meyer**, Timothy J. Lewis, Colleen E. Clancy

**1141-Pos BOARD B243**  
RHYTHM AND RATE OF ACTION POTENTIAL FIRING OF SINGLE CARDIAC PACEMAKER CELLS EMERGE FROM CONCORDANT BEAT TO BEAT VARIABILITY OF COUPLED CALCIUM AND MEMBRANE POTENTIAL FUNCTIONS.  
**Dongmei Yang**, Alexey E. Lyashkov, Christopher H. Morrell, Ihor Zahanich, Yael Yaniv, Tatiana M. Vinogradova, Bruce D. Ziman, Edward G. Lakatta

**1142-Pos BOARD B244**  
THE PERIODICITY OF A CA<sup>2+</sup> CLOCK INTRINSIC TO INDIVIDUAL CARDIAC SINUS ATRIAL NODAL PACEMAKER CELLS UNIVERSALLY SCALES TO BODY MASS FROM MICE TO HUMANS.  
**Syevda Tagirova**, Kenta Tsutsui, Dongmei Yang, Bruce Ziman, Yael Yaniv, Edward G. Lakatta

- 1143-Pos BOARD B245**  
COMBINING SYSTEMS PHARMACOLOGY MODELING WITH MACHINE LEARNING TO IDENTIFY SUB-POPULATIONS AT RISK OF ARRHYTHMIA. **Meera Varshneya**, Xueyan Mei, Eric A. Sobie
- 1144-Pos BOARD B246**  
3-WEEK-OLD RABBIT CARDIOMYOCYTES (3WRBCM): A NOVEL CELLULAR MODEL FOR STUDYING CARDIAC EXCITATION. **Anatoli Y. Kabakov**, Karni Moshal, YiChun Lu, Karim Roder, Turan Nilufer, Weiyang Li, Kevin Murphy, Dmitry Terentyev, Gideon Koren
- 1145-Pos BOARD B247**  
A COMPARATIVE ANALYSIS OF PARAMETER ESTIMATION STRATEGIES FOR MATHEMATICAL MODELING OF ION CHANNEL GATING. **Chiara Campana**, Eric A. Sobie
- 1146-Pos BOARD B248**  
THE EFFECTS OF FREQUENCY OF VOLUNTARY EXERCISE ON CARDIAC FUNCTION IN DILATED CARDIOMYOPATHY MODEL MICE. **Masami Sugihara**, Ryo Kakigi, Takashi Murayama, Takashi Miida, Takashi Sakurai, Sachio Morimoto, Nagomi Kurebayashi
- 1147-Pos BOARD B249**  
HIGH RESOLUTION IMAGING AND HISTOPATHOLOGICAL CHARACTERIZATION OF MYOCARDIAL INFARCTION. Peter Lin, Jared Westreich, Mengyuan Li, Adam Gribble, Susan Newbigging, Alex Vitkin, **Mihaela Pop**
- 1148-Pos BOARD B250 TRAVEL AWARDEE**  
SINUS BRADYCARDIA DUE TO ELECTROLYTE CHANGES AS A POTENTIAL PATHOMECHANISM OF SUDDEN CARDIAC DEATH IN HEMODIALYSIS PATIENTS. **Axel Loewe**, Yannick Lutz, Alan Fabbri, Stefano Severi
- 1149-Pos BOARD B251**  
EFFECTS OF VARYING TRANSVERSE AND AXIAL TUBULES IN A THREE-DIMENSIONAL MODEL OF CALCIUM SIGNALING IN THE HUMAN ATRIAL MYOCYTE. **Xianwei Zhang**, Haibo Ni, Stefano Morotti, Daisuke Sato, Eleonora Grandi
- 1150-Pos BOARD B252 TRAVEL AWARDEE**  
DISRUPTION OF CAVEOLAR MICRODOMAINS CREATES "HOT SPOTS" FOR ATRIAL ECTOPY AND ARRHYTHMOGENESIS IN HEART FAILURE MICE. **Di Lang**, Leonid Tyan, Aleah Warden, Zachary D. Piro, Rylie Lodin, Evi Lim, Ashley Irwin, Alexey V. Glukhov
- 1151-Pos BOARD B253**  
MET RECEPTOR TYROSINE KINASE ACTIVATION STUDIED AT THE SINGLE-MOLECULE LEVEL. **Marina S. Dietz**, Marie-Lena I.E. Harwardt, Thorsten Wohland, Hartmut H. Niemann, Mike Heilemann
- 1152-Pos BOARD B254 TRAVEL AWARDEE**  
SPATIOTEMPORAL DYNAMICS OF RON AND EGFR CROSSTALK AT THE PLASMA MEMBRANE. **Justine Keth**, Carolina Franco Nitta, Elton D. Jhamba, Ellen W. Hatch, Mara P. Steinkamp, Bridget S. Wilson, Diane S. Lidke
- 1153-Pos BOARD B255**  
PROBING THE INTERACTION BETWEEN RECEPTOR TYROSINE KINASES AND TRANSMEMBRANE ADHESION PROTEINS. **Taylor P. Light**, Deborah Leckband, Kalina Hristova
- 1154-Pos BOARD B256**  
RESPONSE OF FGFR1 TO DIFFERENT LIGANDS. **Kelly Karl**

- 1155-Pos BOARD B257**  
MECHANISM OF EPHA2 DIMERIZATION IN RESPONSE TO MONOMERIC LIGANDS. **Elmer A. Zapata-Mercado**, Randall Rainwater, Elena B. Pasquale, Kalina Hristova
- 1156-Pos BOARD B258**  
INVESTIGATING THE ROLE OF THE TRANSMEMBRANE HELIX OF EPHA2 IN SIGNAL TRANSDUCTION ACROSS THE PLASMA MEMBRANE. **Daniel Wirth**, Kalina Hristova, Elena Pasquale
- 1157-Pos BOARD B259**  
THERMODYNAMICS AND KINETICS OF THE DIVALENT-MONOVALENT CATION COMPETITION FOR BINDING SITES AT THE  $\mu$ -OPIOID RECEPTOR. **Xiaohu Hu**, Davide Provasi, Marta Filizola
- 1158-Pos BOARD B260**  
DETECTING INTRAMOLECULAR DYNAMICS OF GPCR<sub>3</sub> USING DIFFRACTED X-RAY BLINKING TECHNIQUE. **Kazuhiro Mio**, Masaki Ishihara, Shoko Fujimura, Masahiro Kuramochi, Yuji C. Sasaki
- 1159-Pos BOARD B261**  
INTER-DOMAIN INTERACTIONS AND ALLOSTERIC MODULATION OF METABOTROPIC GLUTAMATE RECEPTORS. Vanessa Gutzeit, Jordana Thibado, **Josh T. Levitz**
- 1160-Pos BOARD B262**  
CONFORMATIONAL FREE ENERGIES OF METABOTROPIC GLUTAMATE RECEPTOR LIGAND-BINDING DOMAINS. **Tyler J. Wied**
- 1161-Pos BOARD B263 TRAVEL AWARDEE**  
MECHANISMS OF G PROTEIN-SELECTIVITY IN MUSCARINIC ACETYLCHOLINE RECEPTOR FAMILY. **Luis Santiago**, Ravinder Abrol
- 1162-Pos BOARD B264**  
THE ROLE OF PROTEIN PHOSPHATASE 2A IN THE RE-SENSITIZATION OF MELANOPIN DURING CONTINUED LIGHT STIMULATION. **Juan C. Valdez-Lopez**, Meheret Gebreeziabher, Jair Flores, Olanike Awotunde, Thomas Burnett, Adam Byerly, Phyllis R. Robinson
- 1163-Pos BOARD B265**  
MODULATION OF MU-OPIOID RECEPTOR SIGNALING BY CANNABINOID CB1 RECEPTOR THROUGH HETEROMERIZATION, A NOVEL ANALGESIC TARGET. **Guoqing Xiang**, Lia Baki, Takeharu Kawano, Diomedes Logothetis
- 1164-Pos BOARD B266**  
CANNABINOID RECEPTOR CB2 OLIGOMERIZATION IN A LIPID MATRIX. Alexei Yeliseev, Jonathan D. Nickels, Kirk G. Hines, Lioudmila Zoubak, Walter E. Teague, Jr., Diane L. Lynch, Dow P. Hurst, Kevin L. Weiss, John Katsaras, Patricia H. Reggio, **Klaus Gawrisch**
- 1165-Pos BOARD B267**  
THE INTERPLAY OF STRUCTURAL AND CELLULAR BIOPHYSICS CONTROLS THE CLUSTERING OF MULTIVALENT SIGNALING MOLECULES: THE NEPHRIN-NCK-NWASP SYSTEM. **Aniruddha Chattaraj**, Leslie M. Loew
- 1166-Pos BOARD B268**  
ALLOSTERISM IN OLIGOMERIC RECEPTOR MODELS: CYCLE BASES OF REDUCED GRAPH POWERS PROVIDE A THEORETICAL FRAMEWORK FOR CONFORMATIONAL COUPLING. **Greg Conradi Smith**
- 1167-Pos BOARD B269**  
QUANTIFICATION OF SURFACE RECEPTOR-ACTIN CORTEX INTERPLAY VIA TWO-COLOR HIGH RESOLUTION IMAGING. **Aparajita Dasgupta**, Deryl Tschoerner, Bruno Da Rocha-Azevedo, Khuloud Jaqaman

## Membrane Receptors and Signal Transduction I (Boards B253 - B269)

## Calcium Signaling (Boards B270 - B294)

### 1168-Pos BOARD B270

THE ROLE OF PHOSPHOFRUCTOKINASE-M (PFKM) IN OSCILLATORY GLYCOLYSIS AND INSULIN SECRETION IN PANCREATIC BETA CELLS. **Vishal S. Parekh**, Jim Ren, Leslie S. Satin

### 1169-Pos BOARD B271

BIPHASIC  $Ca^{2+}$  REGULATION OF SK CHANNELS IN VENTRICULAR CARDIOMYOCYTES MAXIMIZES THEIR CONDUCTANCE DURING A LATE PHASE OF THE ACTION POTENTIAL. **Peter Bronk**, Iuliia Polina, Radmila Terentyeva, Shanna Hamilton, Dmitry Terentyev

### 1170-Pos BOARD B272

COMPUTATIONAL MODELING OF PURINERGIC RECEPTOR ACTIVATION IN MICROGLIA. **Peter M. Kekenus-Huskey**, Byeongjae Chun, Darin Vaughan

### 1171-Pos BOARD B273 TRAVEL AWARDEE

THE ROLE OF DOPAMINE IN PANCREATIC A-CELLS CALCIUM HETEROGENEITY AND SYNCHRONIZATION MEASURED BY LIGHT-SHEET MICROSCOPY. **Zeno Lavagnino**, David W. Piston

### 1172-Pos BOARD B274

CARDIAC STORE OPERATED CALCIUM ENTRY (SOCE) IS COMPARTMENTALIZED AT INTERCALATED DISKS AND LINKED TO CATECHOLAMINERGIC POLYMORPHIC VENTRICULAR TACHYCARDIA (CPVT). **Ingrid M. Bonilla Mercado**, Andriy Belevych, Stephen Baine, Tom Bodnar, Bin Liu, Przemyslaw Radwanski, Rengansayee Veeraraghavan, Pompeo Volpe, Silvia Priori, Noah Weisleder, Sandor Gyorko

### 1173-Pos BOARD B275

DIURNAL PROPERTIES OF VOLTAGE-GATED CALCIUM CURRENTS IN SCN. Beth McNally, **Andrea Meredith**

### 1174-Pos BOARD B276

ROLE OF ORAI1 AND STORE OPERATED CALCIUM ENTRY (SOCE) IN LIVER: EFFECTS ON HORMONE-INDUCED CALCIUM SIGNALING AND GLUCOSE METABOLISM. **Gary S. Bird**, Diane D'Agostin, Pooja Desai, James W. Putney Jr.

### 1175-Pos BOARD B277

FUNCTIONAL CONNECTOME OF THE MECHANICALLY LOADED CARDIOMYOCYTE I: IDENTIFYING INVOLVED SUBSYSTEMS. **Zana A. Coulibaly**, Leighton Izu, Ye Chen-Izu, Zhong Jian, Rafael Shimkunas

### 1176-Pos BOARD B278

CRISPR/CAS9 ENGINEERED Q3925E-RYR2 MUTATION IN HUMAN INDUCED PLURIPOTENT STEM CELLS IMPAIRS CAFFEINE TRIGGERED  $Ca^{2+}$  RELEASE. Xiaohua Zhang, Hua Wei, Naohiro Yamaguchi, **Martin Morad**

### 1177-Pos BOARD B279

MYOCARDIAL RAD DELETION MODULATES L-TYPE CALCIUM CHANNEL CURRENT. **Brooke Ahern**, Mihir Shah, Andrea Sebastian, Douglas A. Andres, Jonathan Satin

### 1178-Pos BOARD B280

MODELING THE IMPACT OF SPINE APPARATUS ON SIGNALING AND REGULATION IN REALISTIC DENDRITIC SPINE GEOMETRIES. Justin G. Laughlin, **Christopher T. Lee**, J. Andrew McCammon, Rommie E. Amaro, Michael Holst, Padmini Rangamani

### 1179-Pos BOARD B281

THE ROLE OF S-ACYLATION IN STORE OPERATED CALCIUM ENTRY. **Savannah J. West**, Qiaochu Wang, Michael X. Zhu, Askar M. Akimzhanov, Darren Boehning

### 1180-Pos BOARD B282

INHIBITION OF  $Ca^{2+}$  INFLUX BY SARAF AND PANCREATITIS. Aran Son, Shmuel Muallem, **Malini Ahuja**

### 1181-Pos BOARD B283

$Ca^{2+}$  DIFFUSION IN THE LARGE PEPTIDERGIC NERVE TERMINALS OF THE POSTERIOR PITUITARY. **Shane M. McMahan**, Meyer B. Jackson

### 1182-Pos BOARD B284

MITOCHONDRIAL CALCIUM SIGNALING IN HEART. **Andrew P. Wescott**, Joseph P. Kao, W. Jonathan Lederer, Liron Boyman

### 1183-Pos BOARD B285

IDENTIFICATION AND CHARACTERIZATION OF AN NAADP RECEPTOR ESSENTIAL FOR NAADP-EVOKED CALCIUM RELEASE FROM ENDOLYSOSOMAL ORGANELLES. **Jiyuan Zhang**, Xin Guan, Jiusheng Yan

### 1184-Pos BOARD B286

NULL-SARCOPHILIN EQUINE MUSCLE SHOWS ENHANCED SERCA CALCIUM TRANSPORT WHICH MAY POTENTIATE THE PREVALENCE OF EXERTIONAL RHABDOMYOLYSIS. **Joseph M. Autry**, Bengt Svensson, Christine B. Karim, Sudeep Perumbakkam, Zhenhui Chen, Carrie J. Finno, David D. Thomas, Stephanie J. Valberg

### 1185-Pos BOARD B287

MIR-200C EXHIBITS AN AGE-DEPENDENT INCREASE IN THE RAT HEART AND MODULATES CARDIOMYOCYTE FUNCTION. **Cristina Florio**, Alessandra Magenta, Rostislav Byshkov, Kenta Tsutsui, Bruce Ziman, Edward G. Lakatta, Maurizio C. Capogrossi

### 1186-Pos BOARD B288

POTENTIAL NEUROPROTECTIVE DRUG EVP4593 REDUCES EXCESSIVE EXPRESSION OF HUNTINGTIN IN IPSC-BASED JUVENILE MODEL OF HUNTINGTON'S DISEASE. **Dmitry Grekhnyov**, Vladimir Vigont, Elena Kaznacheyeva

### 1187-Pos BOARD B289

A COMPUTATIONAL FRAMEWORK TO STUDY THE KINETICS AND EVOLUTION OF  $Ca^{2+}$ -PERMEABLE B AMYLOID PORES ASSOCIATED WITH ALZHEIMER'S DISEASE. **Syed Islamuddin Shah**, Ian Parker, Angelo Demuro, Ghanim Ullah

### 1188-Pos BOARD B290

PROBING THE MECHANISMS BY WHICH SEPTINS REGULATE ORAI1 FUNCTION. Zachary Katz, **Chen Zhang**, Ariel Quintana, Bjorn Lillemeier, Patrick G. Hogan

### 1189-Pos BOARD B291

PADE APPROXIMATION OF SINGLE-CHANNEL CALCIUM NANODOMAINS IN THE PRESENCE OF COOPERATIVE CALCIUM BUFFERS. Yinbo Chen, **Victor Matveev**

### 1190-Pos BOARD B292

NEW RED FLUORESCENT CALCIUM INDICATORS FOR FUNCTIONAL ANALYSIS OF GPCRS AND  $Ca^{2+}$  CHANNEL TARGETS. **Qin Zhao**, Haitao Guo, Peng Ruogu, Liu Jixiang, Jinfang Liao, Zhenjun Diwu

### 1191-Pos BOARD B293

THE ARRHYTHMOGENIC E105A CAM MUTATION DYSREGULATES NORMAL CARDIAC FUNCTION IN ZEBRAFISH BY ALTERING CAM- $Ca^{2+}$  AND CAM-RYR2 INTERACTIONS. **Michail Nomikos**, Sahar I. Da'as, Angelos Thanassoulas, Rola Salem, Brian L. Calver, Alaeldin Saleh, Ali Al-Maraghi, Gheyath K. Nasrallah, Bared Safieh-Garabedian, Egon Toft, George Nounesis, F. Anthony Lai

### 1192-Pos BOARD B294

CALCIUM CHANNELS CONTRIBUTING TO ACTION POTENTIAL FIRING AND RHYTHMS IN THE CIRCADIAN CLOCK. **Amber E. Plante**, Andrea L. Meredith

## Other Channels (Boards B295 - B310)

### 1193-Pos BOARD B295

FUNCTIONALLY IDENTIFYING MEMBERS OF THE MSCS SUPERFAMILY OF ION CHANNELS IN PARABURKHOLDERIA MEMBRANES. Hannah M. Dickinson, **Brittni L. Miller**, Hannah R. Malcolm

### 1194-Pos BOARD B296 TRAVEL AWARDEE

MOLECULAR DYNAMICS SIMULATIONS OF TMC1 HOMOLOGY MODELS. **Sanket Walujkar**, Lahiru N. Wimalasena, Jeffrey Lotthammer, Marcos Sotomayor

### 1195-Pos BOARD B297

FUNCTIONAL ANNOTATION OF ION CHANNEL STRUCTURES: PREDICTING PORE SOLVATION STATES BASED ON LOCAL RADIUS AND HYDROPHOBICITY. **Shanlin Rao**, Gianni Klesse, Phillip J. Stansfeld, Stephen J. Tucker, Mark S. P. Sansom

### 1196-Pos BOARD B298

HETEROTYPIC DOCKING COMPATIBILITY OF HUMAN CX37 WITH OTHER VASCULAR CONNEXINS. Nicholas K. Kim, Artur Santos-Miranda, Hong-hong Chen, Hiroshi Aoyama, **Donglin Bai**

### 1197-Pos BOARD B299

CHARGED RESIDUES AT THE PORE MOUTH AFFECT SINGLE-FILE WATER FLOW. **Andreas Horner**, Christof Hanneschläger, Florian Zocher, Pohl Peter

### 1198-Pos BOARD B300

PARTIAL CHARACTERIZATION OF THE INACTIVATION PROCESS OF THE HUMAN ERYTHROCYTE MECHANO-ACTIVATED K<sup>+</sup> CHANNEL A (HEMKCA): EFFECT OF MEMBRANE POTENTIAL, CA<sup>2+</sup> AND RB<sup>+</sup>. Diana Isturiz, Alejandro Mata, **Jesus G. Romero**

### 1199-Pos BOARD B301

A SKELETAL MUSCLE CONDITIONAL KCNJ2 KNOCK-OUT MOUSE MODEL FOR PERIODIC PARALYSIS IN ANDERSEN-TAWIL SYNDROME. **Nathaniel Elia**, Ekaterina Mokhonova, Marbella Quinonez, Stephen Cannon

### 1200-Pos BOARD B302

CHARACTERIZATION OF GATING OF THE VOLTAGE-GATED PROTON CHANNEL (H<sub>v</sub>1) DURING ACTIVATION USING NON-CANONICAL AMINO ACIDS. **Esteban Suarez Delgado**, Gisela E. Rangel-Yescas, Leon D. Islas

### 1201-Pos BOARD B303

GAP JUNCTION MEDIATED CELLULAR DELIVERY OF MIRNA MODULATES PACEMAKER ACTIVITY. **Virgis Valiunas**, Chris Clausen, Ira S. Cohen, Peter R. Brink

### 1202-Pos BOARD B304

CALCIUM-DEPENDENT REARRANGEMENTS OF THE N-TERMINAL DOMAIN IN CX26 HEMICHANNELS. **Juan M. Valdez Capuccino**, Luyu Liu, Andrew L. Harris, Jorge E. Contreras

### 1203-Pos BOARD B305

SYNTHESIS OF ROMK1/2 PROTEIN IN *E. COLI*. **Milena Krajewska**, Piotr Koprowski, Adam Szweczyk

### 1204-Pos BOARD B306

A METHOD TO QUANTIFY TRANSPORT NUMBERS OF CHARGED MOLECULES ACROSS BIOLOGICAL CHANNELS. **Jayesh Arun Bafna**, Mathias Winterhalter

### 1205-Pos BOARD B307 TRAVEL AWARDEE

HAEMATOLOGICAL CHARACTERISATION OF MICE WITH PIEZO1 GAIN-OF-FUNCTION MUTATION. **Elizabeth L. Evans**, jian shi, Melanie Bettale, Laetitia Lichtenstein, David J. Beech

### 1206-Pos BOARD B308

OPTICAL SENSING OF ION FLUX THROUGH BIOMIMETIC CARBON NANOTUBE CHANNELS. **Pengyu Zheng**, Aleksandr Noy, Meni Wanunu, Yun-Ciao Yao

### 1207-Pos BOARD B309

REGULATION OF PANNEXIN-1 CHANNEL GATING BY NITRIC OXIDE AND CAMP SIGNALING. **Pablo S. Gaete**, Mauricio A. Lillo, Nelson P. Barrera, Xavier F. Figueroa, Jorge E. Contreras

### 1208-Pos BOARD B310

THE ORIGIN OF THE VOLTAGE CLAMP FLUOROMETRY SIGNAL IN CI-HV1 PROTON CHANNEL. Zoltan Petho, Adrienn Bagosi, Zoltan Varga, Gyorgy Panyi, **Ferenc Papp**

## Ion Channels, Pharmacology, and Disease (Boards B311 - B342)

### 1209-Pos BOARD B311

UNCOUPLING NMDA RECEPTOR MECHANISM OF KETAMINE BLOCK AND PROTON INHIBITION. **Jamie A. Abbott**

### 1210-Pos BOARD B312

A MUTANT SK CHANNEL RESCUED LOCOMOTION DEFECTS INC. *EL-EGANSALS* MODEL. Young Woo Nam, Saba Baskoylu, Hannah Vu, Rachel Lee, Pammie Wong, Anne Hart, **Miao Zhang**

### 1211-Pos BOARD B313

FUNCTIONAL CONSEQUENCES OF EPILEPSY-ASSOCIATED KCNQ2 VARIANTS DETERMINED BY AUTOMATED ELECTROPHYSIOLOGY. **Carlos G. Vanoye**, Reshma R. Desai, Shannon L. Gallagher, Dina Sinkim, Linda C. Laux, John J. Millichap, Evangelos Kiskinis, Alfred L. George

### 1212-Pos BOARD B314

TUBULAR RENAL EPITHELIAL CELLS ARE ACTIVE MECHANOBIOLOGICAL WATER PUMPS. **Mohammad Iqbal Choudhury**, Yizeng Li, Panagiotti Mistriotis, Eryn Dixon, Debonil Maity, Rebecca Walker, Morgan Benson, Leigha Martin, Fatima Koroma, Feng Qian, Konstantinos Konstantopoulos, Owen Woodward, Sean Sun

### 1213-Pos BOARD B315

A NOVEL GAIN OF FUNCTION MUTATION OF PIEZO-1 IS INVESTIGATED IN RED BLOOD CELLS BY HIGH-THROUGHPUT PATCH CLAMP. **Andrea Bruggemann**, Giustina M. Rotordam, Nadine Becker, Niels Fertig, Paola Bianchi, Markus Rapedius, Lars Kaestner

### 1214-Pos BOARD B316

THE MOLECULAR MECHANISMS OF STATE DEPENDENT HERG BLOCKADE BY DOFETILIDE. **Kevin R. DeMarco**, John R. D. Dawson, Borislava Bekker, Igor V. Vorobyov, Vladimir Yarov-Yarovoy, Sergei Yu. Noskov, Colleen E. Clancy

### 1215-Pos BOARD B317

DYNAMIC REGULATION OF SODIUM HOMEOSTASIS IN ATRIAL MYOCYTES. **Libet Garber**, Humberto C. Joca, George S.B. Williams, Christopher W. Ward, W. J. Lederer, Maura Greiser

### 1216-Pos BOARD B318

A KINETIC MECHANISM UNDERLYING HERG FACILITATION BY A BLOCKER. **Kazuharu Furutani**, Steffen Docken, Igor V. Vorobyov, Colleen E. Clancy, Timothy J. Lewis, Jon T. Sack

### 1217-Pos BOARD B319

ALLOSTERIC MODULATION VIA TRANSMEMBRANE INTERFACES IN A PENTAMERIC LIGAND-GATED ION CHANNEL. **Rebecca J. Howard**, Yuxuan Zhuang, Shinjiro Nakamura, Marie Lycksell, Helen Kiiik, Urška Rovšnik, Cathrine Bergh, Stephanie A. Heusser, Laura Orellana, Erik Lindahl

**1218-Pos BOARD B320**  
REPURPOSING THE KCA3.1 BLOCKER SENICAPOC AS A MICROGLIA-TARGETED THERAPEUTIC FOR ALZHEIMER'S DISEASE. **Heike Wulff**, Jacopo Di Lucente, Hai M. Nguyen, Vikrant Singh, Lee-Way Jin, Izumi Maezawa

**1219-Pos BOARD B321**  
PRODUCTION OF NATIVE-LIKE REFOLEDDED  $Na_v1.7$  VOLTAGE SENSING DOMAIN AS SHOWN BY TOXIN BINDING ACTIVITY. **Ryan V. Schroder**, Ping Wang, Sebastien F. Poget

**1220-Pos BOARD B322**  
ALL OPTICAL INTERROGATION OF VOLTAGE GATED SODIUM CHANNELS USING NEXT GENERATION FAST VOLTAGE SENSITIVE DYES IN A SYSTEM SUITABLE FOR HIGH THROUGHPUT SCREENING. **Stephen S. Smith**, Andrew Blatz, Thomas Lila, James Limberis, Jay Trautman

**1221-Pos BOARD B323**  
MECHANICAL STRETCH INCREASES  $Kv1.5$  POTASSIUM CHANNEL ACTIVITY THROUGH A SIGNALING CASCADE INVOLVING N-TERMINUS OF THE CHANNEL. **Alexandria O. Milton**

**1222-Pos BOARD B324**  
MODELING TRAPPING BLOCK OF HERG FOR CIPA: DOES THE BASAL HERG MODE MATTER? Brandon Franks, Mark Nowak, Brian Panama, Randall Rasmusson, **Glenna Bett**

**1223-Pos BOARD B325**  
SMOOTH MUSCLE  $Kv11.1$  CHANNEL EXPRESSION IS INCREASED IN PULMONARY HYPERTENSION. **Nataliia V. Shults**, Vladyslava Rybka, Yuichiro J. Suzuki, Tinatin I. Brelidze

**1224-Pos BOARD B326**  
A *DE NOVO* MUTATION ASSOCIATED WITH EPILEPSY ENHANCES  $K_v1.2$  VOLTAGE DEPENDENCE, SUPPRESSING NEURONAL EXCITABILITY. **Antonios Pantazis**, Maki Kaneko, Annie M. Westerlund, Lucie Delemotte, Sulagna Saitta, Riccardo Olcese

**1225-Pos BOARD B327**  
ATOMISTIC COMPUTATIONAL MODELS TO PREDICT DRUG-MEDIATED CARDIOTOXICITY. **Khaled H. Barakat**

**1226-Pos BOARD B328**  
VOLTAGE- AND STATE-DEPENDENT BLOCKADE OF HERG POTASSIUM CHANNELS BY FENTANYL. **Jared Tschirhart**, Wentao Li, Jun Guo, Shetuan Zhang

**1227-Pos BOARD B329**  
PHOTODYNAMIC MODIFICATION OF NATIVE HCN CHANNELS IN THALAMOCORTICAL NEURONS. Fusheng Wei, Qiang Wang, Ankush Gupta, Qinglian Liu, **Lei Zhou**

**1228-Pos BOARD B330**  
A NOVEL HIGH-THROUGHPUT SCREENING ASSAY FOR STATE-DEPENDENT AND SUBUNIT-DEPENDENT BK CHANNEL MODULATORS. **Frank T. Horrigan**, Lorie A. Gonzalez, Liang Sun, Michael Bloch, Shengwei Zou

**1229-Pos BOARD B331**  
IDENTIFYING NOVEL KCNH CHANNEL LIGANDS WITH SURFACE PLASMON RESONANCE METHOD. Purushottam Tiwari, Aykut Uren, **Tinatin I. Brelidze**

**1230-Pos BOARD B332**  
IPSC-DERIVED MOTOR NEURONS ON THE AUTOMATED PATCH CLAMP PLATFORMS QUBE AND QPATCH. **Kadla R. Rosholm**, Melanie Schupp

**1231-Pos BOARD B333**  
INSIGHTS INTO SELECTIVITY FILTER GATING OF K2P CHANNELS FROM SINGLE-CHANNEL RECORDINGS. **Linus J. Conrad**, Stephen J. Tucker

**1232-Pos BOARD B334**  
INITIAL CHARACTERIZATION OF THE INDOLE-3-CARBOXAMIDE BIC-154 AS A FAST ONSET AND REVERSIBLE ORAI CHANNEL BLOCKER. Tetyana Zhelay, **Kalina Szteyn**, Elisa Liardo, Jae Eun Cheong, Steffi Koerner, Anil Ekkati, Lijun Sun, J. Ashot Kozak

**1233-Pos BOARD B335**  
HUMAN CFTR CHANNEL FUNCTION IS REGULATED BY CHOLESTEROL. **Guiying Cui**, Kirsten A. Cottrill, Kerry A. McGill, Barry Imhoff, Nael A. McCarty

**1234-Pos BOARD B336**  
ACTIVATION OF POTASSIUM CHANNEL AS A NEW STRATEGY TO BOOST ANTITUMOUR IMMUNE RESPONSE. **Seow Theng Ong**, Aik Seng Ng, Xuan Rui Ng, Lindsay Kua, Fiona YX Lee, Siqi Tan, Heesung Shim, Praseetha Prasannan, Ramanuj DasGupta, Iain BH Tan, Heike Wulff, K George Chandy, Navin K. Verma

**1235-Pos BOARD B337**  
NOVEL INHIBITORS OF THE CALCIUM-ACTIVATED  $K^+$  CHANNEL  $K_{Ca}3.1$  TO TREAT NON-ALCOHOLIC FATTY LIVER DISEASE AND LIVER FIBROSIS. **Seow Theng Ong**, Gemma Thomas, Srinivasaraghavan Kannan, Zhisheng Her, Xuan Rui Ng, Xinying Chew, Hai M. Nguyen, Heike Wulff, Chandra Verma, Qingfeng Chen, Mahmood Ahmed, K George Chandy

**1236-Pos BOARD B338**  
STRUCTURAL MODELING OF DRUG INTERACTIONS WITH HERG CHANNEL IN OPEN AND CLOSED STATES. **Aiyana M. Emigh**, Kevin R. DeMarco, Kazuharu Furutani, Jon T. Sack, Colleen E. Clancy, Igor V. Vorobyov, Vladimir Yarov-Yarovoy

**1237-Pos BOARD B339**  
BENEFICIAL EFFECT OF MITOCHONDRIAL CALCIUM UNIporter OVER-EXPRESSION IN A GUINEA PIG HEART FAILURE AND SUDDEN CARDIAC DEATH MODEL. **Ting Liu**, Brian O'Rourke

**1238-Pos BOARD B340 TRAVEL AWARDEE**  
IRTUINS POSITIVELY REGULATE  $K_{ATP}$  CHANNELS, WHICH CONTRIBUTES TO THEIR CARDIOPROTECTIVE ROLE. **Erkan Tuncay**, Hua-Qian Yang, Ivan Gando, Belma Turan, Ravichandran Ramasamy, William A. Coetzee

**1239-Pos BOARD B341 TRAVEL AWARDEE**  
PROBING  $Kv1.3$  INTERACTOME WITH PROXIMITY-DEPENDENT BIOTINYLAATION. **Vanessa Checchetto**, Elena Prosdociami, Roberta Peruzzo, JESUSA CAPERA ARAGONES, Luigi Leanza, Antonio Felipe, Ildikó Szabó

**1240-Pos BOARD B342**  
INHIBITION OF CONNEXION HEMICHANNELS BY NEW AMINOGLYCOSIDES WITHOUT ANTIBIOTIC ACTIVITY. **Abbey Kjellgren**, Mariana C. Fiori, Madher N. AlFindee, Yagya P. Subedi, Srinivasan Krishnan, Cheng-Wei T. Chang, Guillermo A. Altenberg

## Cytoskeletal Assemblies & Dynamics (Boards B343 - B357)

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STRUCTURAL MODEL FOR PREFERENTIAL MICROTUBULE MINUS END BINDING BY CAMSAP CKK DOMAINS. Joseph Atherton, Yanzhang Luo, Shengqi Xiang, Chao Yang, Annapurna Vemu, Marcel Stangier, Alexander Cook, Shana Wang, Kai Jiang, Michel Steinmetz, Antonina Roll-Mecak, Anna Akhmanova, Marc Baldus, **Carolyn A. Moores**

**1242-Pos BOARD B344 TRAVEL AWARDEE**  
A DYNAMIC TIME STEP METHOD IN CYTOSKELETAL SIMULATIONS. **Joseph Tibbs**, A. Pasha Tabatabai, Daniel S. Seara, Ali Tabei, Michael P. Murrell

**1243-Pos BOARD B345**  
RAPID TREADMILLING AND MYOSIN MOTORS SYNERGISTICALLY INDUCE FORMATION OF RING-LIKE ACTOMYOSIN ARCHITECTURES AND CORTEXES. **Qin Ni**, Arpita Upadhyaya, Garegin A. Papoian

**1244-Pos BOARD B346**  
SIMULATING EMERGENT SPATIOTEMPORAL ACTOMYOSIN DYNAMICS TO UNDERSTAND SPATIAL REGULATION OF NON-MUSCLE MYOSIN II. **Callie J. Miller**, Paul LaFosse, Sreeja Asokan, Jason Haugh, James E. Bear, Timothy C. Elston

**1245-Pos BOARD B347**  
THE PHYSICAL BASES OF FORMING A SMOOTH BOUNDARY BETWEEN AN EXPANDING ARP 2/3 ACTIN NETWORK AND A CONTRACTILE ACTOMYOSIN NETWORK. **Medha Sharma**, Tony Harris

**1246-Pos BOARD B348**  
SEPTIN HIERARCHICAL ASSEMBLY REVEALED BY HIGH-SPEED ATOMIC FORCE MICROSCOPY(HS-AFM). **Fang Jiao**, Kevin Cannon, Amy Gladfelder, Simon Scheuring

**1247-Pos BOARD B349**  
METAPHASE KINETOCHORE MOVEMENTS ARE REGULATED BY KINESIN-8 MOTORS AND MICROTUBULE DYNAMIC INSTABILITY. **Agneza Bosilj**, Anna Klemm, Iva Tolić, Nenad Pavin

**1248-Pos BOARD B350**  
FORCE REGULATION OF CAPPING AND ARP2/3 NUCLEATION OF BRANCHED ACTIN NETWORKS. **Tai-De Li**, Peter Bieling, Dyche Mullins, Daniel Fletcher

**1249-Pos BOARD B351**  
SPATIOTEMPORAL ORGANIZATION OF MICROTUBULES IN BRANCHED NETWORKS. **Akanksha Thawani**, Howard A. Stone, Joshua W. Shaevitz, Sabine Petry

**1250-Pos BOARD B352 TRAVEL AWARDEE**  
PIVOTING OF MICROTUBULES DRIVEN BY MINUS END DIRECTED MOTORS LEADS TO THEIR ALIGNMENT TO FORM AN INTERPOLAR BUNDLE. **Ivana Ban**, Marcel Prelogovic, Lora Winters, Iva Tolić, Nenad Pavin

**1251-Pos BOARD B353**  
NCKIPSD COORDINATES ARP2/3 AND FORMIN NUCLEATION OF ACTIN FILAMENTS IN THE CELL CORTEX. **LuYan Cao**, Amina Yonis, Malti Vaghela, Priyamvada Chugh, Pierre Bohec, Matt Smith, Genevieve Lavoie, Ewa K. Paluch, Philippe Roux, Antoine G. Jegou, Guillaume Charras, Guillaume Romet-Lemonne

**1252-Pos BOARD B354**  
DYNAMIC HAND-IN-HAND INTERACTION BETWEEN ACTIN AND SPECTRIN DURING MAMMALIAN CELL MECHANOADAPTATION. **Andrea Ghisleni**, Camilla Galli, Qinseng Li, Pascale Monzo, Paolo Maiuri, Nils Gauthier

**1253-Pos BOARD B355**  
COORDINATE ROLE OF VINCULIN AND METAVINCULIN IN ACTIN ORGANIZATION. **Sharon Campbell**, Muzaddid Sarker, Hyunna T. Lee, Laura Kim, Santiago Espinosa de los Reyes, Lin Mei, Andrey Krokhotin, Laura Constantini, Gregory M. Alushin, Nikolay V. Dokholyan, Jack D. Griffith

**1254-Pos BOARD B356**  
STRUCTURE OF THE TPM3.1 N-TERMINUS: A NEW TARGET FOR ANTI-CANCER TREATMENT. **Anita Ghosh**, Miro Janco, Till Böcking, Peter W. Gunning, William Lehman, Michael J. Rynkiewicz

**1255-Pos BOARD B357**  
QUANTIFYING DISSIPATION IN ACTOMYOSIN NETWORKS. **Carlos Floyd**, Christopher Jarzynski, Garegin A. Papoian

## Microtubules, Structure, Dynamics, and Associated Proteins (Boards B358 - B380)

**1256-Pos BOARD B358**  
EXPLORING THE UNFOLDASE MECHANISM OF MICROTUBULE SEVERING BY COARSE-GRAINED SIMULATIONS. **Rohith Anand Varikoti**, Jennifer L. Ross, Ruxandra I. Dima

**1257-Pos BOARD B359**  
KATANIN SPIRAL AND RING STRUCTURES SHED LIGHT ON POWER STROKE FOR MICROTUBULE SEVERING. **Elena A. Zehr**, Agnieszka Szyk, Grzegorz Piszczek, Ewa Szczesna, Xiaobing Zuo, Antonina Roll-Mecak

**1258-Pos BOARD B360**  
LENGTH-DEPENDENT PERSISTENCE LENGTH FOR MICROTUBULES SHORTER THAN 3 MICROMETERS. **Gretchen Niederriter**, Douglas S. Martin

**1259-Pos BOARD B361**  
STRUCTURAL TRANSFORMATION OF MICROTUBULES IN THE PRESENCE OF CATIONIC POLYMERS. **Juncheol Lee**, Chaeyon Song, Jimin Lee, Herb P. Miller, Leslie Wilson, Cyrus R. Safinya, Myung Chul Choi

**1260-Pos BOARD B362**  
CONDENSATION OF DIVALENT METAL IONS BY MAP-TAU REMODELS TAU-MICROTUBULE BUNDLE ARCHITECTURE. **Bretton Fletcher**, Chaeyon Song, Phillip Kohl, Peter J. Chung, Herbert Miller, Youli Li, Myung Chul Choi, Leslie Wilson, Stuart C. Feinstein, Cyrus R. Safinya

**1261-Pos BOARD B363**  
HIGHER ORDER ASSEMBLY STRUCTURES OF HUMAN TAU AND MICROTUBULES REGULATED BY IONIC STRENGTH. **Hasaeam Cho**, Jimin Lee, Juncheol Lee, Herbert P. Miller, Keong Sik Jin, Leslie Wilson, Stuart C. Feinstein, Cyrus R. Safinya, Myung Chul Choi

**1262-Pos BOARD B364**  
THE EFFECT OF SITE-SPECIFIC ACETYLATION BASED TAU MUTATIONS ON TAU-MICROTUBULE ASSOCIATIONS. **Christine Tchounwou**, Bretton Fletcher, Chaeyon Song, Phillip A. Kohl, Peter J. Chung, Herb P. Miller, Youli Li, Myung-Chul Choi, Leslie Wilson, Stuart C. Feinstein, Cyrus R. Safinya

**1263-Pos BOARD B365**  
PROBING STRUCTURAL FEATURES OF TAU BINDING TO TUBULIN AND MICROTUBULES. **Ho Yee Joyce Fung**, Elizabeth Rhoades

**1264-Pos BOARD B366**  
IMPACT OF AC ELECTRIC FIELDS ON MICROTUBULE DYNAMICS/IN VITRO. **Joseph M. Cleary**

**1265-Pos BOARD B367**  
MICROTUBULE NUCLEATION AND STABILIZATION BY DOUBLECOR-TIN. **Szymon W. Manka**, Carolyn A. Moores

**1266-Pos BOARD B368**  
STRUCTURE AND FUNCTION OF SURFACE-BOUND TAU. **Zachary J. Donhauser**

**1267-Pos BOARD B369**  
A FIRST-APPROXIMATION ESTIMATE OF FORCES REQUIRED FOR MICROTUBULE BREAKAGE. **Sharyn A. Endow**, Piotr E. Marszalek

**1268-Pos BOARD B370**  
LONG-RANGE MECHANICAL COUPLING IN THE MICROTUBULE LATTICE. **Maxim Igaev**, Helmut Grubmueller

**1269-Pos BOARD B371**  
MULTI-SCALE COMPUTATIONAL MODELING OF TUBULIN-TUBULIN INTERACTIONS IN MICROTUBULE SELF-ASSEMBLY FROM ATOMS TO CELLS. **Mahya Hemmat**, Brian T. Castle, David J. Odde

**1270-Pos BOARD B372**  
TUBULIN POLYMERIZATION-PROMOTING PROTEIN FAMILY MEMBER 3 (TPPP3) FACILITATES MICROTUBULE BUNDLING AND NETWORK FORMATION VIA ITS WEAK INTERACTION WITH MICROTUBULES. Takayuki Torisawa, Shuji Ishihara, **Kazuhiro Oiwa**

**1271-Pos BOARD B373**  
KINETOCHORE-MEDIATED MULTIVALENCY OF NDC80 COMPLEX CONTROLS MICROTUBULE END DYNAMICS AND FORCE-GENERATION. **Vladimir A. Volkov**, Pim J. Huis in 't Veld, Andrea Musacchio, Marileen Dogterom



**1272-Pos BOARD B374**

MECHANICAL STABILITY OF MICROTUBULE LATTICES - MOLECULAR DYNAMIC INDENTATION STUDIES. **Lukasz Szatkowski**, Merz Jr. R. Dale, Jennifer L. Ross, Ruxandra I. Dima

**1273-Pos BOARD B375**

MODULATION OF MICROTUBULE CURVATURE UNDER DIFFERENT CELLULAR CONDITIONS REVEALED BY IN-CELL CRYO-ELECTRON TOMOGRAPHY. **Julia Mahamid**, Saikat Chakraborty, Wolfgang Baumeister

**1274-Pos BOARD B376**

STRUCTURAL STUDIES OF CAP-GLY DOMAIN OF DYNACTIN ASSEMBLED WITH MICROTUBULES BY MAGIC ANGLE SPINNING NMR SPECTROSCOPY. **Changmiao Guo**, John C. Williams, Tatyana Polenova

**1275-Pos BOARD B377****TRAVEL AWARDEE**

TOWARDS AN UNDERSTANDING OF KIDNEY DISEASES ASSOCIATED WITH INHIBITION OF NOTCH SIGNALING PATHWAY BY TRANSMISSION ELECTRON MICROSCOPY. **Ishara Ratnayake**, Steve Smith, Indra Chandrasekar, Kameswaran Surendran, Phil Ahrenkiel

**1276-Pos BOARD B378**

TOPOLOGICAL PHONONS IN MICROTUBULES: THE LINK BETWEEN LOCAL STRUCTURE AND DYNAMICS OF MICROTUBULES. **Arooj Aslam**, Ssu-Ying Chen, Emil Prodan, Camelia Prodan

**1277-Pos BOARD B379**

RECONSTITUTION OF POM1 GRADIENT IN ELONGATED DROPLETS. **Renu Vishavkarma**

**1278-Pos BOARD B380**

COMPUTATIONAL STUDY OF ABL PATHWAY BASED AXONAL GUIDANCE. **Aravind Chandrasekaran**, Garegin A. Papoian, Edward Giniger

## Myosins and Smooth Muscle Mechanics, Structure, and Regulation (Boards B381 - B391)

**1279-Pos BOARD B381**

ATOMICALLY DETAILED SIMULATION OF THE POWERSTROKE IN MYOSIN II BY MILESTONING. **Katelyn Poole**, Ron Elber

**1280-Pos BOARD B382**

OPTICAL CONTROL OF FAST AND PROCESSIVE ENGINEERED MYOSINS IN VITRO AND IN LIVING CELLS. **Paul V. Ruijgrok**, Rajarshi P. Ghosh, Muneaki Nakamura, Sasha Zemsky, Robert Chen, Vipul Vachharajani, Jan T. Liphardt, Zev Bryant

**1281-Pos BOARD B383**

TRACKING OF LABELED MOTOR DOMAINS OF SINGLE FULL-LENGTH MYOSIN X ON ACTIN BUNDLES. **Xianan Qin**, Harry Chun Man Cheng, Jing Li, Hanna Yoo, Xiaoyan Liu, Tianming Lin, H. Lee Sweeney, Hyekeun Park

**1282-Pos BOARD B384**

THE ROLE OF NON-MUSCLE MYOSIN 2A AND 2B IN THE REGULATION OF MESENCHYMAL CELL CONTACT GUIDANCE. **Alexander S. Zhovmer**, Erdem Tabdanov, Houxun Miao, Han Wen, Jinqiu Chen, Xiaoling Luo, Xuefei Ma, Paolo Provenzano, Robert Adelstein

**1283-Pos BOARD B385**

ELECTROSTATIC INTERACTIONS WITHIN LOOP 1 AND THE FORCE GENERATION REGION OF HUMAN CARDIAC MYOSIN AFFECT THE RATE OF ACTOMYOSIN DISSOCIATION AND ADP RELEASE. **Akhil Gargay**, Jinghua Ge, Alex Grdzlishvili, Yaroslav Tkachev, Yuri E. Nesmelov

**1284-Pos BOARD B386**

TARGETING MECHANORESPONSIVE PROTEINS IN PANCREATIC CANCER: 4-HYDROXYACETOPHENONE BLOCKS DISSEMINATION AND INVASION BY ACTIVATING MYH14. **Alexandra Surcel**, Eric S. Schifffhauer, Dustin G. Thomas, Qingfeng Zhu, Kathleen DiNapoli, Maik Herbig, Oliver Otto, Angela Jacobi, Martin Kräter, Katarzyna Plak, Jochen Guck, Elizabeth M. Jaffee, Pablo A. Iglesias, Robert A. Anders, Douglas N. Robinson

**1285-Pos BOARD B387**

STATE DEPENDENT DYNAMIC COUPLING IN MYO1B DURING THE FORCE SENSITIVE TRANSITION AND MGADP RELEASE. **Ahmet Mentesh**, Henry Shuman, E. Michael Ostap

**1286-Pos BOARD B388**

THE S217A MUTANT SLOWS THE POWER STROKE AND PHOSPHATE RELEASE IN MYOSIN V. Laura K. Gunther, Wanjian Tang, **Christopher M. Yengo**

**1287-Pos BOARD B389**

DECIPHERING LOAD-INDUCED ANCHORING BY MYOSIN VI. **Rosemarie E. Gough**, Natalia Fili, Yukti Hari Gupta, Christopher P. Toseland

**1288-Pos BOARD B390**

KINETIC MODEL FOR MYOSIN GATING AND BACKWARD STEPPING MECHANISMS. **Mauro L. Mugnai**, Matthew A. Caporizzo, Yale E. Goldman, Dave Thirumalai

**1289-Pos BOARD B391**

AGING ALTERS FUNCTIONAL PROPERTIES OF CELL-MATRIX ADHESIONS IN VASCULAR SMOOTH MUSCLE CELLS. Harini Sreenivasappa, Briana Bywaters, Samuel Padgham, Song Yi Shin, Jerome P. Trzeciakowski, Christopher R. Woodman, **Andreea Trache**

## Cardiac Muscle Mechanics and Structure (Boards B392 - B415)

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MYOSIN BINDING PROTEIN H-LIKE REGULATES MYOFILAMENT CONTENT IN ATRIAL AND A SUBSET OF VENTRICULAR CONDUCTION SYSTEM CARDIOMYOCYTES. **David Y. Barefield**, Sheema Rahmenseshet, Thomas O'Leary, Jordan J. Sell, Megan J. Puckelwartz, Lisa D. Wilsbacher, Michael J. Previs, Elizabeth M. McNally

**1291-Pos BOARD B393**

DATP REDUCES THE DEPRESSIVE EFFECT OF ACIDOSIS ON CARDIAC AND SLOW TWITCH SKELETAL MUSCLE. **Saffie Mohran**, Mike Woodward, Romi Castillo, Matthew Whithers, Valerie Daggett, Edward Debold, Michael Regnier

**1292-Pos BOARD B394**

THE MECHANISTIC ROLE OF TROPOMYOSIN OVERLAP DYSREGULATION IN EARLY CARDIOMYOPATHIC DISEASE PROGRESSION. **Melissa L. Lynn**, Teryn A. Holeman, Lauren Tal-Grinspan, Andrea Deranek, Jill C. Tardiff

**1293-Pos BOARD B395**

MYOSIN AND MYBP-C-MUTATIONS IN HYPERTROPHIC CARDIOMYOPATHY: VARIABLE EFFECTS ON CALCIUM SENSITIVITY AND CONTRACTILE IMBALANCE FROM CELL TO CELL. Mirza Makul, Ante Radocaj, Pia Ernstberger, Judith Montag, Kathrin Kowalski, Britta Keyser, Andreas Perrot, Cris G. dos Remedios, Bernhard Brenner, **Theresia Kraft**

**1294-Pos BOARD B396**

POWER-LOAD CHARACTERISTICS OF HUMAN-DERIVED ENGINEERED HEART TISSUE IN RESPONSE TO CARDIOMYOPATHY MUTATIONS AND MYOSIN-TARGETED DRUGS. **Lorenzo R. Sewanan**, Stuart G. Campbell

- 1295-Pos BOARD B397**  
MYOFILAMENT LENGTH DEPENDENT ACTIVATION IN PORCINE CARDIAC MUSCLE. **Weikang Ma**, Robert Anderson, Marcus Henze, Henry Gong, Fiona Wong, Carlos del Rio, Thomas Irving
- 1296-Pos BOARD B398**  
ANNULMENT OF CARDIAC MUSCLE LENGTH-DEPENDENT FORCE ACTIVATION IN TRANSGENIC MICE BEARING THE HCTNT-I79N MUTATION. **Macon Landim Vieira**, Bjorn Knollmann, Hyun S. Hwang, J. Renato Pinto, P. Bryant Chase
- 1297-Pos BOARD B399**  
DEVELOPMENT OF AN ATOMISTIC STRUCTURE OF MYOSIN BOUND CARDIAC THIN FILAMENT AND FREE ENERGY DETERMINATION OF THE CLOSE TO OPEN TRANSITION. **Anthony Baldo**, Steven D. Schwartz
- 1298-Pos BOARD B400**  
THE OFF-TO-ON TRANSITION OF THICK FILAMENTS IN ISOLATED TRABECULAE FROM RAT HEART INDUCED BY COOLING. **Jesus Garcia Ovejero**, Luca Fusi, So-Jin Park-Holohan, Andrea Ghisleni, Theyencheri Narayanan, Malcolm Irving, Elisabetta Brunello
- 1299-Pos BOARD B401**  
ANTI-S2 PEPTIDES MODULATE MYOSIN COILED COIL STRUCTURE AND SHIFT FORCE- $p_{Ca}$  CURVES IN HUMAN CARDIAC MUSCLE. Bertrand C.W. Tanner, Kenneth S. Campbell, Motamed Qadan, Negar Aboonarsshiraz, Dua'a Quedan, Peter O. Awinda, Andrea Bernardino-Shaefer, **Douglas D. Root**
- 1300-Pos BOARD B402**  
IMPACT OF HUMAN BETA-CARDIAC MYOSIN MUTATION IMPLICATED IN BOTH HYPERTROPHIC AND DILATED CARDIOMYOPATHY. **Wanjian Tang**, Laura K. Gunther, Jonathan Cooper, Rohini Desetty, Christopher M. Yengo
- 1301-Pos BOARD B403**  
MOLECULAR DYNAMICS STUDIES OF SINGLE POINT MUTATIONS IN THE CARDIAC THIN FILAMENT. **Allison B. Smith**, Anthony Baldo, Natercia Braz, Steven D. Schwartz
- 1302-Pos BOARD B404**  
DESIGN OF BIOCOMPATIBLE LIQUID CRISTAL ELASTOMERS REPRODUCING THE MECHANICAL PROPERTIES OF HUMAN CARDIAC MUSCLE. Cecilia Ferrantini, J. Manu Pioner, Daniele Martella, Raffaele Coppini, Nicoletta Piroddi, Paolo Paoli, Martino Calamai, Francesco S. Pavone, Diederik Wiersma, Chiara Tesi, Elisabetta Cerbai<sup>10</sup>, Corrado Poggesi<sup>11</sup>, **Leonardo Sacconi**, Camilla Parmeggiani
- 1303-Pos BOARD B405**  
HUMAN BETA-CARDIAC MYOSIN CARDIOMYOPATHY MUTATIONS R712L AND E497D DISRUPT A KEY SALT-BRIDGE IN THE COUPLING DOMAIN. **Bipasha Barua**, Jennifer L. Atherton, Eva Forgacs, Donald A. Winkelmann
- 1304-Pos BOARD B406**  
ISOLATING THE PATHOLOGICAL CONTRIBUTION OF DETYROSINATED MICROTUBULES IN HUMAN MYOCARDIAL MECHANICS. **Matthew A. Caporizzo**, Christina Y. Chen, Kenneth Bedi, Kenneth B. Margulies, Benjamin L. Prosser
- 1305-Pos BOARD B407 TRAVEL AWARDEE**  
PREDICTING AND PREVENTING MYOCARDIAL REMODELING IN A MURINE MODEL OF DILATED CARDIOMYOPATHY. **Joseph D. Powers**, Galina Flint, Jil Tardiff, Michael Regnier, Farid Moussavi-Harami, Jennifer Davis
- 1306-Pos BOARD B408**  
MOLECULAR DYNAMICS STUDIES OF MYOSIN STRUCTURE WITH 2-DEOXY-ADP. **Matthew C. Childers**, Weikang Ma, Valerie Daggett, Mike Regnier

- 1307-Pos BOARD B409**  
COMPUTATIONAL AND EXPERIMENTAL INVESTIGATION OF CARDIAC TROPONIN T R173Q, R173W AND  $\Delta$ 160E MUTATION SPECIFIC CORRELATES TO DISEASE. **Andrea E. Deranek**, Anthony Baldo, Steven Schwartz, Jil C. Tardiff
- 1308-Pos BOARD B410**  
THE ROLE OF GSK3B MISLOCALIZATION IN ARRYTHMOGENIC CARDIOMYOPATHY. **Ronald Ng**, Stuart Campbell
- 1309-Pos BOARD B411**  
ISOMETRIC AND ISOTONIC TWITCH DYNAMICS IN OMECAMTIV MERCARBIL TREATED INTACT RAT CARDIAC TRABECULA. Brianna M. Schick, Alexandra R. Matus, **Charles S. Chung**
- 1310-Pos BOARD B412**  
MULTI-TIMEPOINT RNA-SEQUENCING REVEALS DIFFERENTIAL GENE EXPRESSION OF TRANSGENIC MOUSE MODELS OF HYPERTROPHIC AND DILATED CARDIOMYOPATHIES. **Shivani H. Desai**, Jil C. Tardiff, Melissa L. Lynn, Amanda M. Richards
- 1311-Pos BOARD B413**  
HUMAN CARDIAC MYOSIN-BINDING PROTEIN C N-TERMINAL DOMAINS COOPERATIVELY IMPACT ACTIN STRUCTURAL DYNAMICS. **Rhye-Samuel Kanassatega**, Thomas A. Bunch, Victoria C. Lepak, Brett A. Colson
- 1312-Pos BOARD B414**  
THE HCM-CAUSING Y235S CMYBPC MUTATION ACCELERATES CONTRACTILE FUNCTION BY ALTERING C1 DOMAIN STRUCTURE. **Chang Yoon Doh**, Jiayang Li, Ranganath Mamidi, Julian E. Stelzer
- 1313-Pos BOARD B415**  
MICROTUBULE ACETYLATION REGULATES CONTRACTILE KINETICS OF STRIATED MUSCLE. **Andrew K. Coleman**, Humberto C. Joca, George S.B. Williams, W. Jonathan Lederer, Chris W. Ward

## Mitochondria in Cell Life and Death (Boards B416 - B443)

- 1314-Pos BOARD B416**  
MITOCHONDRIAL METABOLIC FUNCTION IS AFFECTED BY INNER MEMBRANE MORPHOLOGY. **Nasrin Afzal**, Carmen Mannella, William J. Lederer, Mohsin S. Jafri
- 1315-Pos BOARD B417**  
AN AUTOMATED METHOD FOR SEGMENTING HIGHLY CONVOLUTED MITOCHONDRIAL INNER MEMBRANES FROM ELECTRON MICROSCOPIC TOMOGRAMS. **Raquel Adams**, Zheng Liu, Carmen A. Mannella, W. Jonathan Lederer, M. Saleet Jafri
- 1316-Pos BOARD B418 TRAVEL AWARDEE**  
OPTOGENETIC REGULATION OF MITOCHONDRIAL FUNCTION AND SYNAPTIC PLASTICITY IN VIVO. **Kristian M. Zapata**, Illya Aronskyy, Stephen Madamba, Pablo M. Peixoto
- 1317-Pos BOARD B419**  
DRUG SCREENING AND DISCOVERY STRATEGIES AT NANOSCALE MORPHOLOGY USING STRUCTURED ILLUMINATION MICROSCOPY. **Xintian Shao**, Qixin Chen, Peixue Ling, Jiajie Diao
- 1318-Pos BOARD B420**  
QUANTITATIVE ANALYSIS OF INTERACTIVE BEHAVIOR OF MITOCHONDRIA AND LYOSOMES USING STRUCTURED ILLUMINATION MICROSCOPY. **Qixen Chen**, Xintian Shao, Peixue Ling, Jiajie Diao
- 1319-Pos BOARD B421**  
MODELING THE INSERTION OF HEXOKINASE IN THE MITOCHONDRIAL OUTER MEMBRANE AND ITS COMPLEX FORMATION WITH VDAC. **Nandan Haloi**, Po-Chao Wen, Amadou KS Camara, Wai-Meng Kwok, Emad Tajkhorshid

**1320-Pos BOARD B422**  
DEVELOPING SPECIFIC SMALL-PEPTIDE INHIBITORS OF MITOCHONDRIAL VDAC. Philip A. Gurnev, David P. Hoogerheide, Sergey M. Bezrukov, **Tatiana K. Rostovtseva**

**1321-Pos BOARD B423**  
MITOCHONDRIAL GAIN-OF-FUNCTION BKCA CHANNEL ATTENUATES MITOCHONDRIAL DYSFUNCTION ASSOCIATED WITH HYPOXIC INJURY. Thomas Mancini, Jin O-uchi, Shanna Hamilton, Radmila Terentyeva, Gaurav Choudhary, Dmitry Terentyev, **Richard T. Clements**

**1322-Pos BOARD B424**  
SINGLE CHANNEL RECORDINGS OF MITO $BK_{Ca}$  CHANNEL FORMED BY BK-DEC SPLICE VARIANT. **Bogusz Kulawiak**, Shur Karolina Kucman, Justyna Jędraszko, Piotr Bednarczyk, Adam M. Szewczyk

**1323-Pos BOARD B425**  
MITOCHONDRIAL POTASSIUM CHANNELS: REGULATION BY GASEOUS TRANSMITTER. **Adam Szewczyk**, Agnieszka Walewska, Daria Rotko, Bogusz Kulawiak, Piotr Koprowski

**1324-Pos BOARD B426 TRAVEL AWARDEE**  
EFFECT OF STEROIDS ON MITOCHONDRIAL METABOLITE CHANNEL FUNCTION AND LIPID MEMBRANE PROPERTIES. **William M. Rosencrans**, Maria Queral-Martín, Amandine Rovini, Phillip A. Gurnev, Sergey M. Bezrukov, Tatiana K. Rostovtseva

**1325-Pos BOARD B427**  
MODULATION OF THE CHANNEL ACTIVITY OF THE C-SUBUNIT OF THE ATP SYNTHASE BY POLYPHOSPHATE AND POLYHYDROXYBUTYRATE. **Giuseppe F. Amodeo**, Magdalena Klim, Piotr Kurcok, Evgeny V. Pavlov

**1326-Pos BOARD B428**  
CA<sup>2+</sup>-DEPENDENT MITOCHONDRIAL PERMEABILITY TRANSITION PORE OPENING IN KIDNEY IS SUBSTRATE DEPENDENT. **Namrata Tomar**, Sunil M. Kandel, Nadezda Zheleznova, Said H. Audi, Allen W. Cowley Jr., Ranjan K. Dash

**1327-Pos BOARD B429**  
REGULATION OF THE PROTON LEAK IN MITOCHONDRIA. **Elena E. Pohl**

**1328-Pos BOARD B430**  
MITOCHONDRIAL MEMBRANE POTENTIAL OSCILLATIONS PERSIST DURING REPERFUSION AFTER ISCHEMIA IN MCU KNOCKOUT CARDIOMYOCYTES. **Deepthi Ashok**, Kyriakos Papanicolaou, Brian O'Rourke

**1329-Pos BOARD B431 TRAVEL AWARDEE**  
THE MCU INHIBITOR DS16570511 HAS OFF-TARGET EFFECTS ON MITOCHONDRIAL MEMBRANE POTENTIAL. **Riley Payne**, Carmen Li, Emily Fernandez-García, Horia Vais, Kevin Foskett

**1330-Pos BOARD B432**  
CARDIAC MITOCHONDRIA ULTRASTRUCTURAL AND FUNCTIONAL CHANGES CAUSED BY MASSIVE CALCIUM LOADING OBSERVED USING CRYO-EM AND HIGH-RESOLUTION RESPIROMETRY. **Jasiel O. Strubbe**, Jason Schrad, Kristin N. Parent, James F. Conway, Jason N. Bazil

**1331-Pos BOARD B433**  
CARDIAC CALCIUM SIGNALING AND MITOCHONDRIAL METABOLIC FUNCTION. **Nasrin Afzal**, Carmen A. Mannella, W. Jonathan Lederer, M. Saleet Jafri

**1332-Pos BOARD B434**  
MITOCHONDRIAL CALCIUM Deregulation IN TAU K18-TREATED CORTICAL NEURONS AND ASTROCYTES. **Elena Britti**, Noemi Esteras Gallego, Joaquim Ros, Andrey Y. Abramov

**1333-Pos BOARD B435**  
CALCIUM STIMULATION OF MITOCHONDRIAL RESPIRATION IS SUBSTRATE DEPENDENT AND TISSUE SPECIFIC. **Sunil M. Kandel**, Namrata Tomar, Nadezhda Zheleznova, Said H. Audi, Allen W. Cowley Jr., Ranjan K. Dash

**1334-Pos BOARD B436**  
DIFFERENTIAL REGULATION OF SUBSTRATE DEPENDENT MITOCHONDRIAL RESPIRATION IN THE HEART AND KIDNEY. **Sunil M. Kandel**, Namrata Tomar, Nadezda Zheleznova, Said H. Audi, Allen W. Cowley Jr., Ranjan K. Dash

**1335-Pos BOARD B437**  
CYCLOPHILIN D INHIBITION RESCUES HYPOXIA-INDUCED NEONATAL CARDIOMYOPATHY. Gisela Beutner, **George A. Porter, Jr**

**1336-Pos BOARD B438**  
SYSTEMIC METABOLOMICS AND MITOCHONDRIAL ENERGETICS IN HIGH- COMPARED TO LOW-RUNNING CAPACITY RATS AS A FUNCTION OF AGE. **Miguel A. Aon**, Andrew Lachance, Sarah J. Mitchell, Kelsey Bullock, Sonia Cortassa, Steven J. Sollott

**1337-Pos BOARD B439**  
THE COMPLEX CROSSTALK BETWEEN PARVALBUMIN AND MITOCHONDRIA REGULATION THROUGH CHANGES IN MITOCHONDRIAL DYNAMICS. **Lucia Lichvarova**, Thomas Henzi, Dzhamilija Safulina, Allen Kaasik, Beat Schwaller

**1338-Pos BOARD B440**  
THE EFFECTS OF ASTAXANTHIN ON AMYLOID BETA CHALLENGED HIPPOCAMPAL CELL GROWTH AND MITOCHONDRIAL FUNCTION DURING HYPOGLYCEMIA. **Marie L. Kelly-Worden**, Emma Cieslik, Julie A. Griffith

**1339-Pos BOARD B441 TRAVEL AWARDEE**  
MITOCHONDRIAL MEMBRANE POTENTIAL HETEROGENEITY IN CANCER CELLS IS INDEPENDENT OF THE CELL CYCLE AND INFLUENCES RESPONSE TO HYPERPOLARIZING AGENTS. **Morgan E. Morris**, Diana Fang, Kareem A. Heslop, Charleston F. Christie, Akos A. Gerencser, Martin D. Brand, Eduardo N. Maldonado

**1340-Pos BOARD B442**  
ST. JOHN'S WORTH EXTRACT INDUCES APOPTOSIS AND INHIBITS CANCER-RELATED INFLAMMATION IN BASAL CELL CARCINOMA CELL LINES. Ebru Celik, **M.Salih Celik**, H. Mahir Kaplan, Ergin Singirik

**1341-Pos BOARD B443 TRAVEL AWARDEE**  
LOSS OF MGR2P DESTABILIZES THE TIM23 CHANNEL AND REDUCES MITOCHONDRIAL EMISSION OF REACTIVE OXYGEN SPECIES. Oygul Mirzalieva, **Shinhye Jeon**, Kevin Damri, Ruth Hartke, Layla Drwesh, Keren Demishtein-Zohary, Abdussalam Azem, Cory D. Dunn, Pablo M. Peixoto

## Emerging Techniques and Synthetic Biology (Boards B444 - B453)

**1342-Pos BOARD B444**  
CHARACTERIZING DNA NANOTUBE NETWORKS ASSEMBLED VIA Y-JUNCTION DNA ORIGAMI SEEDS. **Michael S. Pacella**, Ruby Liu, Jasen Zhang, Tiffany Hou, Jonathan Gunn, Paul Vallejo, Pragya Singh, Marc Bordui, Altarash Barthakur, Rebecca Schulman

**1343-Pos BOARD B445**  
COMBINATIONAL GENETICALLY ENCODED TOOLBOX FOR CELL-SURFACE MUCIN BIOPOLYMER ENGINEERING. **Hao Pan**, Matthew Paszek

**1344-Pos BOARD B446**  
CREATION OF SCAFFOLD-FREE HUMAN-INDUCED PLURIPOTENT STEM CELL-DERIVED CARDIOMYOCYTES (HIPSC-CMS) CELL SHEETS FOR DRUG SCREENING AND REGENERATIVE MEDICINE. **Xie He**, Ana Da Silva Costa, Francis L. Burton, Godfrey L. Smith

**1345-Pos BOARD B447**  
INTEGRATION OF REACTION-DIFFUSION MASTER EQUATION AND BROWNIAN DYNAMICS METHODOLOGIES TO SIMULATE A MINIMAL CELL. **Tyler M. Earnest**, Michael J. Hallock, Zaida Luthy-Schulten

**1346-Pos BOARD B448**  
OPTOGENETIC DELINEATION OF RECEPTOR TYROSINE KINASE SUBCIRCUITS IN PC12 CELL DIFFERENTIATION. John Khamo, Vishnu Krishnamurthy, Qixin Chen, Jiajie Diao, **Kai Zhang**

**1347-Pos BOARD B449**  
THE PROPOSED MECHANISM BEHIND LYSE-IT<sup>(R)</sup>: A RAPID SAMPLE PREPARATION TECHNIQUE. **Tonya M. Santaus**, Christopher D. Geddes

**1348-Pos BOARD B450**  
SPY AND SNOOP SUPERGLUES ENHANCE ANCHORING AND TEAM-BUILDING IN BIOPHYSICS AND SYN BIO. **Mark Howarth**

**1349-Pos BOARD B451**  
A SEMI-SYNTHETIC APPROACH TO ENGINEER LIGAND- AND VOLTAGE-GATED ION CHANNELS IN LIVE CELLS. Keith K. Khoo, Jacopo Galleano, **Stephan A. Pless**

**1350-Pos BOARD B452**  
REMOVAL OF COLOUR FROM TEXTILE INDUSTRIAL EFFLUENT USING MODIFIED (EPOXIDIZED) AND UNMODIFIED RUBBER (HEVEA BRASILIENSIS) LATEX. **Sarah O. Oni**, A K. Akinlabi, A A. Adeagbo

**1351-Pos BOARD B453**  
CONTROLLED STIRRING OF BIOLOGICAL AND BIO-MIMETIC MICRODROPLETS. **Pierre-Yves Gires**, Mithun Thampi, Matthias Weiss

## Neuroscience: Experimental Approaches and Tools (Boards B454 - B461)

**1352-Pos BOARD B454**  
MORPHOLOGY OF HUMAN CYSTATIN C OLIGOMERS - TOWARDS THE CONSTRUCTION OF HCC NANODETECTOR. **Maciej Kozak**, Zuzanna Pietralik, Augustyn Molinski, Aneta Szymanska, Veronica Lindström, Anders Grubb, Michał Taube, Kosma Szutkowski

**1353-Pos BOARD B455**  
CONTROLLED PHOTOSENSITIZING ACTIVITY OF OLIGOMERIC *P*-PHENYLENE ETHYNYLENES ON AMYLOID-B FIBRILS. **Adeline M. Fanni**, Florencia A. Monge, Julia J. Hammond, Jennifer S. Martinez, David G. Whitten, Eva Y. Chi

**1354-Pos BOARD B456**  
STUDY OF BIOPHYSICAL PARAMETERS IN RUBI-GABA UNCAGING USING NON-LINEAR PHOTOACTIVATION AND ELECTROPHYSIOLOGY IN CEREBELLAR GRANULE CELLS. **Marco Cozzolino**, Virginia Bazzurro, Elena Gatta, Paolo Bianchini, Alberto Diaspro, Mauro Robello

**1355-Pos BOARD B457**  
ENGINEERING NOVEL GENETICALLY ENCODED VOLTAGE INDICATORS BASED ON INTRA-PROTEIN ELECTRON TRANSFER. **Martin J. Iwanicki**, Sohini Mukherjee, Christopher C. Moser, Brian Y. Chow, Bohdana M. Discher

**1356-Pos BOARD B458 TRAVEL AWARDEE**  
PROBING THE BIOPHYSICAL MECHANISMS OF INFRARED NEURAL STIMULATION WITH NONLINEAR RAMAN IMAGING. **Wilson R. Adams**, Manqing Wang, Rekha Gautam, E. Duco Jansen, Anita Mahadevan-Jansen

**1357-Pos BOARD B459**  
EFFECT OF AMYLOID FIBRIL OXIDATION ON ITS SEEDING POTENCY. **Daniel C. Okoye**, Adeline Fanni, David G. Whitten, Eva Y. Chi

**1358-Pos BOARD B460**  
A NEURONAL DYNAMIC CLAMP SYSTEM FOR ACTION POTENTIAL RECORDING IN HUMAN INDUCED PLURIPOTENT STEM CELL DERIVED NEURONS. Mark Nowak, Brian Panama, Brandon Franks, Randall Rasmusson, **Glenna Bett**

**1359-Pos BOARD B461**  
CHOLESTEROL FUNCTIONALIZATION OF GOLD NANOPARTICLES ENABLES NEURAL PHOTO-ACTIVATION. **Joao A. Carvalho-de-Souza**, Okhil K. Nag, Eunkeu Oh, Alan J. Huston, Igor Vurgafman, David Pepperberg, Francisco Bezanilla, James B. Delehanty

## Single-Molecule Spectroscopy II (Boards B462 - B475)

**1360-Pos BOARD B462**  
OPTICAL TWEEZERS WITH IRM, TIRF AND WIDEFIELD: STUDYING CYTOSKELETAL PROCESSES WITH OR WITHOUT THE NEED FOR FLUORESCENCE LABELING. **Trey Simpson**, Sara Tafoya, Ernie Au, Ali Raja, Willem Peutz, Andrea Candelli, Gerrit Sitters

**1361-Pos BOARD B463**  
A NOVEL CUVETTE-FCS SETUP FOR SINGLE MOLECULE MEASUREMENTS OF PROTEIN UNFOLDING AND EARLY STAGES OF PROTEIN AGGREGATION. **Kanchan Garai**, Bankanidhi Sahoo, Timir Sil

**1362-Pos BOARD B464**  
IMMUNOASSAY DETECTION USING DIRECT SINGLE-MOLECULE COUNTING. **Patrick J. Macdonald**, Qiaoqiao Ruan, Sergey Y. Tetin

**1363-Pos BOARD B465**  
MODEL FOR CONCERTED POWER STROKE GENERATION IN SINGLE MYOSIN V AND F<sub>1</sub>-ATPASE IMAGING TRAJECTORIES. **Sandor Volkan-Kacso**, Rudolph Marcus

**1364-Pos BOARD B466**  
INTERACTIONS BETWEEN A BIOFLAVONOID AND G-QUADRUPLEX DNA AT THE ENSEMBLE AND SINGLE-MOLECULE LEVEL. **Sneha Paul**, Anunay Samanta

**1365-Pos BOARD B467**  
A SINGLE-MOLECULE INVESTIGATION ON INTERFACIAL BASE-STACKING INTERACTION USING A CENTRIFUGE FORCE MICROSCOPE. **Jibin Abraham Punnoose**

**1366-Pos BOARD B468**  
QUANTITATIVE MEASUREMENTS OF SINGLE-MOLECULE FRET BETWEEN QUANTUM DOTS AND ORGANIC DYES. **Nooshin Shateri Nejad**, Candice M. Etson

**1367-Pos BOARD B469**  
VERSATILE TOOLS TOWARDS REAL-TIME SINGLE-MOLECULE BIOLOGY. **Trey Simpson**, Sara Tafoya, Ernie Au, Ali Raja, Willem Peutz, Andrea Candelli

**1368-Pos BOARD B470**  
A SINGLE BIOMOLECULE INTERFACE FOR ADVANCING THE SENSITIVITY, SELECTIVITY AND ACCURACY OF SINGLE-MOLECULE DETECTION. **Yi-Tao Long**, Yaqian Wang, Meng-Yin Li, Jie Yang

**1369-Pos BOARD B471**  
A NOVEL APPROACH FOR SINGLE MOLECULE OBSERVATION OF DNA LOOPS FORMED BY TOXR-RNA POLYMERASE COMPLEX, LACI, AND DMPR. **Xuelin Jin**, Kyubong Jo

**1370-Pos BOARD B472**  
DETAILED KINETICS OF RNA FOLDING PATHWAYS AND THERMODYNAMIC ORIGINS OF CROWDING BY SINGLE-MOLECULE FRET. **Hsuan-Lei Sung**, Abhigyan Sengupta, David J. Nesbitt

**1371-Pos BOARD B473**  
FTSN BRIDGES THE FTSZ-TREADMILLING AND SEPTAL PEPTIDOGLYCAN SYNTHESIS. **Zhixin Lyu**, David Weiss, Jie Xiao

**1372-Pos BOARD B474 TRAVEL AWARDEE**  
EXPLORING CONFORMATIONAL DYNAMICS IN EGFR USING SINGLE-MOLECULE SPECTROSCOPY. **Shwetha Srinivasan**, Raju Regmi, Steven Quinn, Wei He, Vandna Kukshal, John Monsey, Kermit L. Carraway III, Ron Bose, Matthew A. Coleman, Gabriela S. Schlau-Cohen

**1373-Pos BOARD B475**  
SINGLE-MOLECULE ANALYSIS OF SPLICEOSOME ACTIVATION KINETICS REVEALS MULTIPLE INTERMEDIATE STATES. **Xingyang Fu**, Aaron A. Hoskins

## Optical Microscopy and Superresolution Imaging II (Boards B476 - B502)

**1374-Pos BOARD B476**  
SIMPLE AND FIDUCIAL-FREE DRIFT CORRECTION FOR SUPER-RESOLUTION IMAGING OF CELLULAR STRUCTURES. Michael J. Wester, **Sandeep Pallikkuth**, Hanieh Mazloom-Farsibaf, Mohamadreza Fazel, Keith A. Lidke

**1375-Pos BOARD B477**  
MULTIMODAL LABEL FREE STOKES/MUELLER MATRIX AND NON LINEAR SCANNING MICROSCOPY. **Aymeric Le Gratiet**, Riccardo Marongiu, Paolo Bianchini, alberto diaspro

**1376-Pos BOARD B478**  
CHALLENGES AND OPPORTUNITIES FOR CHARACTERIZING THE ASSEMBLY OF NUCLEAR ENVELOPE PROTEINS BY FLUORESCENCE FLUCTUATION SPECTROSCOPY. **Jared Hennen**, Kwang Ho Hur, John Kohler, GW Gant Luxton, Joachim D. Mueller

**1377-Pos BOARD B479**  
QUANTITATIVE SUPER-RESOLUTION MICROSCOPY OF ENDOGENOUSLY TAGGED AUTOPHAGY PROTEINS IN MAMMALIAN CELLS. **Chiranjib Banerjee**

**1378-Pos BOARD B480**  
QUANTIFYING INTRACELLULAR MASS GENERATION USING QUANTITATIVE PHASE MICROSCOPY. **Soorya Pradeep**, Thomas A. Zangle

**1379-Pos BOARD B481**  
CHROMATIN ALTERATIONS IN A MODEL OF ONCOGENE ACTIVATION STUDIED BY ADVANCED FLUORESCENCE MICROSCOPY. **Luca Lanzano'**, Michele Oneto, Isotta Cainero, Simone Pelicci, Maria Sarmiento, Lorenzo Scipioni, Mario Faretta, Laura Furia, Gaetano Ivan Dellino, Pier Giuseppe Pelicci, Paolo Bianchini, Alberto Diaspro

**1380-Pos BOARD B482**  
DYNAMICS OF ACTIVATING AND INHIBITORY RECEPTORS IN MURINE NATURAL KILLER CELLS REVEALED BY 2D PAIR CORRELATION FUNCTION ANALYSIS. **Per Niklas Hedde**, Elina Staaf, Sunitha Bagawath Singh, Sofia Johansson, Enrico Gratton

**1381-Pos BOARD B483**  
TYPE 3 SECRETION SYSTEM CHAPERONE-EFFECTOR DYNAMICS IN LIVE *YERSINIA ENTEROCOLITICA*. **Alecia M. Achimovich**, Alma Rivera, Julian Rocha, Andreas Gahlmann

**1382-Pos BOARD B484 TRAVEL AWARDEE**  
LABEL FREE MICROSCOPY WITH PTYCHOGRAPHY. **Nicholas S. Anthony**, Paolo Bianchini, Alberto Diaspro

**1383-Pos BOARD B485**  
UNDERSTANDING COMPLEX SINGLE MOLECULE EMISSION PATTERNS WITH DEEP LEARNING. **Peiyi Zhang**, Sheng Liu, Abhishek Chaurasia, Donghan Ma, Michael J. Mlodzianoski, Eugenio Culurciello, Fang Huang

**1384-Pos BOARD B486**  
Z-SCANNING IN VOLUMETRIC 2-PHOTON OR LIGHT-SHEET MICROSCOPY WITH A FAST VOICE-COIL DRIVEN FOCUSING SYSTEM. **Gert Rapp**, Christian Schulze, Thomas Oertner, Florian Huhn

**1385-Pos BOARD B487**  
POST-EXPANSION STORM ENABLES IMAGING BEYOND SUPER-RESOLUTION LIMITS. **Xiaoyu Shi**, Arthur Tran, Xiaomeng Wang, Ian Seiple, Bo Huang

**1386-Pos BOARD B488**  
TWO-PHOTON IMAGING OF NADH IN SKH1 MICE REVEALS CHANGES IN KERATINOCYTE METABOLISM WITH CHRONIC UVA EXPOSURE. Dominick Myers, Katie D. Sotelo, Marifel Frances Gabriel, Kelsey A. Jackson, Brooke L. Yang, Ben G. Huerter, Dan L. Che, Molly Myers, Duyen Nguyen, Laura A. Hansen, **Michael G. Nichols**

**1387-Pos BOARD B489**  
COMPUTATIONAL CORRECTION OF SPATIALLY-VARIANT OPTICAL ABERRATIONS IN 3D SINGLE-MOLECULE LOCALIZATION MICROSCOPY. **Ting Yan**, Charles Richardson, Mingxing Zhang, Andreas Gahlmann

**1388-Pos BOARD B490 TRAVEL AWARDEE**  
AN ALTERNATIVE FRAMEWORK FOR FLUORESCENCE CORRELATION SPECTROSCOPY. **Sina Jazani**, Ioannis Sgouralis, Omer M. Shafraz, Sanjeevi Sivasankar, Steve Pressé

**1389-Pos BOARD B491**  
AIRYSCAN CCA PROVIDES STRUCTURAL AND DYNAMICS FINGERPRINTING OF SUBCELLULAR COMPARTMENTS IN LIVING CELLS. **Lorenzo Scipioni**, Luca Lanzano', Alberto Diaspro, Enrico Gratton

**1390-Pos BOARD B492**  
LOCALIZATION ERROR AND FITTING MODEL EVALUATION IN SINGLE PARTICLE TRACKING. **Francesco Reina**, James Ross, Mark Howarth, Christian Eggeling, B. Christoffer Lagerholm

**1391-Pos BOARD B493**  
MULTIFOCUS STRUCTURE ILLUMINATION MICROSCOPY. **Juliana Hernandez**, Sara Abrahamsson

**1392-Pos BOARD B494**  
LENS CHARACTERIZATION FOR MULTIFOCUS MICROSCOPY APPLICATIONS. **Brandon J. Lynch**

**1393-Pos BOARD B495**  
STRUCTURED ILLUMINATION REVEALS REDUCED CHROMATIN COHESION IN CELLS WITH DNA DAMAGE. **Keith Bonin**, Amanda Smelser, Naïke Salvador Moreno, George Holzwarth, Dave Segall, Pierre-Alexandre Vidi

**1394-Pos BOARD B496**  
PHOTOSWITCHING ANISOTROPY FRET FOR MONITORING HOMO-OLIGOMERIZATION OF PROTEINS. Namrata Ojha, Kristin Rainey, **George H. Patterson**

**1395-Pos BOARD B497**  
AUTOFLUORESCENCE SUPPRESSION BY OPTICALLY CONTROLLING DARK STATES OF PHOTOSWITCHABLE FLUORESCENT PROTEINS ON COMMERCIAL MICROSCOPES. **Yen-Cheng Chen**, Chetan Sood, Robert M. Dickson, Gregory B. Melikyan

**1396-Pos BOARD B498**  
ULTRA-SENSITIVE DETECTION OF PERIPHERAL MEMBRANE PROTEIN BINDING TO THE PLASMA MEMBRANE OF LIVING CELLS. Isaac Angert, **John Kohler**, Siddarth Reddy Karuka, Morgan E. Meissner, Louis M. Mansky, Joachim D. Mueller

**1397-Pos BOARD B499**  
ACTIVE PSF SHAPING AND ADAPTIVE OPTICS ENABLE VOLUMETRIC SINGLE MOLECULE SUPER-RESOLUTION MICROSCOPY THROUGH BRAIN SECTIONS. Michael Mlodzianoski, Paul Cheng-Hathaway, Sheng Liu, Shane Bemiller, Tyler McCray, David Miller, Bruce Lamb, Gary Landreth, **Fang Huang**

**1398-Pos BOARD B500**  
3D MICROSCOPY-INDEPENDENT APPROACH FOR OBTAINING 3D SUPER-RESOLUTION INFORMATION IN ROTATIONALLY SYMMETRIC BIO-STRUCTURES. **Andrew Ruba**, Wangxi Luo, Joseph Kelich, Weidong Yang

**1399-Pos BOARD B501**  
RESTRICTING DIFFUSIVE EXCHANGE *IN VITRO* DEMONSTRATES INOS MODULATES HYPOXIC GRADIENTS IN THE TUMOR MICROENVIRONMENT. **Caroline Gilmore**, Veena Somasundaram, David Scheiblin, William Heinz, Stephen Lockett, David Wink

**1400-Pos BOARD B502**  
PROTEIN DIMERIZATION PROBED WITH SITE-SPECIFIC ATTACHED SINGLE NANOPARTICLES. **Joerg Wissler**, Sandra Bäcker, Alessandro Feis, Shirley Knauer, Sebastian Schlücker

## EPR and NMR: Spectroscopy and Imaging (Boards B503 - B512)

**1401-Pos BOARD B503**  
CONFIDENCE ANALYSIS OF DEER DATA AND ITS STRUCTURAL INTERPRETATION WITH ENSEMBLE-BIASED METADYNAMICS. **Eric J. Hustedt**, Fabrizio Marinelli, Richard A. Stein, José D. Faraldo-Gómez, Hassane Mchaourab

**1402-Pos BOARD B504 TRAVEL AWARDEE**  
ELECTRON PARAMAGNETIC RESONANCE ELUCIDATES THE STRUCTURAL MECHANISM BY WHICH SERCA IS ACTIVATED BY DWORF. **Mark D. Rustad**, Peter D. Martin, Daniel R. Stroik, Christine B. Karim

**1403-Pos BOARD B505**  
SITE-DIRECTED SPIN LABELING EPR STUDIES ON THE CATALYTIC ASPARTATE LOOP OF EXOU UPON INTERACTION WITH UBIQUITIN AND MEMBRANES. **Samantha Kohn**, Jimmy B. Feix

**1404-Pos BOARD B506**  
WATER PROTON FLOW-NMR—A NOVEL TOOL FOR REAL-TIME IN-LINE PROCESS MONITORING IN BIOMANUFACTURING. **Marc B. Taraban**, Katharine T. Briggs, Yihua Bruce Yu

**1405-Pos BOARD B507**  
LOW-FIELD NMR IN NONDESTRUCTIVE QUANTITATIVE INSPECTION OF DRUG PRODUCTS. **Katharine T. Briggs**, Marc B. Taraban, Yihua B. Yu

**1406-Pos BOARD B508**  
QUANTITATIVE BINDING OF DIVALENT METAL IONS TO DNA HAIRPIN LOOPS. **Harrison Russell**, William Gunderson, Julie Gunderson

**1407-Pos BOARD B509**  
HIGHLY SENSITIVE RESONATORS FOR EPR SPECTROSCOPY OF SUBMICROLITER/SUBMICROMOLAR BIOMACROMOLECULAR SAMPLES. **Nandita Abhyankar**, Amit Agrawal, Robert McMichael, Szalai Veronika

**1408-Pos BOARD B510**  
AORTIC ATHEROSCLEROSIS WITH CONSIDERATION OF THE ANISOTROPIC PROPERTIES OF LIPIDS IN MRI. **Erik N. Taylor**, Nasi Huang, Matthew Diamse, Farzad Mortazavi, Markus Bachschmid, James A. Hamilton

**1409-Pos BOARD B511**  
ORTHOGONAL <sup>19</sup>F-LABELLING FOR SIMULTANEOUS RECEPTOR AND LIGAND TRACKING IN TITRATIONS. Jeff Simmons, Alexandre Murza, Éric Marsault, **Jan K. Rainey**

**1410-Pos BOARD B512**  
ACCURATE MEASUREMENT AND PREDICTION OF <sup>15</sup>N<sup>H</sup> AND <sup>13</sup>C<sup>A</sup> CHEMICAL SHIFT TENSORS IN PROTEINS. **Matthew Fritz**, Caitlin M. Quinn, Mingzhang Wang, Guangjin Hou, Xingyu Lu, Leo Koharudin, Jochem Struppe, David A. Case, Angela M. Gronenborn

## Computational Methods and Bioinformatics I (Boards B513 - B541)

**1411-Pos BOARD B513**  
INTRODUCING A NOVEL MULTI-LEVEL METHOD FOR SIMULATING THE PH DEPENDENCE OF CHARGE STATE FLUCTUATIONS AND CONFORMATIONAL ENSEMBLES OF INTRINSICALLY DISORDERED PROTEINS. **Martin J. Fossat**, Ammon E. Posey, Rohit V. Pappu

**1412-Pos BOARD B514 TRAVEL AWARDEE**  
ION-HYDROXYL INTERACTIONS: FROM HIGH-LEVEL QUANTUM BENCHMARKS TO TRANSFERABLE POLARIZABLE FORCE FIELDS. **Vered Wineman-Fisher**, Yasmine Al-Hamdani, Iqbal Adduo, Alexandre Tkatchenko, Sameer Varma

**1413-Pos BOARD B515 TRAVEL AWARDEE**  
INCORPORATING PROTEINS INTO GEOMETRICALLY COMPLEX, CELL-SCALE MEMBRANE MODELS FOR MOLECULAR DYNAMICS SIMULATIONS. **Noah Trebesch**, Emad Tajkhorshid

**1414-Pos BOARD B516**  
PYTHEAS: A SOFTWARE TO MAP RNA MODIFICATIONS VIA TANDEM MASS SPECTROMETRY. **Luigi D'Ascenzo**, Anna Popova, James R. Williams

**1415-Pos BOARD B517**  
MAINMAST-MELD-MDFF: *DENOVO*STRUCTURE-DETERMINATION WITH DATA-GUIDED MOLECULAR DYNAMICS. Alberto Perez, Mrinal Shekhar, Genki Terashi, Daisuke Kihara, Ken A. Dill, Emad Tajkhorshid, **Abhishek Singharoy**

**1416-Pos BOARD B518**  
TRANSFER LEARNING FOR EFFICIENT SEGMENTATION OF SUBCELLULAR STRUCTURES IN 3-D ELECTRON MICROSCOPY. **Matthew D. Guay**, Zeyad A. Emam, Adam B. Anderson, Richard D. Leapman

**1417-Pos BOARD B519**  
HIGH-THROUGHPUT REFINEMENT OF CRYOEM-BASED STRUCTURES. **Chaoyi Xu**, Alexander J. Bryer, Juan R. Perilla

**1418-Pos BOARD B520**  
FROM FRET MEASUREMENTS TO DATABASE DEPOSITION OF INTEGRATIVE STRUCTURAL MODELS. **Christian A. Hanke**, Hayk Vardanyan, Mykola Dimura, Claus A.M. Seidel

**1419-Pos BOARD B521**  
FISIK: FRAMEWORK FOR THE INFERENCE OF IN SITU INTERACTION KINETICS FROM SINGLE-MOLECULE IMAGING DATA. **Luciana R. de Oliveira**, Robel Yirdaw, Khuloud Jaqaman

**1420-Pos BOARD B522**  
CAN HYDROGEN-DEUTERIUM EXCHANGE RATES AT SINGLE RESIDUE LEVEL BE OBTAINED FROM HDX-MS DATA? **Emanuele Paci**, Roman Tuma, Simon Skinner, Jeanine J. Houwing-Duistermaat

**1421-Pos BOARD B523**  
CHARMM-GUI NMR STRUCTURE CALCULATOR: A WEB-BASED TOOL FOR CALCULATING BIOMOLECULAR NMR STRUCTURES. **Jumin Lee**, Yuanpeng J. Huang, Gaetano T. Montelione, Wonpil Im

**1422-Pos BOARD B524**  
A NEW WEB SERVER FOR THE IDENTIFICATION OF NOVEL NUCLEIC ACID STRUCTURAL MOTIFS AND THEIR INTERACTIONS WITH PROTEINS. **Shuxiang Li**, Xiang-Jun Lu, Wilma K. Olson

**1423-Pos BOARD B525**  
GDASH: A GENOMICS DASHBOARD INTEGRATING MODELING AND INFORMATICS. **Zilong Li**, Ran Sun, Thomas Connor Bishop

**1424-Pos BOARD B526**  
ON THE USE OF SHORT RESEEDING TRAJECTORIES TO SAMPLE MARKOV STATE MODELS. **Hongbin Wan**, Vincent Voelz

**1425-Pos BOARD B527**  
AUTOMATIC ASSIGNMENT OF BONDED FORCE FIELD PARAMETERS FOR SMALL MOLECULES USING MACHINE LEARNING. **Praveer Narwelkar**, Hui Sun Lee, Sihong Xie, Wonpil Im

**1426-Pos BOARD B528**  
DEFINING CONFORMATIONAL STATES OF PROTEINS USING DIMENSIONALITY REDUCTION AND CLUSTERING ALGORITHMS. **Eugene Klyshko**, Sarah Rauscher

**1427-Pos BOARD B529**  
AN EFFICIENT ALGORITHM TO CALCULATE THE COMMON SOLVENT ACCESSIBLE VOLUME. **In Jung Kim**

**1428-Pos BOARD B530**  
CHARMM-GUI MULTICOMPONENT ASSEMBLER FOR MODELING AND SIMULATION OF COMPLEX HETEROGENEOUS BIOMOLECULAR SYSTEMS. **Nathan R. Kern**

**1429-Pos BOARD B531**  
A STOCHASTIC SPATIAL SIMULATION METHOD FOR SELF-ASSEMBLY REACTIONS. **Marcus Thomas**, Russell S. Schwartz

**1430-Pos BOARD B532**  
ELECTROSTATIC FORCE DRIVEN MOLECULAR DYNAMICS SIMULATIONS. Yunhui Peng, **Mahesh Koirala**, Emil Alexov

**1431-Pos BOARD B533**  
A NEW OPEN SOURCE TOOLKIT FOR SEGMENTING 3D INTRACELLULAR STRUCTURES IN MICROSCOPY IMAGES. **Matheus Palhares Viana**, Susanne Rafelski

**1432-Pos BOARD B534**  
A SYSTEMATIC APPROACH TO UNDERSTANDING MACROMOLECULAR CROWDING EFFECTS ON BIOMOLECULAR INTERACTIONS THROUGH COMPUTATIONAL "TOY" MODELS. **Rachel Kim**, Mala L. Radhakrishnan

**1433-Pos BOARD B535**  
CALCULATION OF PROTEIN-PROTEIN BINDING FREE ENERGIES USING UMBRELLA SAMPLING WITH DUAL RESOLUTION WATER MODELS. **Jagdish Suresh Patel**, F. Marty Ytreberg

**1434-Pos BOARD B536**  
CHARMM-GUI LIGAND BINDER FOR RELATIVE BINDING FREE ENERGY CALCULATIONS. **Seonghoon Kim**, Wonpil Im

**1435-Pos BOARD B537**  
ONE NANOMETER PRECISION BY BAYESIAN GROUPING OF LOCALIZATIONS. **Mohamadreza Fazel**, Bernd Rieger, Ralf Jungmann, Keith A. Lidke

**1436-Pos BOARD B538**  
IMPLICIT SOLVENT CALCULATIONS AT LARGE SCALE VIRUS-LEVEL POISSON-BOLTZMANN AND MULTISCALE SIMULATIONS FOR ELECTROSTATICS. Matias Martinez, Horacio Vargas-Guzman, **Christopher D. Cooper**

**1437-Pos BOARD B539**  
UNSUPERVISED LEARNING OF CONFORMATIONAL STATES PRESENT IN MOLECULAR DYNAMICS SIMULATION DATA FOR SUMMARIZATION OF EQUILIBRIUM CONFORMATIONAL DYNAMICS. **Kazi Lutful Kabir**, Nasrin Akhter, Amarda Shehu

**1438-Pos BOARD B540**  
GENETIC MUTATION CLASSIFICATION USING MACHINE LEARNING. Hamad Farooq, **Naeem Rehmat**, Sanjay Kumar, Hammad Naveed

**1439-Pos BOARD B541**  
CHARACTERIZATION OF SPECTRAL FEATURE UPON CELLULAR MORPHODYNAMICS AND ITS APPLICATION. **Xiao Ma**, Ellen O'Shaughnessy, Klaus M. Hahn, Gaudenz Danuser

## Micro- and Nanotechnology I (Boards B542 - B556)

**1440-Pos BOARD B542**  
SOFT MATERIAL PROGRAMMING THROUGH THE SPATIOTEMPORAL RELEASE OF OLIGONUCLEOTIDES. **Moshe Rubanov**, Phillip Dorsey, Dominic Scalise, Wenlu Wang, Rebecca Schulman

**1441-Pos BOARD B543 TRAVEL AWARDEE**  
DETECTION AND MAPPING OF DSDNA BREAKS USING GRAPHENE NANOPORE TRANSISTOR. **Nagendra Athreya**, Olgica Milenkovic, Jean-Pierre Leburton

**1442-Pos BOARD B544**  
AUTOCHEMOPHORETIC DNA MOTORS GENERATE 100+ PICONEWTON FORCES. **Aaron Blanchard**, Khalid Salaita

**1443-Pos BOARD B545**  
OPTICALLY ASSISTED LOCALIZATION OF SOLID-STATE NANOPORE DURING CONTROLLED BREAKDOWN FABRICATION. **Kamyar Akbari Roshan**, Weihua Guan

**1444-Pos BOARD B546**  
NANOFLUIDIC CHIPS FOR DNA AND NANOPARTICLES DETECTION AND MANIPULATION. **Denise Pezzuoli**, Elena Angeli, Diego Repetto, Giuseppe Firpo, Patrizia Guida, Roberto Lo Savio, Luca Repetto, Ugo Valbusa

**1445-Pos BOARD B547**  
BIOMIMETIC, VOLTAGE-SENSITIVE NANOPORES WITH LOCAL CONTROL OVER PORE POSITION, SIZE AND SURFACE CHEMISTRY. Cody Combs, Nick Teslich, Elif T. Acar, Francesco Fornasiero, Zuzanna S. Siwy, **Steven F. Buchsbaum**

**1446-Pos BOARD B548**  
A ROBUST MECHANISM TO RENDER ARTIFICIAL NANOPORES POTASSIUM ION SELECTIVE. Elif T. Acar, Steven Buchsbaum, **Cody Combs**, Francesco Fornasiero, Zuzanna S. Siwy

**1447-Pos BOARD B549**  
COMPARING UBIQUITIN AND INSULIN TRANSLOCATION DYNAMICS THROUGH A NANOPORE IN AN ELECTRICALLY BIASED SOLID-STATE MEMBRANE. **Craig C. Wells**, Dmitriy V. Melnikov, Maria E. Gracheva

**1448-Pos BOARD B550**  
BROWNIAN DYNAMICS WITH SELF-CONSISTENT FORCE CALCULATIONS FOR A NEUTRAL NANOPARTICLE TRANSLOCATING THROUGH A NANOPORE. Zachery K. Hulings, Dmitriy V. Melnikov, **Maria E. Gracheva**

**1449-Pos BOARD B551**  
VARIATIONS IN ELECTROSMOTIC FLOW OUTSIDE GLASS NANOPORES WITH SPECIES OF MONOVALENT CATION. **Jeffrey Mc Hugh**, Kurt Andresen, Ulrich F. Keyser

**1450-Pos BOARD B552**  
PHOTOTHERMALLY-ASSISTED LIPID BILAYER COATING ON A SIN NANOPORE FOR HIGH-THROUGHPUT PROTEIN CHANNEL FORMATION. **Hirohito Yamazaki**, Yinghua Qiu, Xinqi Kang, Meni Wanunu

**1451-Pos BOARD B553**  
HIGHLY-STABLE BIO-INSPIRED PEPTIDE/MOS2 MEMBRANES FOR EFFICIENT WATER DESALINATION. **Bedanga Sapkota**, Laxmi Pandey, Abdelkrim Benabbas, Meni Wanunu

**1452-Pos BOARD B554**

ARRAY OF FREESTANDING PLANAR LIPID BILAYERS FOR PARALLEL OPTICAL AND ELECTRICAL RECORDINGS. **Gerhard Baaken**, Ekaterina Zaitseva, Soenke Petersen, Taras Sych, Kubick Stefan, Jan C. Behrends

**1453-Pos BOARD B555**

PH RESPONSIVE MORPHOLOGICAL CHANGE IN POLYMER NANOSTRUCTURES. **Ryan L. Hamblin**, Stacy M. Copp, Gabriel A. Montaña

**1454-Pos BOARD B556**

CHARACTERIZATION OF BIOCOMPATIBLE NANOPARTICLES FOR BIOPHYSICAL AND BIOMEDICAL APPLICATIONS. **Vincent J. Altimari**, Louis Remy, Stephen C. Hickey, Cara Mawson, Hannah M. Work, Charles D. Hughes, Nathaniel V. Nucci

**Biomaterials (Boards B557 - B565)****1455-Pos BOARD B557**

SOLVENT-FREE CRYOSTORAGE OF MICROORGANISMS USING ICE GROWTH INHIBITING POLYMERS. **Muhammad Hasan**, Alice Fayter, Matthew I. Gibson

**1456-Pos BOARD B558**

AN ALGORITHM TO CONSTRUCT BIOLOGICALLY RELEVANT CHONDROITIN SULFATE BIOPOLYMER MODELS AT ATOMIC RESOLUTION. Elizabeth K. Whitmore, Gabriel Vesenka, Hanna Sihler, **Olgun Guvench**

**1457-Pos BOARD B559**

LIGNIN-CELLULOSE BINDING AFFINITY DEPENDENCE ON CELLULOSE FACE AND LIGNIN COMPOSITION. **Josh V. Vermaas**, Gregg T. Beckham, Michael F. Crowley

**1458-Pos BOARD B560**

FLOW IMAGING MICROSCOPY OF A SELF-ASSEMBLING PROTEIN POLYMER MATERIAL. **Eva Rose M. Balog**

**1459-Pos BOARD B561**

INVESTIGATIONS INTO THE MECHANISM OF FIBRIL FORMATION IN A PEPTIDE HYDROGEL. **Gabriel A. Braun**, Sara S. Linse, Karin Akerfeldt Akerfeldt

**1460-Pos BOARD B562**

SELF-HEALING DNA-BASED REACTION-DIFFUSION PATTERNS. **Phillip J. Dorsey**, Rebecca Schulman

**1461-Pos BOARD B563**

CARBON NANOTUBE PORINS IN BLOCK COPOLYMERS AS FULLY SYNTHETIC MIMICS OF BIOLOGICAL MEMBRANES. **Aleksandr Noy**

**1462-Pos BOARD B564**

LOCATION-LOCATION-LOCATION: DESIGNING CATIONIC CHARGE PLACEMENT ON LIPID VESICLES DETERMINES THEIR INTERACTIONS WITH LIVING CELLS. **Aprameya Ganesh Prasad**, Dominick Salerno, Alaina K. Howe, Omkar Mandar Bhatavdekar, Stavroula Sofou

**1463-Pos BOARD B565**

EFFECTS OF AGING ON THE VISCOELASTIC PROPERTIES OF TISSUES AND CANCER CELL BEHAVIOR. **Seungman Park**, Jiaxiang Tao, Li Sun, Chen-Ming Fan, Yun Chen



# Tuesday, March 5, 2019

## Daily Program Summary

All rooms are located in the *Baltimore Convention Center* unless noted otherwise.

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7:30 AM–5:00 PM	Registration/Information	Charles Street Lobby
8:00 AM–9:00 AM	Biophysical Society Business Meeting	Room 324/325/326
8:00 AM–4:00 PM	Poster Viewing	Exhibit Hall
8:15 AM–10:15 AM	<p><b>Symposium: Proteins: Dynamics and Allostery</b>  <b>Chair:</b> <i>Rommie Amaro, University of California, San Diego</i></p> <p>NMR WHY BOTHER. <i>Lewis Kay</i>            COLD ADAPTATION IN AN ENZYME CAN BE DRIVEN BY DYNAMIC ALLOSTERY. <i>Vincent Hilser</i>            CAVITIES IN CONTEXT: DISTINCT CONSEQUENCES OF PACKING DEFECTS IN A REPEAT PROTEIN FOLDING LANDSCAPE. <i>Catherine A. Royer</i>            PROTEIN DYNAMICS IN CELLULAR ENVIRONMENTS. <i>Rommie E. Amaro</i></p>	Ballroom I
8:15 AM–10:15 AM	<p><b>Symposium: Function and Signaling at the Membrane</b>  <b>Chair:</b> <i>Mark McLean, University of Illinois at Urbana-Champaign</i></p> <p>MEMBRANE PERMEABILIZATION IN CELL DEATH SIGNALING. A SINGLE MOLECULE APPROACH. <i>Ana García-Sáez</i>            MITOCHONDRIAL BEHAVIOR. <i>Jodi Nunnari</i>            THE HEAT, STEROIDS AND PROTONS AS DRIVERS OF FLAGELLAR MOTILITY. <i>Polina V. Lishko</i>            UNDERSTANDING THE ROLE OF ANIONIC LIPIDS IN THE INTERACTION OF KRAS4B WITH THE MEMBRANE SURFACE. <i>Mark A. McLean</i></p>	Ballroom II
8:15 AM–10:15 AM	Platform: Functional Dynamics in Transcription and Translation	Ballroom III
8:15 AM–10:15 AM	Platform: Membrane Proteins II	Ballroom IV
8:15 AM–10:15 AM	Platform: Ion Channel Regulatory Mechanisms	Room 307/308
8:15 AM–10:15 AM	Platform: Molecular Dynamics II	Room 309/310
8:15 AM–10:15 AM	Platform: Biophysics and Neuroscience	Room 314/315
9:00 AM–10:30 AM	Subgroup Chairs Meeting	Room 331
9:30 AM–10:30 AM	<p>Career Development Center Workshop:            Looking Beyond Academia: Identifying Your Career Options using MyIDP, LinkedIn &amp; More</p>	Exhibit Hall A
9:30 AM–11:00 AM	<p>Exhibitor Presentation: Sophion Bioscience A/S            Electrophysiological Characterization Using Automated Patch Clamp (QPatch and Qube) of hiPSC-Derived Neurological Disease Models, New Automated Patch Clamp Ion Channel Assays for CiPA Cardiac Safety Testing (Dynamic hERG and LQT3 Late Nav1.5) and Nav1.7 Drug Discovery</p>	Room 303
10:00 AM–4:00 PM	Exhibits	Exhibit Hall
10:15 AM–11:00 AM	Coffee Break	Exhibit Hall
10:45 AM–12:45 PM	<p><b>Symposium: Awards</b>  <b>Chair:</b> <i>Angela Gronenborn, University of Pittsburgh and BPS President</i></p> <p>MODELING THE DYNAMICS OF CDC42 OSCILLATION IN FISSION YEAST. <i>Bin Xu</i>            TECHNOLOGY DEVELOPMENT TOWARDS THE UNDERSTANDING OF G-PROTEIN COUPLED RECEPTOR STRUCTURE FUNCTION. <i>Raymond C. Stevens</i>            FINDING ORDER IN DISORDER: FUNCTIONAL STUDIES OF DYSFUNCTIONAL PROTEINS. <i>Elizabeth Rhoades</i>            MANY SINGLE MOLECULES. <i>Jeff Gelles</i>            FUNCTIONAL PROTEIN FIBRILS AS ANTIBACTERIAL AGENTS AND TARGETS. <i>Meytal Landau</i>            LAURDAN GP FOR THE QUANTITATION OF LIPID PHASES. <i>Enrico Gratton</i>            SURFACE PROGRAMMING OF PROTEIN HYDRATION WATER DYNAMICS REVEALED BY OVERHAUSER DYNAMIC NUCLEAR POLARIZATION. <i>Song-I Han</i>            EXPLORING THE RIBOSOME WITH FRIENDS: MYSTERIES OF THE MOTHER SHIP. <i>Harry Noller</i>            A (SCIENTIFIC) LIFETIME AFFAIR WITH NUCLEIC ACIDS. <i>Juli Feigon</i></p>	Ballroom I

10:45 AM–12:45 PM	Platform: Systems Biology and Genetic Regulatory Networks	Ballroom II
10:45 AM–12:45 PM	Platform: Microtubule-based Motors	Ballroom III
10:45 AM–12:45 PM	Platform: Protein Structure and Conformation III	Ballroom IV
10:45 AM–12:45 PM	Platform: Voltage-gated Na and Ca Channels	Room 307/308
10:45 AM–12:45 PM	Platform: Exocytosis & Endocytosis	Room 309/310
10:45 AM–12:45 PM	Platform: Biosensors	Room 314/315
10:45 AM–12:45 PM	Platform: Membrane Physical Chemistry II	Room 316/317
11:30 AM–12:30 PM	Career Development Center Workshop: The Industry Interview: What you need to do before, during, and after to get the job	Exhibit Hall A
12:00 PM–1:30 PM	Founding, Establishing, and Maintaining a Research Laboratory at Primarily Undergraduate Institutions	Room 318/319/320
12:00 PM–1:30 PM	Postdoc to Faculty Q&A: Transitions Forum and Luncheon	Room 331/332
1:15 PM–2:45 PM	Nurturing a More Inclusive STEM Enterprise by Understanding our Biases	Room 324/325/326
1:30 PM–3:00 PM	The Nuts and Bolts of Preparing Your NIH Grant	Room 321/322/323
1:30 PM–3:00 PM	Industry Panel	Room 327/328/329
1:45 PM–3:00 PM	Snack Break	Exhibit Hall
1:45 PM–3:45 PM	Poster Presentations and Late Posters	Exhibit Hall
2:30 PM–3:30 PM	Career Development Center Workshop: Nailing the Job Talk, or Erudition Ain't Enough	Exhibit Hall A
3:00 PM–5:00 PM	Education Committee Meeting	Room 333
4:00 PM–6:00 PM	<b>Symposium: Determining Molecular Networks</b> <i>Chair: Edward Marcotte, University of Texas at Austin</i>  FINDING AND INTERPRETING GENETIC INTERACTIONS USING PERTURB-SEQ SINGLE CELL RNA-SEQ CRISPR SCREENS. <i>Jonathan Weissman</i> DECODING THE HUMAN GENOME WITH MACHINE LEARNING APPROACHES. <i>Olga Troyanskaya</i> THE PROTEOTYPE MODEL. <i>Rudolf Aebersold</i> A MASS SPECTROMETRY-BASED MAP OF CORE EUKARYOTIC PROTEIN COMPLEXES. <i>Edward Marcotte</i>	Ballroom I
4:00 PM–6:00 PM	<b>Symposium: Transporters and Channels</b> <i>Chair: Diana Bautista, University of California, Berkeley</i>  CRYO-EM STRUCTURES AND MECHANISM OF HUMAN MULTIDRUG ABC TRANSPORTERS. <i>Kaspar Locher</i> MITOCHONDRIAL POTASSIUM CHANNELS AS DETERMINANTS OF CELL FATE. <i>Ildiko Szabo</i> STRUCTURAL INVESTIGATION OF VOLTAGE-GATED SODIUM CHANNELS. <i>Nieng Yan</i> SHINGOSINE-1-PHOSPHATE RECEPTOR 3 (S1PR3) SIGNALING MEDIATES MECHANICAL PAIN. <i>Diana Bautista</i>	Ballroom II
4:00 PM–6:00 PM	Platform: Protein-Nucleic Acid Interactions/Chromatin and the Nucleoid I	Ballroom III
4:00 PM–6:00 PM	Platform: Protein Structure, Prediction, Design, and Misfolding	Ballroom IV
4:00 PM–6:00 PM	Platform: Member Organized Session: Multiscale Modeling of Biophysical Systems	Room 307/308
4:00 PM–6:00 PM	Platform: Bacterial Mechanics, Cytoskeleton, and Motility	Room 309/310
4:00 PM–6:00 PM	Platform: Force Spectroscopy and Scanning Probe Microscopy	Room 314/315
4:00 PM–6:00 PM	Platform: Membrane Dynamics and Curvature	Room 316/317
6:00 PM–6:30 PM	Dinner Meet-Ups	Society Booth/Charles Street Lobby
6:00 PM–10:00 PM	Publications Committee Meeting	Hilton, Calloway

7:30 PM–9:30 PM	<p><b>Workshop: The Role of Data Resources in Biophysics</b>  <b>Chair:</b> <i>Helen Berman, Rutgers University</i></p> <p>RCSB PROTEIN DATA BANK: SUSTAINING A LIVING DIGITAL DATA RESOURCE THAT ENABLES BREAKTHROUGHS IN SCIENTIFIC RESEARCH AND BIOMEDICAL EDUCATION. <i>Stephen K. Burley</i>  REACTOME - PATHWAY CONTEXT AND VISUALISATION FOR OMICS DATA. <i>Henning Hermjakob</i>  UNIPROT THE UNIVERSAL PROTEIN KNOWLEDGEBASE IN THE GIGAPROTEIN ERA. <i>Alex Bateman</i>  NCBI DATABASES IN SUPPORT OF BIOPHYSICS RESEARCH. <i>David Landsman</i>  ARCHIVING OF INTEGRATIVE/HYBRID STRUCTURAL MODELS. <i>Helen Berman</i></p>	Room 307/308
7:30 PM–9:30 PM	<p><b>Workshop: Methods for Integrative Structure Modeling of Biomolecular Systems</b>  <b>Chair:</b> <i>Jens Meiler, Vanderbilt University</i></p> <p>HIGH-RESOLUTION, INTEGRATIVE MODELLING OF BIOMOLECULAR COMPLEXES. <i>Alexandre M.J.J. Bonvin</i>  ROSETTA TOOLS FOR CRYOEM MODELING. <i>Frank DiMaio</i>  PROTOTYPING MULTISCALE CELLULAR VISUALIZATION &amp; MODELING TECHNIQUES FOR HYPOTHESIS GENERATION, COMMUNICATION &amp; LEARNING. <i>Graham Johnson</i>  MODELING PROTEIN MONOMERS AND COMPLEXES USING RESTRAINTS FROM CROSSLINKING MASS SPECTROMETRY. <i>Maya Topf</i>  INTEGRATED STRUCTURAL BIOLOGY FOR ALPHA-HELICAL MEMBRANE PROTEIN STRUCTURE DETERMINATION. <i>Jens Meiler</i></p>	Room 309/310
7:30 PM–9:30 PM	<p><b>Workshop: Squeezing the Most Out of Your Data - Bayesian Statistical Inference for Biophysics</b>  <b>Chair:</b> <i>Michael Nilges, Pasteur Institute, France</i></p> <p>BAYESIAN STRUCTURAL MODELING OF LARGE BIOMOLECULAR SYSTEMS. <i>Michael Habeck</i>  SIMULTANEOUS DETERMINATION OF PROTEIN STRUCTURE AND DYNAMICS USING CRYO-ELECTRON MICROSCOPY. <i>Mas-similiano Bonomi</i>  MACHINE LEARNING METHODS TO PUSH ALL-ATOM MD BEYOND THE SECONDS TIMESCALE AND SIMULATE PROTEIN-PROTEIN ASSOCIATION AND DISSOCIATION. <i>Frank Noé</i>  CLOSING THE LOOP IN AUTOMATED DESIGN AND MEASUREMENT: SCALABLE BAYESIAN INFERENCE FOR BIOPHYSICAL EXPERIMENTS. <i>John Chodera</i>  BAYESIAN MODELLING IN INTEGRATIVE STRUCTURAL BIOLOGY. <i>Michael Nilges</i></p>	Room 314/315
7:30 PM–9:30 PM	<p><b>Workshop: Methods for X-Ray Tomography and Electron Microscopy</b>  <b>Chair:</b> <i>Carolyn Larabell, Lawrence Berkely National Laboratory</i></p> <p>ELECTRON CRYOMICROSCOPY OF ROTARY ATPASES. <i>John Rubinstein</i>  TOWARDS NEAR-ATOMIC RESOLUTION FOR IN SITU STRUCTURES BY CRYO-ELECTRON TOMOGRAPHY. <i>Peijun Zhang</i>  BISPECTRAL INVARIANTS FOR IMAGE CLASSIFICATION AND ALIGNMENT IN CRYOEM. <i>Steven J. Ludtke</i>  HYBRID MODELING APPROACHES TO STUDY STRUCTURES AND DYNAMICS OF BIOLOGICAL SYSTEMS. <i>Florence Tama</i>  CT SCANS OF SINGLE CELLS WITH SOFT X-RAY TOMOGRAPHY. <i>Carolyn A. Larabell</i></p>	Room 316/317
7:30 PM–9:30 PM	<p><b>Workshop: Single-Molecule Methods</b>  <b>Chair:</b> <i>Bo Huang, University of California, San Francisco</i></p> <p>MOLECULAR HIGHWAYS - TORSIONAL CONSEQUENCES OF DNA MOTOR PROTEINS. <i>Michelle Wang</i>  FROM SINGLE MOLECULE FLUORESCENCE TO SUPERENZYME ENGINEERING AND BEYOND. <i>Taekjip Ha</i>  PROVIDING 3D FOR SUPER-RESOLUTION MICROSCOPY AND SINGLE-PARTICLE TRACKING IN CELLS WITH SINGLE MOLECULES. <i>William Moerner</i>  REVEALING THE INNER WORKING OF MOLECULAR MACHINERIES USING IN-VIVO SINGLE MOLECULE IMAGING. <i>Jie Xiao</i>  MAPPING THE INNER WORLD OF CELLS. <i>Bo Huang</i></p>	Room 318/319/320
8:00 PM–10:00 PM	<p><b>SOBLA (The Society for Latinoamerican Biophysicists) Meeting</b></p>	Room 327/328/329

# Tuesday, March 5

## Registration/Information

7:30 AM - 5:00 PM, CHARLES STREET LOBBY

## Biophysical Society Business Meeting

8:00 AM - 9:00 AM, ROOM 324/325/326

## Poster Viewing

8:00 AM - 4:00 PM, EXHIBIT HALL

## Symposium

### Proteins: Dynamics and Allostery

8:15 AM - 10:15 AM, BALLROOM I

#### Chair

*Rommie Amaro, University of California, San Diego*

**1464-SYMP** 8:15 AM  
NMR WHY BOTHER. **Lewis Kay**

**1465-SYMP** 8:45 AM  
COLD ADAPTATION IN AN ENZYME CAN BE DRIVEN BY DYNAMIC ALLOSTERY. **Vincent Hilser**

**1466-SYMP** 9:15 AM  
CAVITIES IN CONTEXT: DISTINCT CONSEQUENCES OF PACKING DEFECTS IN A REPEAT PROTEIN FOLDING LANDSCAPE. **Catherine A. Royer**

**1467-SYMP** 9:45 AM  
PROTEIN DYNAMICS IN CELLULAR ENVIRONMENTS. **Rommie E. Amaro**

## Symposium

### Function and Signaling at the Membrane

8:15 AM - 10:15 AM, BALLROOM II

#### Chair

*Mark McLean, University of Illinois at Urbana-Champaign*

**1468-SYMP** 8:15 AM  
MEMBRANE PERMEABILIZATION IN CELL DEATH SIGNALING. A SINGLE MOLECULE APPROACH. **Ana García-Sáez**

**1469-SYMP** 8:45 AM  
MITOCHONDRIAL BEHAVIOR. **Jodi Nunnari**

**1470-SYMP** 9:15 AM  
THE HEAT, STEROIDS AND PROTONS AS DRIVERS OF FLAGELLAR MOTILITY. **Polina V. Lishko**, Nadja Mannowetz, Nadine Mundt, Melissa Miller, Samuel Kenny, Ke Xu, Ida T. Bjoerkgren

**1471-SYMP** 9:45 AM  
UNDERSTANDING THE ROLE OF ANIONIC LIPIDS IN THE INTERACTION OF KRAS4B WITH THE MEMBRANE SURFACE. **Mark A. McLean**, Michael C. Gregory, Tyler Camp, Stephen G. Sligar

## Platform

### Functional Dynamics in Transcription and Translation

8:15 AM - 10:15 AM, BALLROOM III

#### Co-Chairs

*Zeliha Kilib, Arizona State University*  
*Robert Shelansky, University of California, Santa Cruz*

**1472-PLAT** 8:15 AM  
MIMICKING COTRANSCRIPTIONAL RIBOSWITCH FOLDING VIA A SUPER-HELICASE UNWINDING ASSAY. Boyang Hua, **Christopher P. Jones**, P.J. Murray, Rebecca Rosenthal, Adrian Ferré-D'Amaré, Taekjip Ha

**1473-PLAT** 8:30 AM  
TRANSCRIPTIONAL BURSTING, SPECIFICITY, AND THE DYNAMIC NUCLEOSOME. **Robert I. Shelansky**, Heta Patel, Tineke Lenstra, Sara Abrahamson, Hinrich Boeger

**1474-PLAT** 8:45 AM  
MONITORING STRUCTURAL TRANSITIONS IN RNA POLYMERASE USING SINGLE MOLECULE FRET. **Abhishek Mazumder**

**1475-PLAT** 9:00 AM  
TRANSCRIPTIONAL ACTIVATION BY GLUCOCORTICOID RECEPTOR STUDIED BY 3D ORBITAL TRACKING FLUORESCENCE CROSS CORRELATION SPECTROSCOPY. **Julianna A. Goelzer**, Diana A. Stavreva, Gordon L. Hager, Matthew L. Ferguson

**1476-PLAT** 9:15 AM  
PRE-MRNA SPLICING: THE GENE MATURATION SYMPHONY OF THE INTRON LARIAT SPLICEOSOME REVEALED BY MOLECULAR DYNAMICS SIMULATIONS. **Lorenzo Casalino**, Giulia Palermo, Angelo Spinello, Ursula Roethlisberger, Alessandra Magistrato

**1477-PLAT** 9:30 AM  
BAYESIAN NONPARAMETRIC ANALYSIS OF TRANSCRIPTIONAL PROCESSES. **Zeliha Kilib**, Steve Pressé

**1478-PLAT** 9:45 AM  
PROTEIN SYNTHESIS KINETICS IN LIVE CELLS APPROACHED BY SINGLE-MOLECULE TRACKING MICROSCOPY. **Ivan L. Volkov**, Martin Lindén, Kaweng Leong, Mikhail Metelev, Kalle Kipper, Johan Elf, Magnus Johansson

**1479-PLAT** 10:00 AM  
SINGLE MOLECULE IMAGING OF C9ORF72 RNA AND REPEAT ASSOCIATED NON-ATG TRANSLATION IN LIVE CELLS. **Malgorzata J. Latallo**, Shaopeng Wang, Nathan Livingston, Shuying Sun, Bin Wu

## Platform

### Membrane Proteins II

8:15 AM - 10:15 AM, BALLROOM IV

#### Co-Chairs

*Parmryd Ingela, University of Gothenburg, Sweden*  
*Maria Kurnikova, Carnegie Mellon University*

**1480-PLAT** 8:15 AM  
MOLECULAR MECHANISM OF TRPM2 GATING. **Tianmin Fu**

**1481-PLAT** 8:30 AM  
SURFACE-BASED BIOCHEMICAL ACTIVITY ASSAYS COMPLEMENT ATOMIC FORCE MICROSCOPY OF THE *E. COLI* TRANSLOCASE. **Kanokporn Chattrakun**, Chunfeng Mao, Priya Bariya, Gavin King

**1482-PLAT** 8:45 AM  
MECHANISM OF CHOLESTEROL SENSING IN THE NIEMANN PICK PROTEIN (NPC1) USING MOLECULAR DYNAMICS SIMULATIONS. **Vikas Dubey**, Behruz Bozorg, Daniel Wüstner, **Himanshu Khandelia**

**1483-PLAT 9:00 AM TRAVEL AWARDEE**  
CLC ANTI-PORTER DIMERIZATION DYNAMICS REVEALED BY NOVEL DEVELOPMENTS IN HIGH-SPEED AFM. **George R. Heath**, Janice L. Robertson, Simon Scheuring

**1484-PLAT 9:15 AM**  
A MULTI-STATE COARSE-GRAINED SIMULATION MODEL CAPTURES CONFORMATIONAL CYCLING IN P-TYPE ATPASES. **Yong Wang**, Noureldin Saleh, Xiakun Chu, Kresten Lindorff-Larsen

**1485-PLAT 9:30 AM**  
FAST, ATOMIC-LEVEL AFM AND MAGNETIC TWEEZERS SIMULATIONS OF THE UNFOLDING OF MEMBRANE PROTEINS USING A NEW MEMBRANE BURIAL POTENTIAL WITH H-BONDING. **Zongan Wang**, John M. Jumper, Karl F. Freed, Tobin R. Sosnick

**1486-PLAT 9:45 AM**  
CONTROLLING THE FOLDING AND MISFOLDING OF POTASSIUM CHANNELS. **Kevin C. Song**, Younghoon Koh, Eduardo Perozo, Benoit Roux, Tobin R. Sosnick

**1487-PLAT 10:00 AM**  
CHIMERIC HCN CHANNELS FOR STUDYING CAMP-INDUCED CONFORMATIONAL CHANGES IN THE C-LINKER. **Bianca Introini**, Andrea Saponaro, Alessio Bonucci, Oliver Rauh, Francesca Cantini, Lucia Banci, Gerhard Thiel, Anna Moroni

## Platform Ion Channel Regulatory Mechanisms

8:15 AM - 10:15 AM, Room 307/308

### Co-Chairs

*Anna Moroni, University of Milan, Italy*  
*Panpan Hou, Washington University in St. Louis*

**1488-PLAT 8:15 AM**  
STRUCTURAL RESPONSE OF THE PIEZO CHANNEL UPON APPLICATION OF FORCE. **Yi-Chih Lin**, Yusong R. Guo, Atsushi Miyagi, Jesper Levring, Roderick MacKinnon, Simon Scheuring

**1489-PLAT 8:30 AM**  
CHARACTERIZATION OF TEMPERATURE-DEPENDENT GATING IN ARCHAE-BACTERIAL CALCIUM ACTIVATED POTASSIUM CHANNEL. **Yihao Jiang**, Baron Chanda

**1490-PLAT 8:45 AM**  
A PHARMACOLOGICAL MASTERKEY MECHANISM TO UNLOCK THE SELECTIVITY FILTER GATE IN  $K^+$  CHANNELS. **Marcus Schewe**, Han Sun, Alexandra Mackenzie, Ashley C. W. Pike, Friederike Schulz, Christina Constantin, Aytug K. Kiper, Linus J. Conrad, Wendy Gonzalez, Bert L. de Groot, Niels Decher, Bernd Fakler, Elisabeth P. Carpenter, Stephen J. Tucker, Thomas Baukrowitz

**1491-PLAT 9:00 AM**  
PH DEPENDENCE OF A MONOMERIC NON-CONDUCTING VOLTAGE-GATED PROTON CHANNEL ( $H_v1$ ). **Emerson M. Carmona**, Osvaldo Alvarez, Alan Neely, Ramon Latorre, Carlos Gonzalez

**1492-PLAT 9:15 AM**  
STRUCTURES REVEAL OPENING OF THE STORE-OPERATED CALCIUM CHANNEL ORAI. **Xiaowei Hou**, Shana R. Burstein, Stephen B. Long

**1493-PLAT 9:30 AM**  
DEVELOPING SYNTHETIC PEPTIDES TO REGULATE NATIVE HCN CHANNELS. **Andrea Saponaro**, Francesca Cantini, Alessandro Porro, Annalisa Bucchi, Dario DiFrancesco, Vincenzo Maione, Michal Laskowski, Pietro Mesirca, Matteo Mangoni, Gerhard Thiel, Lucia Banci, Bina Santoro, Anna Moroni

**1494-PLAT 9:45 AM**  
MATRIX  $Ca^{2+}$  MODULATES MITOCHONDRIAL UNI-PORTER (MCU) ACTIVITY BY FLUX-THROUGH EFFECTS. **Horia Vais**, Riley Payne, Don-On Daniel Mak, Kevin J. Foskett

**1495-PLAT 10:00 AM**  
A NON-CANONICAL VSD-PORE COUPLING IN KCNQ CHANNELS. **Panpan Hou**, Jingyi Shi, Jianmin Cui

## Platform Molecular Dynamics II

8:15 AM - 10:15 AM, Room 309/310

### Co-Chairs

*Lucie Delemotte, KTH Royal Institute of Technology, Sweden*  
*Joseph Rudzinski, Max Planck Institute, Germany*

**1496-PLAT 8:15 AM**  
FINDING MULTIPLE REACTION PATHWAYS VIA GLOBAL OPTIMIZATION OF ACTION. **Juyong Lee**, In-Ho Lee, InSuk Joung, Jooyoung Lee, Bernard R. Brooks

**1497-PLAT 8:30 AM**  
ROBUST ESTIMATION OF FREE ENERGY LANDSCAPES FROM GAUSSIAN MIXTURE MODELS WITH CROSS-VALIDATION. **Lucie Delemotte**, Annie M. Westerlund, Christian Blau

**1498-PLAT 8:45 AM**  
IMPROVED PHYSICAL MODELS ENABLE THE INVESTIGATION OF MOLECULAR RECOGNITION IN INTRINSICALLY DISORDERED PROTEINS AT ATOMISTIC RESOLUTION. **Paul Robustelli**, Stefano Piana-Agostinetti, Alain Ibáñez de Opakua, Fabrizio Giordanetto, Cecily K. Campbell-Bezat, Stefan Becker, Albert C. Pan, Markus Zweckstetter, David E. Shaw

**1499-PLAT 9:00 AM**  
ACCURATE ESTIMATION OF PROTEIN-BINDING KINETICS USING MARKOV STATE MODELS. **Youngchan Kim**, Tiara A. Maula, Jeetain Mittal

**1500-PLAT 9:15 AM**  
BROWNIAN DYNAMICS STUDY OF CAMP DEGRADATION IN PHOSPHODIESTERASE AND ENZYME METABOLISM IN THE TCA CYCLE. **Yu-ming Mindy Huang**, Gary Huber, James McCammon

**1501-PLAT 9:30 AM**  
CONFORMATIONALLY-DEPENDENT SURFACE HOPPING FOR REPRODUCING STRUCTURAL CROSS-CORRELATIONS WITH COARSE-GRAINED MODELS. Tristan Bereau, **Joseph F. Rudzinski**

**1502-PLAT 9:45 AM**  
MULTISCALE MODELING FOR PEPTIDE SELF-ASSEMBLY. Xiaochuan Zhao, Chenyi Liao, **Jianing Li**

**1503-PLAT 10:00 AM**  
BRIDGING THE SCALES: A MACHINE LEARNING DIRECTED MACRO TO MICRO SCALE SIMULATION TO MODEL RAS INITIATION OF CANCER. **Helgi I. Ingólfsson**, Dwight V. Nissley, Fred Streit

## Platform Biophysics and Neuroscience

8:15 AM - 10:15 AM, Room 314/315

### Co-Chairs

*Padmini Rangamani, University of California, San Diego*  
*Ann-Sofie Cans, Chalmers University of Technology, Sweden*

**1504-PLAT 8:15 AM**  
DENDRITIC SPINE GEOMETRY AND ULTRASTRUCTURE DICTATE THE SPATIOTEMPORAL DYNAMICS OF SECOND MESSENGERS. **Padmini Rangamani**, Miriam Bell, Andrea Cugno, Donya Ohadi, Thomas M. Bartol, Ravi Iyengar, Terrence J. Sejnowski

**1505-PLAT 8:30 AM**

SUPER-RESOLUTION IMAGING OF THE BRAIN EXTRACELLULAR SPACE DEEP WITHIN INTACT LIVE TISSUE USING CARBON NANOTUBES. **Antoine G. Godin**, Noémie Danné, Juan A. Varela, Gao Zhenghong, Brahim Lounis, Laurent Groc, Laurent Cognet

**1506-PLAT 8:45 AM**

ULTRA-FAST GLUTAMATE BIOSENSOR RECORDINGS IN BRAIN SLICE DISPLAY COMPLEX SINGLE EXOCYTOSIS TRANSIENTS. **Ann-Sofie U. Cans**, Yuanmo Wang, Devesh Mishra, Jenny Bergman, Jacqueline Keighron, Karolina Skibicka

**1507-PLAT 9:00 AM**

PIEZO2 UNDERLIES SLOWLY-INACTIVATING MECHANO-CURRENT IN SENSORY NEURONS FROM TACTILE SPECIALIST BIRDS. **Slav N. Bagriantsev**, Eve R. Schneider, Evan O. Anderson

**1508-PLAT 9:15 AM**

DYNAMIC REGULATION OF AMPA RECEPTOR AND STARGAZIN CONCENTRATION IN THE SPINE IN THE TIME SCALE OF 0.1 S TO SEVERAL 100 S; UNRAVELING BY SINGLE-MOLECULE TRACKING. **Yuri L. Nemoto**, Kazuma Naito, Hiroko Hijikata, Taka A. Tsunoyama, Nao Hiramoto-Yamaki, Rinshi S. Kasai, Yuki M. Shirai, Manami S. Miyahara, Takahiro K. Fujiwara, Akihiro Kusumi

**1509-PLAT 9:30 AM**

SINGLE-MOLECULE MECHANICS OF THE MOLECULAR SPRING THAT UNDERLIES HEARING. **Tobias F. Bartsch**, Felicitas E. Hengel, Aaron Oswald, Gilman Dionne, Iris V. Chipendo, Simranjit Mangat, Muhammad El Shatanofy, Ulrich Mueller, Lawrence Shapiro, A. J. Hudspeth

**1510-PLAT 9:45 AM TRAVEL AWARDEE**

THE NEURONAL TAU PROTEIN BLOCKS *IN VITRO* FIBRILLATION OF THE AMYLOID-B (AB) PEPTIDE. **Cecilia Wallin**, Yoshitaka Hiruma, Sebastian Warmlander, Isabelle Huvent, Jüri Jarvet, Jan Pieter Abrahams, Astrid Gräslund, Guy Lippens, Jinghui Luo

**1511-PLAT 10:00 AM**

ACTIVATION OF SLACK POTASSIUM CHANNELS (KCNT1) TRIGGERS AN INCREASE IN MRNA TRANSLATION. **Taylor J. Malone**, Pawel Licznarski, Elizabeth A. Jonas, Leonard K. Kaczmarek

**Subgroup Chairs Meeting**

9:00 AM - 10:30 AM, ROOM 331

**Career Development Center Workshop**  
**Looking Beyond Academia: Identifying Your**  
**Career Options using MyIDP, LinkedIn & More**

9:30 AM - 10:30 AM, EXHIBIT HALL A

Not sure where your professional future lies or how to approach the process in an organized and strategic manner? This presentation provides a framework and resources for moving forward with confidence towards the next step in your professional future. In addition, it will provide specific examples of how to build out your knowledge of a new potential career field and forge valuable connections that can facilitate a successful transition.

**Exhibitor Presentation**  
**Sophion Bioscience A/S**

9:30 AM - 11:00 AM, ROOM 303

ELECTROPHYSIOLOGICAL CHARACTERIZATION USING AUTOMATED PATCH CLAMP (QPATCH AND QUBE) OF hiPSC-DERIVED NEUROLOGICAL DISEASE MODELS, NEW AUTOMATED PATCH CLAMP ION CHANNEL ASSAYS FOR CIPA CARDIAC SAFETY TESTING (DYNAMIC

**hERG and LQT3 LATE NAV1.5) AND NAV1.7 DRUG DISCOVERY**

Successful ion channel drug discovery requires the integration of multiple technologies and workflows. Sophion Bioscience is a leader in automated patch clamp technology, providing medium to high throughput, automated patch clamp to the pharmaceutical industry and universities. The QPatch and Qube are fully automated patch clamp systems, executing simultaneous 8, 16, 48 or 384 parallel patch clamp recordings in conjunction with computer controlled liquid handling and on-board cell handling. Sophion partners with other biotech companies to create robust, ion channel and electrophysiological workflows for drug development for ion channel targets. During this workshop, three industry speakers will provide insight into the drug discovery process. Dr Kadla Roskva Rosholm will present how hiPSC-derived neurological disease models have been characterized by use of high throughput electrophysiology at Sophion Bioscience. Next, Dr Marc Rogers from Metrion Biosciences will present their development of new automated patch clamp ion channel assays for CiPA cardiac safety testing: dynamic hERG and LQT3 late Nav1.5. Finally, Dr Brian Moyer will present on Amgen's Nav1.7 drug discovery program.

**Speakers**

Kadla Roskva Rosholm, Application Scientist, Sophion Bioscience A/S  
 Marc Rogers, Chief Scientific Officer, Metrion Biosciences  
 Brian Moyer, Scientific Director, Department of Neuroscience, Amgen

**Exhibits**

10:00 AM - 4:00 PM, EXHIBIT HALL

**Coffee Break**

10:15 AM - 11:00 AM, EXHIBIT HALL

**Symposium**  
**Awards**

10:45 AM - 12:45 PM, BALLROOM I

**Chair**

Angela Gronenborn, University of Pittsburgh and BPS President

**NO ABSTRACT 10:45 AM**

MODELING THE DYNAMICS OF CDC42 OSCILLATION IN FISSION YEAST. **Bin Xu**

**NO ABSTRACT 10:58 AM**

TECHNOLOGY DEVELOPMENT TOWARDS THE UNDERSTANDING OF G-PROTEIN COUPLED RECEPTOR STRUCTURE FUNCTION. **Raymond C. Stevens**

**NO ABSTRACT 11:11 AM**

FINDING ORDER IN DISORDER: FUNCTIONAL STUDIES OF DYSFUNCTIONAL PROTEINS. **Elizabeth Rhoades**

**NO ABSTRACT 11:24 AM**

MANY SINGLE MOLECULES. **Jeff Gelles**

**NO ABSTRACT 11:37 AM**

FUNCTIONAL PROTEIN FIBRILS AS ANTIBACTERIAL AGENTS AND TARGETS. **Meytal Landau**

**NO ABSTRACT 11:50 AM**

LAURDAN GP FOR THE QUANTITATION OF LIPID PHASES. **Enrico Gratton**

**NO ABSTRACT 12:03 PM**

SURFACE PROGRAMMING OF PROTEIN HYDRATION WATER DYNAMICS REVEALED BY OVERHAUSER DYNAMIC NUCLEAR POLARIZATION. **Song-I Han**

**NO ABSTRACT 12:16 PM**  
EXPLORING THE RIBOSOME WITH FRIENDS: MYSTERIES OF THE MOTHER SHIP. **Harry Noller**

**NO ABSTRACT 12:29 PM**  
A (SCIENTIFIC) LIFETIME AFFAIR WITH NUCLEIC ACIDS. **Juli Feigon**

## Platform Systems Biology and Genetic Regulatory Networks

10:45 AM - 12:45 PM, BALLROOM II

**Co-Chairs**  
*Amelia Palermo, The Scripps Research Institute*  
*Samuel Schaffter, Johns Hopkins University*

**1512-PLAT 10:45 AM**  
SYNTHETIC INTEGRATED *IN VITRO* TRANSCRIPTIONAL REGULATORY NETWORKS. **Samuel Schaffter**, Rebecca Schulman

**1513-PLAT 11:00 AM**  
A LIVING, SINGLE CELL VIEW OF MYC'S EFFECTS ON TRANSCRIPTION. **Simona Patange**, Michelle Girvan, David Levens, Daniel R. Larson

**1514-PLAT 11:15 AM**  
QUANTITATIVE ANALYSIS OF A TRANSIENT DYNAMICS OF A GENETIC REGULATORY NETWORK. **Julian Lee**, JeJun Lee

**1515-PLAT 11:30 AM**  
THE IMPACT OF ALLELIC IMBALANCE ON SIGNAL TRANSMISSION STRONGLY DEPENDS ON NETWORK MOTIF PROPERTIES. **Shibin Mathew**, Alexander Gimelbrant, **Suzanne Gaudet**

**1516-PLAT 11:45 AM**  
CAPTURING METABOLISM-DEPENDENT SOLVENT POLARITY FLUCTUATIONS IN A TRAFFICKING LYSOSOME. **Filippo Begarani**, Francesca D'Autilia, Giovanni Signore, Enrico Gratton, Fabio Beltram, **Francesco Cardarelli**

**1517-PLAT 12:00 PM**  
LAT VESICLES WORK AS A SIGNAL TRANSDUCTION PLATFORM IN IMMUNE CELLS; UNRAVELING BY SINGLE-MOLECULE IMAGING. **Koichiro M. Hirose**, Nao Hiramoto-Yamaki, Kenta J. Yoshida, Shohei Nozaki, Taka A. Tsunoyama, Bo Tang, Kenichi G.N. Suzuki, Kazuhisa Nakayama, Takahiro K. Fujiwara, Akihiro Kusumi

**1518-PLAT 12:15 PM**  
4D CHARACTERIZATION OF SPATIOFUNCTIONAL ENZYME DROPLETS IN LIVING CELLS. **Minjoung Kyoung**

**1519-PLAT 12:30 PM TRAVEL AWARDEE**  
A NETWORK OF ENDOGENOUS METABOLITES MODULATES PROGRAMMED DEATH-LIGAND 1 (PD-L1) EXPRESSION IN MONOCYTIC LEUKEMIA. **Amelia Palermo**, Stephan Spangenberg, Carlos Guijas, Luke Lairson, Gary Siuzdak

## Platform Microtubule-based Motors

10:45 AM - 12:45 PM, BALLROOM III

**Co-Chairs**  
*Carolyn Moores, Birkbeck College, London, United Kingdom*  
*Andrea Serra-Marques, University of California, San Francisco*

**1520-PLAT 10:45 AM**  
CRYO-EM REVEALS THE CHEMO-MECHANICAL COUPLING OF THE ONCOGENIC KINESIN-3 KIF14. **Matthieu P.M.H. Benoit**, Ana B. Asenjo, Mohammadjavad Paydar, Benjamin H. Kwok, Hernando Sosa

**1521-PLAT 11:00 AM**  
HOW KINESIN-2 MOTORS WORK TOGETHER? **Punam Sonar**, Willi L. Stepp, Zeynep Ökten

**1522-PLAT 11:15 AM**  
THE CRYO-EM STRUCTURE AND ACTIVITY OF KINESIN-5 FROM *PLASMODIUM FALCIPARUM*: MECHANISTIC LESSONS FROM A PARASITE KINESIN. **Alex D. Cook**, Anthony J. Roberts, Maya Topf, Carolyn A. Moores

**1523-PLAT 11:30 AM**  
TAU DIFFERENTIALLY REGULATES KINESIN-1, KINESIN-2, AND KINESIN-3. **Dominique V. Lessard**, Christopher L. Berger

**1524-PLAT 11:45 AM**  
INVESTIGATION OF COLLISIONS OF MICROTUBULES DRIVEN BY NANOPATTERNED KINESINS. **Tamanna Ishrat Farhana**, Taikopaul Kaneko, Ryuji Yokokawa

**1525-PLAT 12:00 PM**  
MECHANISMS OF ASTRAL MICROTUBULE REGULATION BY KINESIN MOTOR PROTEINS. **Toni Mchugh**, Agata A. Gluszek, Julie P.I. Welburn

**1526-PLAT 12:15 PM**  
KINESINS 1 AND 3 COOPERATE ON THE SAME VESICLE TO TRANSPORT EXOCYTOTIC CARRIERS. **Andrea Serra-Marques**, Maud Martin, Eugene Katrukha, Ilya Grigoriev, Qingyang Liu, Lotte Pedersen, Lukas Kapitein, Anna Akhmanova

**1527-PLAT 12:30 PM**  
DYNEIN'S DIRECTIONALITY IS CONTROLLED BY THE ANGLE AND LENGTH OF ITS STALK. **Sinan Can**, Samuel Lacey, Mert Gur, Andrew Carter, Ahmet Yildiz

## Platform Protein Structure and Conformation III

10:45 AM - 12:45 PM, BALLROOM IV

**Co-Chairs**  
*Justin MacCallum, University of Calgary, Canada*  
*Lauren Porter, Howard Hughes Medical Institute*

**1528-PLAT 10:45 AM**  
DETERMINING PROTEIN STRUCTURES BY ITERATING BETWEEN COMPUTATION AND EXPERIMENT. **Justin L. MacCallum**, Kari Gaalswyk

**1529-PLAT 11:00 AM**  
EXPOSING THE NUCLEATION SITE OF ALPHA HELIX FOLDING: A JOINT EXPERIMENTAL AND SIMULATION STUDY. **Arusha Acharyya**, Yunhui Ge, Haifan Wu, William DeGrado, Vincent Voelz, Feng Gai

**1530-PLAT 11:15 AM**  
MOLECULAR DYNAMICS SIMULATIONS OF THE CIRCADIAN CLOCK PROTEIN KAIC REVEAL STRUCTURAL INSIGHTS INTO THE NUCLEOTIDE RELEASE AND CIRCADIAN TIMING MECHANISMS. **Lu Hong**, Bodhi P. Vani, Erik H. Thiede, Michael J. Rust, Aaron R. Dinner

**1531-PLAT 11:30 AM**  
CHARACTERIZATION OF PROTEIN STRUCTURAL CHANGES USING A NOVEL NONLINEAR OPTICAL TECHNIQUE. **Bason Clancy**, Ben Moree, Joshua Salafsky

**1532-PLAT 11:45 AM**  
TOWARDS ATOMIC-RESOLUTION STRUCTURE DETERMINATION OF HIV-1 CAPSID ASSEMBLIES USING MAGIC ANGLE SPINNING NMR. **Manman Lu**, Mingzhang Wang, Jochem Struppe, Werner Maas, Angela Gronenborn, Tatyana Polenova

**1533-PLAT 12:00 PM**  
KINDLIN DIMER STRENGTHENS FOCAL ADHESIONS UNDER FORCE BY RELIEVING AND MEDIATING INTRACELLULAR CROSSTALK AMONG INTEGRINS. **Zeinab Jahed**, Zainab Haydari, Akshay Rathish, **Mohammad R. K. Mofrad**

**1534-PLAT 12:15 PM**  
DYNAMIC INTERACTIONS BETWEEN A DISORDERED PROTEIN AND ITS TARGET AT THE SINGLE-MOLECULE LEVEL. **Spencer Smyth**, Gregory-Neal Gomes, Claudiu C. Gradinaru, Julie D. Forman-Kay

**1535-PLAT 12:30 PM**  
SURVEYING THE SEQUENCE SPACE LANDSCAPE OF FOLD-SWITCHING PROTEINS. **Lauren L. Porter**, Loren L. Looger

### Platform Voltage-gated Na and Ca Channels

10:45 AM - 12:45 PM, ROOM 307/308

#### Co-Chairs

*Hui Xu, Genentech*  
*Manu Ben-Johny, Columbia University*

**1536-PLAT 10:45 AM**  
STRUCTURAL BASIS OF NAV1.7 INHIBITION BY THE TARANTULA TOXIN PROTOXIN-II. **Hui Xu**, Tianbo Li, Alexis Rohou, Christopher Arthur, Foteini Tzakoniati, Evera Wong, Alberto Estevez, Christine Kugel, Yvonne Franke, Jun Chen, Claudio Ciferri, David Hackos, Christopher Koth, Jian Payandeh

**1537-PLAT 11:00 AM**  
FENESTRATION DIFFERENCES IN OPEN AND CLOSED GATE SODIUM CHANNELS: A MOLECULAR BASIS FOR STATE-DEPENDENT DRUG DESIGN. **Altin Sula**, Giulia Montini, Jennifer Booker, Bonnie A. Wallace

**1538-PLAT 11:15 AM**  
SELECTIVE DE-ADHESION WITHIN INTERCALATED DISK NANODOMAINS PROMPTS PROARRHYTHMIC CONDUCTION SLOWING IN THE HEART. **Heather L. Struckman**, Louisa Mezache, Amara Greer-Short, Anna Phillips, Thomas J. Hund, Rengasayee Veeraraghavan

**1539-PLAT 11:30 AM**  
BIOCHEMICAL AND FUNCTIONAL EVIDENCE FOR HOMODIMERIZATION OF VOLTAGE-GATED SODIUM CHANNELS (NAVS). **Guenther Schmalzing**, Silvia Detro-Dassen, Nikolay Bebrivenski, Annika Rühlmann, Angelika Lampert

**1540-PLAT 11:45 AM**  
TIMOTHY SYNDROME-ASSOCIATED MUTATIONS AFFECT STATE-DEPENDENT CONTACTS IN L-TYPE CALCIUM CHANNEL. Vyacheslav S. Korkosh, Artem M. Kisilev, Eugeny N. Mikhaylov, Anna A. Kostareva, **Boris S. Zhorov**

**1541-PLAT 12:00 PM**  
CHARACTERIZATION OF ARRHYTHMIA MUTATIONS IN CALMODULIN AND THEIR INTERACTIONS WITH THE VOLTAGE-GATED CALCIUM CHANNEL. **Kaiqian Wang**, Christian Holt, Jocelyn Lu, Malene Brohus, Kamilla T. Larsen, Michael T. Overgaard, Reinhard Wimmer, Filip Van Petegem

**1542-PLAT 12:15 PM**  
CA<sub>v</sub>1.3 REJECTS SIGNALING FROM A SECOND CAM IN ELICITING CA<sup>2+</sup>-DEPENDENT FEEDBACK REGULATION. **Nourdine Chakouri**, Johanna Diaz, Manu Ben-Johny

**1543-PLAT 12:30 PM**  
INACTIVATION REGULATES RGC-MEDIATED INHIBITION OF VOLTAGE-GATED CALCIUM CHANNELS. **Zafir Buraei**, Rose Levenson-Palmer, Scott Dobbins, Zuleen Chia Chang, Sukhjinder Kaur, Salma Allam, Bryan Cernuda, Gabrielle Suppa, Jian Yang

### Platform Exocytosis & Endocytosis

10:45 AM - 12:45 PM, ROOM 309/310

#### Co-Chairs

*Jonas Ries, EMBL, Germany*  
*Zachary McDargh, Columbia University*

**1544-PLAT 10:45 AM**  
HIGH-THROUGHPUT SUPERRESOLUTION MICROSCOPY OF ENDOCYTOSIS - LINKING MOLECULAR ARCHITECTURE AND MECHANICS OF A PROTEIN MACHINERY. Markus Mund, Johannes van der Beek, Joran Deschamps, Philipp Hoess, Serge Dmitrieff, Francois Nedelec, Marko Kaksonen, **Jonas Ries**

**1545-PLAT 11:00 AM**  
SELF-ORGANIZATION AND FORCE PRODUCTION BY THE BRANCHED ACTIN CYTOSKELETON DURING MAMMALIAN CLATHRIN-MEDIATED ENDOCYTOSIS. Matthew Akamatsu, Ritvik Vasan, David G. Drubin, Daniel Serwas, **Padmini Rangamani**

**1546-PLAT 11:15 AM**  
ROLE OF MEMBRANE REMODELING PROTEINS IN ULTRAFAST ENDOCYTOSIS. **Sumana Raychaudhuri**, Eduardo Sandoval, Shigeki Watanabe

**1547-PLAT 11:30 AM TRAVEL AWARDEE**  
INVESTIGATING MEMBRANE TENSION DYNAMICS IN THE NEURONAL PRESYNAPTIC TERMINAL. **Natasha Dudzinski**, David Zenisek, Erdem Karatekin

**1548-PLAT 11:45 AM**  
OSMOTIC SQUEEZING AND MEMBRANE TENSION DRIVE VESICLE EVOLUTION DURING EXOCYTOSIS. **Rui Su**, Sathish Thiyagarajan, Wonchul Shin, Ling-Gang Wu, Ben O'Shaughnessy

**1549-PLAT 12:00 PM TRAVEL AWARDEE**  
TWO POPULATIONS OF INSULIN GRANULES WITH DISTINCT FUSION PROPERTIES ARE MAINTAINED BY ABC TRANSPORTERS ABCG1 AND ABCA1. **Noah A. Schenk**, Alex J.B. Kreutzberger, Megan T. Harris, Catherine A. Doyle, Patrick Seelheim, Binyong Liang, Volker Kiessling, Arun Anantharam, Lukas K. Tamm, J. David Castle

**1550-PLAT 12:15 PM**  
FUSION PORE REGULATION BY EPAC2/CAMP CONTROLS CARGO RELEASE DURING INSULIN EXOCYTOSIS. **Alenka Gucek**, Nikhil R. Gandasi, Muhmad Omar-Hmeadi, Marit Bakke, Stein Doskeland, Anders Tengholm, Sebastian Barg

**1551-PLAT 12:30 PM**  
SNARE-MEDIATED MEMBRANE FUSION IS A TWO-STAGE PROCESS DRIVEN BY ENTROPIC FORCES. **Zachary A. McDargh**, Anirban Polley, Ben O'Shaughnessy

### Platform Biosensors

10:45 AM - 12:45 PM, ROOM 314/315

#### Co-Chairs

*Bohdana Discher, University of Pennsylvania*  
*Sonja Schmid, Delft University of Technology, The Netherlands*

**1552-PLAT 10:45 AM**  
A MOLECULAR SENSOR REVEALS DIFFERENCES IN MACROMOLECULAR CROWDING BETWEEN THE CYTOPLASM AND NUCLEOPLASM. Chandrashekar Murade, **George T. Shubeita**



**1553-PLAT 11:00 AM**  
TAILORING BIOMOLECULAR INTERACTIONS OF HYBRID NANOSTRUC-  
TURES FOR THEIR DIAGNOSTIC AND THERAPEUTIC APPLICATIONS IN  
NEURODEGENERATIVE DISEASES. **Anup Kumar Srivastava**, Mohammed  
Nadim Sardoiwala, Babita Kaundal, Subhasree Roy Choudhury, Surajit  
Karmakar

**1554-PLAT 11:15 AM**  
DE NOVO DESIGN OF REDOX PROTEINS FOR FLUORESCENCE READ-OUT  
OF CELLULAR REDOX POTENTIALS. Sohini Mukherjee, Martin J. Iwanicki,  
Christopher C. Moser, **Bohdana M. Discher**

**1555-PLAT 11:30 AM**  
WIRELESS NANOPORE ELECTRODE FOR ELECTRON TRANSFER IMAGING  
IN LIVE CELLS. **Yilun Ying**, Yongxu Hu, Rui Gao, Ling-Fei Cui, Yi-Tao Long

**1556-PLAT 11:45 AM**  
SINGLE MOLECULE SNAPSHOTS OF RIBOSWITCH CONFORMATIONAL  
CHANGE AND RNA SWITCH BASED BIOSENSING ON A NANOPORE  
MAGLET DEVICE. Xinyue Zhang, Yingzhen Wang, Samuel Hawkins, An-  
drew Burcke, Shi-Jie Chen, **Li-Qun Gu**

**1557-PLAT 12:00 PM**  
SINGLE-MOLECULE PROTEIN FINGERPRINTING USING NANOPORES.  
**Sonja Schmid**, Laura Restrepo, Gang Huang, Chirlmin Joo, Giovanni  
Maglia, Cees Dekker

**1558-PLAT 12:15 PM**  
DIRECT SEQUENCING OF XENO-NUCLEIC ACIDS USING NANOPORE.  
**Shuanghong Yan**, Shuo Huang

**1559-PLAT 12:30 PM**  
HIGHLY SELECTIVE BIONANOSENSOR FOR QUICK DETECTION OF BACTE-  
RIAL PATHOGENS IN FOOD. **Negin Farzad**, Samuel Opper, Kevin Taisma,  
Ewa S. Kirkor, Ali Senejani, Saion K. Sinha

## Platform Membrane Physical Chemistry II 10:45 AM - 12:45 PM, ROOM 316/317

**Co-Chairs**  
*Aurelia Honerkamp-Smith, Lehigh University*  
*James Lee, Old Dominion University*

**1560-PLAT 10:45 AM**  
DISCRETE SUPPORTED BILAYER PATCHES TO INTERROGATE MEMBRANE  
PROTEIN ADVECTION, PHASE SEPARATION, AND BILAYER-SURFACE  
COUPLING. **Aurelia R. Honerkamp-Smith**, Larissa K. Socrier, Amanda  
Ratajczak, Xaymara Rivera

**1561-PLAT 11:00 AM**  
ASYMMETRIC PROTEOLIPOSOMES - STRIKING A NEW PATH IN THE  
WORLD OF MODEL MEMBRANES. **Marie Markones**, Anika Fippel,  
Michael Kaiser, Carina Drechsler, Carola Hunte, Heiko H. Heerklotz

**1562-PLAT 11:15 AM**  
A LIPID NANOTUBE-MEDIATED PATH TO PROTOCELL FORMATION AND  
GROWTH. Elif S. Koksai, Susanne Liese, Ilayda Kantarci, Ragni Olsson,  
Andreas Carlson, **Irep Gozen**

**1563-PLAT 11:30 AM**  
PHOSPHOLIPID HEADGROUPS GOVERN EMERGENT BENDING ENERGY OF  
MEMBRANES WITH IMPLICATIONS FOR LIPID-PROTEIN INTERACTIONS.  
K.J. Mallikarjunaiah, Trivikram R. Molugu, Horia I. Petrache,  
**Michael F. Brown**

**1564-PLAT 11:45 AM**  
BURIED WATER IN A LIPID MEMBRANE MEASURED WITH SITE-SPECIFIC IR  
SPECTROSCOPY OF TRANSMEMBRANE PEPTIDES. **Jennifer C. Flanagan**,  
Carlos R. Baiz

**1565-PLAT 12:00 PM**  
PHYSICAL CHEMISTRY OF LIVING SYSTEMS: ISOTHERMAL UTILIZATION OF  
LATENT HEAT BY ELECTROSTATICALLY LOCALIZED PROTONS AT LIQUID-  
MEMBRANE INTERFACE. **James W. Lee**

**1566-PLAT 12:15 PM**  
HOW OSMOLYTES MODULATE LIPID INTERACTIONS. Shahr Sukenik,  
Shaked Dunsky, Christoph Allolio, Avishai Barnoy, Ilan Shumilin, **Daniel  
Harries**

**1567-PLAT 12:30 PM**  
INVESTIGATING DRUG-MEMBRANE PERMEABILITY ACROSS CHEMICAL  
COMPOUND SPACE USING HIGH-THROUGHPUT COARSE-GRAINED SIMU-  
LATIONS. Roberto Menichetti, **Kiran H. Kanekal**, Tristan Bereau

## Career Development Center Workshop The Industry Interview: What you need to do before, during, and after to get the job

11:30 AM - 12:30 PM, EXHIBIT HALL A

When does the interview begin? Much sooner than you think: it starts from the first point of contact you have with someone from the organization. And when does it end? Only when the offer is extended and accepted. Learn how to convert conversations and networking into interviews and interviews into job offers in this special presentation focusing on industry positions. Discover what you need to know and do throughout the interview process to demonstrate your value to the company and land the job. We will discuss common mistakes that job seekers make, and specific ways in which you can give yourself a competitive edge in the interview. Both academic and non-academic interviewing tactics will be addressed.

## Founding, Establishing, and Maintaining a Research Laboratory at Primarily Undergraduate Institutions

12:00 PM - 1:30 PM, ROOM 318/319/320

This session, sponsored by the Education Committee, provides guidance on founding, establishing, and maintaining a research laboratory at Primarily Undergraduate Institutions. Panelists are faculty members at PUI's who have been successful in their positions.

**Moderators**  
Paul Urayama, Miami University  
Elizabeth Yates, United States Naval Academy

**Presenters**  
Kurt Andresen, Gettysburg College  
Kambiz Hamadani, California State University, San Marcos  
Jamie Schlessman, United States Naval Academy

## Postdoc to Faculty Q&A Transitions Forum and Luncheon

12:00 PM - 1:30 PM, ROOM 331/332

This question-and-answer luncheon is designed for postdocs finishing and actively applying for academic faculty positions. Discussion will be led by a panel of new faculty in basic science and/or medical school departments and experienced faculty who have served as department chairs and/or part of faculty search committees. Topics for discussion include how to prepare the curriculum vitae, the interview process, networking, how to negotiate the job offer, and advice for new faculty as they balance research with their department obligations. Pre-registration was required for lunch. If you are interested in attending and did not register in advance, you are welcome to participate in the discussion on a space-available basis.

**Speakers**

John Baensiger, University of Ottawa  
Ivy Dick, University of Maryland  
Robert Nakamoto, University of Virginia  
Janice Robertson, Washington University St. Louis  
Kandice Tanner, NIH  
Ming-Feng Tsai, University of Colorado

### Nurturing a More Inclusive STEM Enterprise by Understanding our Biases

**1:15 PM - 2:45 PM, ROOM 324/325/326**

We are all biased. Google's PeopleAnalytics suggests that we as people can only consciously process about one millionth of the information that we receive at any moment. Instead, we rely heavily on our unconscious reasoning abilities to make decisions. Even though we scientists are trained to be objective and evidence based, we, too, use cognitive shortcuts in our every day interactions. This means we rely on our expectation biases, e.g. what we think we think about categories of people, things, situations. This behavior leads to unconscious errors in decision making that leads to discrimination in science against people who do not meet the stereotypical description of what a scientist looks like. This session will approach the phenomenon of unconscious bias as a science problem by examining the data in this area and by discussing tools that we can all use to nurture a more inclusive scientific enterprise. Attendees are encouraged to learn about their own biases by completing the Project Implicit Gender-Science IAT, Race IAT and Sexuality IAT tests at <https://implicit.harvard.edu/implicit/>

**Speaker**

Karen Fleming, Johns Hopkins University

### The Nuts and Bolts of Preparing Your NIH Grant

**1:30 PM - 3:00 PM, ROOM 321/322/323**

The National Institutes of Health is the world's largest funder of fundamental biomedical research. You have likely spent years training and are now ready to apply for a NIH grant. But where do you start? At this session, program directors and officers with expertise in biophysics will be providing details on the NIH grant-making process as it stands in 2019, with a particular emphasis on grant writing and submission for new and early career investigators.

**Session Organizer**

Peter Preusch, Biophysics Branch Chief in the Division of Biophysics, Biomedical Technology, and Computational Biosciences, NIH.

### Industry Panel

**1:30 PM - 3:00 PM, ROOM 327/328/329**

Come join us for a Q&A discussion about science in industry. Hear from a panel of scientists about their career in industry. Learn about the different roles and positions and get perspective about how you can tailor your current research experience to align with industry needs.

**Speakers**

Sonia Gregory, GSK Vaccines – Chair  
Wayne Harshbarger, GSK Vaccines  
Joanna Swain, Cogen Therapeutics  
Adam Zwolak, Janssen BioTherapeutics  
Angela Ballesteros Morcillo, National Institute of Neurological Disorders and Stroke (NINDS-NIH)  
Jeanne Small, Quantum Northwest, Inc.  
Meagan Small, U.S. Army Research Laboratory

### Snack Break

**1:45 PM - 3:00 PM, EXHIBIT HALL**

## Poster Presentations and Late Posters

**1:45 PM - 3:45 PM, EXHIBIT HALL**

### Career Development Center Workshop Nailing the Job Talk, or Erudition Ain't Enough

**2:30 PM - 3:30 PM, EXHIBIT HALL A**

Congratulations! You've made it to the finals and are suddenly facing the most important presentation of your life. Answers to your questions about how to structure your presentation, how much detail to include, what they are really looking for, etc.

### Education Committee Meeting

**3:00 PM - 5:00 PM, ROOM 333**

### Symposium Determining Molecular Networks

**4:00 PM - 6:00 PM, BALLROOM I**

**Chair**

*Edward Marcotte, University of Texas at Austin*

**1568-SYMP 4:00 PM**

FINDING AND INTERPRETING GENETIC INTERACTIONS USING PERTURB-SEQ SINGLE CELL RNA-SEQ CRISPR SCREENS. **Jonathan Weissman**, Thomas Norman, Max Horlbeck, Luke Gilbert

**NO ABSTRACT 4:30 PM**

DECODING THE HUMAN GENOME WITH MACHINE LEARNING APPROACHES. **Olga Troyanskaya**

**1569-SYMP 5:00 PM**

THE PROTEOTYPE MODEL. **Rudolf Aebersold**

**NO ABSTRACT 5:30 PM**

A MASS SPECTROMETRY-BASED MAP OF CORE EUKARYOTIC PROTEIN COMPLEXES. **Edward Marcotte**

### Symposium Transporters and Channels

**4:00 PM - 6:00 PM, BALLROOM II**

**Chair**

*Diana Bautista, University of California, Berkeley*

**1570-SYMP 4:00 PM**

CRYO-EM STRUCTURES AND MECHANISM OF HUMAN MULTIDRUG ABC TRANSPORTERS. **Kaspar Locher**

**1571-SYMP 4:30 PM**

MITOCHONDRIAL POTASSIUM CHANNELS AS DETERMINANTS OF CELL FATE. **Ildiko Szabo**

**NO ABSTRACT 5:00 PM**

STRUCTURAL INVESTIGATION OF VOLTAGE-GATED SODIUM CHANNELS. **Nieng Yan**

**NO ABSTRACT 5:30 PM**

SHINGOSINE-1-PHOSPHATE RECEPTOR 3 (S1PR3) SIGNALING MEDIATES MECHANICAL PAIN. **Diana Bautista**

### Platform Protein-Nucleic Acid Interactions/Chromatin and the Nucleoid I

**4:00 PM - 6:00 PM, BALLROOM III**

**Co-Chairs**

*Jonathan Craig, University of Washington*  
*Suzette Pabit, Cornell University*

**1572-PLAT 4:00 PM**  
DNA ORIGAMI-PROTEIN INTERACTIONS AND THE ROLE OF STERIC HINDRANCE. **Antonio Suma**, Alex Stopar, Abimbola Adedeji, Allen W. Nicholson, Matteo Castronovo, Vincenzo Carnevale

**1573-PLAT 4:15 PM**  
TAKING A CLOSER LOOK AT RECQ HELICASE WITH NANOPORE TWEEZERS. **Jonathan M. Craig**, K. Maria Mills, Andrew H. Laszlo, Keir C. Neuman, Jens H. Gundlach

**1574-PLAT 4:30 PM**  
MOLECULAR MECHANISM OF OFF-TARGET EFFECTS IN CRISPR-CAS9. **Giulia Palermo**, Clarisse Gravina Ricci, Janice S. Chen, Yinglong Miao, Martin Jinek, Jennifer A. Doudna, James A. McCammon

**1575-PLAT 4:45 PM TRAVEL AWARDEE**  
SUPERCOILING MAKES PROTEIN-MEDIATED LOOPING OF DNA TETHERS DETERMINISTIC. **Yan Yan**, Laura Finzi, David D. Dunlap

**1576-PLAT 5:00 PM**  
TIME-RESOLVED CONTRAST VARIATION SAXS FOR STUDYING RNA-PROTEIN INTERACTIONS. **Suzette A. Pabit**, Andrea M. Katz, George D. Calvey, Lois Pollack

**1577-PLAT 5:15 PM**  
DEFECTIVE RNA INTERACTION DRIVES ABERRANT PHASE SEPARATION OF ALS-LINKED MUTANT FUS. **Amirhossein Ghanbari Niaki**, Jaya Sarkar, Xinyi Cai, Sua Myong

**1578-PLAT 5:30 PM**  
ROLE OF MOLECULAR CROWDING IN COMPACTING *ESCHERICHIA COLI* NUCLEOID. **Da Yang**, Jaana Mannik, Scott T. Retterer, Jaan Mannik

**1579-PLAT 5:45 PM**  
IS THE BACTERIAL CYTOPLASM A POOR SOLVENT FOR THE CHROMOSOME? **Yingjie Xiang**, Ivan Surovtsev, Eric Dufresne, Christine Jacobs-Wagner

## Platform Protein Structure, Prediction, Design, and Misfolding

4:00 PM - 6:00 PM, BALLROOM IV

### Co-Chairs

*Ernesto Fuentes, University of Iowa*  
*Ishara Mills Henry, Framingham State University*

**1580-PLAT 4:00 PM**  
A PHYSICAL MODELING APPROACH TO DETERMINE PROTEIN STRUCTURES FROM PARAMAGNETIC NMR MEASUREMENTS. **Kari Gaalswyk**, Justin L. MacCallum

**1581-PLAT 4:15 PM**  
BIOCHEMICAL AND STRUCTURAL CHARACTERIZATION OF DE NOVO DESIGNED PDZ DOMAINS. **Ernesto J. Fuentes**, Young Joo Sun, Matthew Sterneke, Vaitea Opuu, Nicholas Panel, Douglas Barrick, Thomas Simonson

**1582-PLAT 4:30 PM**  
FOLDING PATHWAY OF A TWO-DOMAIN PROTEIN STUDIED WITH SINGLE MOLECULE THREE-COLOR FRET. **Ganesh N. Agam**, Anders Barth, Don C. Lamb

**1583-PLAT 4:45 PM**  
STABILITY AND MEMBRANE-BINDING OF SECA IN THE PRESENCE OF POTASSIUM GLUTAMATE, THE PRIMARY CYTOPLASMIC SALT OF *ESCHERICHIA COLI*. Guillaume Roussel, Eric Lindner, **Stephen H. White**

**1584-PLAT 5:00 PM**  
THERMODYNAMICS OF AMINOGLYCOSIDE-ENZYME COMPLEXES YIELDS CLUES ON DISTINGUISHING THERMOPHILIC VERSUS THERMOSTABLE VARIANTS OF THE AMINOGLYCOSIDE NUCLEOTIDYLTRANSFERASE 4' (ANT4). **Seda Kocaman**, Brinda Selvaraj, Matthew Cuneo, Engin H. Serpersu

**1585-PLAT 5:15 PM**  
DISULFIDE EXCHANGE AND SELF-CATALYZED AGGREGATION IN CATARACT-ASSOCIATED HUMAN GAMMA-D CRYSTALLIN. **Eugene Serebryany**, Shuhuai Yu, Sunia A. Trauger, Bogdan Budnik, Eugene I. Shakhnovich

**1586-PLAT 5:30 PM TRAVEL AWARDEE**  
HYPERSTABLE PROTEINS IN THE GUT MICROBIOTA: AN EXAMINATION OF THE BACTERIUM *BACTEROIDES FRAGILIS*. **Jane Thibeault**, Blanca Barquera, Wilfredo Colón

**1587-PLAT 5:45 PM**  
KINETIC STABILITY OF LONG-LIVED HUMAN  $\Gamma$ -D AND  $\Gamma$ S LENS CRYSTALLINS, DERIVED IN PART FROM THEIR DOMAIN INTERFACES, MAY PROTECT AGAINST CATARACT. **Ishara Mills Henry**, Melissa Kosinski-Collins, Shannon Thol, Eugene Serebryany, Jonathan A. King

## Platform

### Member Organized Session: Multiscale Modeling of Biophysical Systems

4:00 PM - 6:00 PM, ROOM 307/308

### Co-Chairs

*Judy Cannon, University of New Mexico*  
*Denis Tsygankov, Georgia Institute of Technology*

**1588-PLAT 4:00 PM**  
A MACRO-MICRO MODELING APPROACH TO DETERMINE IN-SITU HEART VALVE INTERSTITIAL CELL CONTRACTILE BEHAVIORS IN NATIVE AND SYNTHETIC ENVIRONMENTS. **Michael S. Sacks**

**1589-PLAT 4:15 PM**  
MULTISCALE MODELING OF THE DAMAGE BIOMECHANICS OF TRAUMATIC BRAIN INJURY. Amir H. Bakhtiyarvavijani, Michael A. Murphy, Sungkwang Mun, Mike D. Jones, M. F. Horstemeyer, **Raj K. Prabhu**

**1590-PLAT 4:30 PM**  
MODELING T CELL MOTION IN TISSUES DURING IMMUNE RESPONSES. **Judy L. Cannon**, Melanie E. Moses, Janie R. Byrum, Paulus Mrass, G. Matthew Fricke, Humayra Tasnim

**1591-PLAT 4:45 PM TRAVEL AWARDEE**  
MULTISCALE MODELING OF DUCTAL CARCINOMA IN SITU. Joseph D. Butner, Vittorio Cristini, **Zhihui Wang**

**1592-PLAT 5:00 PM**  
MULTI-SCALE MODELS OF DEFORMATION OF BLOOD CLOTS. **Mark Alber**, Shixin Xu, Zhiliang Xu, Oleg Kim, Samuel Britton, Rustem Litvinov, John Weisel

**1593-PLAT 5:15 PM**  
MULTISCALE MODELING OF THE HUMAN BLOOD PROTEIN VON WILLEBRAND FACTOR. **Edmund B. Webb**, Chuqiao Dong, Sagar Kania, Michael Morabito, Yi Wang, Xuanhong Cheng, Xiaohui Zhang, Alp Oztekin

**1594-PLAT 5:30 PM**  
SOME PROSPECTS FOR ARTIFICIAL INTELLIGENCE (BOTH NUMERIC AND SYMBOLIC) IN MULTISCALE BIOPHYSICS. **Eric Mjolsness**, Oliver K. Ernst, Thomas M. Bartol, Terrence J. Sejnowski

**1595-PLAT 5:45 PM**  
MULTI-SCALE IMAGING TO ENABLE MULTI-SCALE MODELING FOR PREDICTING TUMOR GROWTH AND TREATMENT RESPONSE. Thomas Yankeelov, **David Hormuth**, Angela Jarrett, Ernesto Lima, Chengyue Wu, Ryan Woodall, Caleb Philips

## Platform Bacterial Mechanics, Cytoskeleton, and Motility

4:00 PM - 6:00 PM, ROOM 309/310

### Co-Chairs

*Ioanna Mela, University of Cambridge, United Kingdom*  
*Benjamin Bratton, Princeton University*

### 1596-PLAT 4:00 PM

WOLBACHIA PIPIENTIS COLONIZES S. CEREVISIAE WITH HIGH YIELDS. EFFECTS ON THE HOST. **Natalia Chiquete Felix**, Cristina Uribe-Alvarez, Ulrik Pedroza-Dávila, Isareli Cruz-Cruz, Salvador Uribe-Carvajal

### 1597-PLAT 4:15 PM

TIME-LAPSE ATOMIC FORCE MICROSCOPY REVEALS NEW END TAKE OFF (NETO) DYNAMICS IN MYCOBACTERIA. **Melanie TM Hannebelle**, Joelle XY Ven, Haig A. Eskandarian, Chiara Toniolo, Adrian PD Nievergelt, John D. McKinney, Georg E. Fantner

### 1598-PLAT 4:30 PM

MOLECULAR MOTORS GOVERN LIQUID-LIKE ORDERING AND FUSION DYNAMICS OF BACTERIAL COLONIES. **Tom Cronenberg**, Anton Welker, Robert Zöllner, Claudia Meel, Katja Siewering, Niklas Bender, Marc Hennes, Enno R. Oldewurtel, Berenike Maier

### 1599-PLAT 4:45 PM

DNA ORIGAMI AS A TOOL IN THE TARGETED DESTRUCTION OF BACTERIA. **Ioanna Mela**, Masayuki Endo, Hiroshi Sugiyama, Robert M. Henderson, Clemens F. Kaminski

### 1600-PLAT 5:00 PM

3D FLUORESCENCE MICROSCOPY REVEALS GEOMETRIC LOCALIZATION OF BACTERIAL CELL SHAPE PROTEINS IN STRAIGHT, CURVED AND HELICAL RODS. **Benjamin P. Bratton**, Zemer Gitai, Joshua W. Shaevitz

### 1601-PLAT 5:15 PM

DYNAMICS OF BACTERIAL CELL WALL SYNTHESIS PROTEINS DURING CYTOKINESIS. **Xinxing Yang**, Jie Xiao

### 1602-PLAT 5:30 PM

SINGLE CELL AND SINGLE-MOLECULE ASSAYS REVEAL BACTERIA REGULATE THEIR RATE OF GROWTH BY ACTIVELY READING OUT THE LEVEL OF CELL WALL PRECURSORS. **Yingjie Sun**, Ethan Garner

### 1603-PLAT 5:45 PM

TRANSIENT MEMBRANE ATTACHMENTS OF FTSZ PRECEDE Z-RING FORMATION IN ESCHERICHIA COLI. **Bryant E. Walker**, Jaana Mannik, Jaan Mannik

## Platform Force Spectroscopy and Scanning Probe Microscopy

4:00 PM - 6:00 PM, ROOM 314/315

### Co-Chairs

*David Sivak, Simon Fraser University, Canada*  
*Piotr Marszalek, Duke University*

### 1604-PLAT 4:00 PM

USING EQUILIBRIUM BEHAVIOR TO REDUCE ENERGY DISSIPATION IN NON-EQUILIBRIUM BIOMOLECULAR PROCESSES. Sara Tafoya, Steven J. Large, Shixin Liu, Carlos Bustamante, **David A. Sivak**

### 1605-PLAT 4:15 PM

MEASURING THE AVERAGE SHAPE OF TRANSITION PATHS DURING THE FOLDING OF A SINGLE BIOLOGICAL MOLECULE. **Noel Q. Hoffer**, Krishna Neupane, Michael T. Woodside

### 1606-PLAT 4:30 PM

REGULATION OF SINGLE-STRANDED DNA WRAPPING BY E. COLI SSB MEASURED USING FORCE SPECTROSCOPY. M. Nabuan Nauffer, **Michael Morse**, Ioulia Rouzina, Mark C. Williams

### 1607-PLAT 4:45 PM

SINGLE MOLECULE STUDY OF TENSION EFFECTS ON CRISPR/CAS9. **Suleyman Ucuncuoglu**, Cassidy N. Lundy, Ozgur Sahin

### 1608-PLAT 5:00 PM

INTRINSIC BENDING IN NUCLEIC ACIDS: A COMBINED ATOMIC-FORCE MICROSCOPY AND MOLECULAR DYNAMICS STUDY. **Alberto Marin-Gonzalez**, J G. Vilhena, Cesar L. Pastrana, Alejandro Martin-Gonzalez, Clara Aicart-Ramos, Ruben Perez, Fernando Moreno-Herrero

### 1609-PLAT 5:15 PM

ALL-ATOM STEERED MOLECULAR DYNAMICS SIMULATIONS OF LARGE PROTEINS IN A SMALL WATER BOX. David Wang, **Piotr E. Marszalek**

### 1610-PLAT 5:30 PM

SCANNING ION CONDUCTANCE MICROSCOPY AND ATOMIC FORCE MICROSCOPY FOR LIVE CELL IMAGING: A COMPARISON. Jan Seifert, Johannes Rheinlaender, **Tilman E. Schäffer**

### 1611-PLAT 5:45 PM

CORRELATIVE AFM-FLIM MEASUREMENTS IN LIVING CELLS, TISSUES AND IN SOLAR CELL MATERIALS. **Chetan Poudel**, Ioanna Mela, Miguel Anaya, Geraud Delport, Samuel D. Stranks, Clemens F. Kaminski

## Platform Membrane Dynamics and Curvature

4:00 PM - 6:00 PM, ROOM 316/317

### Co-Chairs

*Kandice Levental, UT Health Science Center at Houston*  
*Peter Pohl, Johannes Kepler University, Austria*

### 1612-PLAT 4:00 PM

TRANSMEMBRANE BETA-BARREL PROTEINS RIGIDIFY THE BACTERIAL OUTER MEMBRANE. **Henry J. Lessen**, Patrick Fleming, Karen G. Fleming, Alexander J. Sodt

### 1613-PLAT 4:15 PM

IN VIVO DYNAMICS AND PHASE STATE OF NATURAL LIPID DROPLETS. **Margarita Fomina**

### 1614-PLAT 4:30 PM

MEMBRANE CURVATURE GENERATION THROUGH ASYMMETRIC DESORPTION OF PI(4,5)P<sub>2</sub>. **Sankalp Shukla**, Rui Jin, Tobias Baumgart

### 1615-PLAT 4:45 PM

MEASURING HINDERED DIFFUSION DYNAMICS IN LIVE CELL PLASMA MEMBRANES WITH CONFOCAL AND SUPER-RESOLUTION IMAGING. **Falk Schneider**, Erdinc Sezgin, Dominic Waithe, Marco Fritzsche, Christian Eggeling

### 1616-PLAT 5:00 PM

ORDERED LIPID DOMAINS ASSEMBLE VIA CONCERTED RECRUITMENT OF CONSTITUENTS FROM BOTH MEMBRANE LEAFLETS. Ali Saitov, Sergey A. Akimov, Timur R. Galimzyanov, Toma N. Glasnov, **Peter Pohl**

### 1617-PLAT 5:15 PM

ASYMMETRIC MEMBRANES AND THE STUDY OF LIPID MOVEMENT ACROSS SINGLE LIPID BILAYERS. **Ursula A. Perez-Salas**, Yangmingyue Liu, Michael Stanfield, Neti Bhatt, Arthur Ralko, Justin Lorieau, Wonhwa Cho, Lionel Porcar, Yuri Gerelli

1618-PLAT 5:30 PM

CHOLESTEROL AFFECTS THE BENDING RIGIDITY OF DOPC MEMBRANES. **Rana Ashkar**, Milka Doktorova, Frederick A. Heberle, Haden Scott, Elizabeth Kelley, Michihiro Nagao, Rebecca Usery, Francisco N. Barrera, Gerald W. Feigenson, John Katsaras, George Khelashvili

1619-PLAT 5:45 PM

BUDDING AND FISSION OF VESICLES BY CONTROL OF MEMBRANE SPONTANEOUS CURVATURE. **Jan Steinkühler**, Solveig Bartelt, Seraphine Wegner, Roland L. Knorr, Rumiana Dimova, Reinhard Lipowsky

### Dinner Meet-Ups

6:00 PM - 6:30 PM, SOCIETY BOOTH/CHARLES STREET LOBBY

Interested in making new acquaintances and experiencing the cuisine of Baltimore? Meet at the Society Booth each evening, Sunday through Tuesday, at 6:00 pm where a BPS member will coordinate dinner at a local restaurant.

### Publications Committee Meeting

6:00 PM - 10:00 PM, HILTON, CALLOWAY

### Workshop

#### The Role of Data Resources in Biophysics

7:30 PM - 9:30 PM, ROOM 307/308

Chair

*Helen Berman, Rutgers University*

1620-WKSHP 7:30 PM

RCSB PROTEIN DATA BANK: SUSTAINING A LIVING DIGITAL DATA RESOURCE THAT ENABLES BREAKTHROUGHS IN SCIENTIFIC RESEARCH AND BIOMEDICAL EDUCATION. **Stephen K. Burley**

1621-WKSHP 7:54 PM

REACTOME - PATHWAY CONTEXT AND VISUALISATION FOR OMICS DATA. **Henning Hermjakob**

NO ABSTRACT 8:18 PM

UNIPROT THE UNIVERSAL PROTEIN KNOWLEDGEBASE IN THE GIGAPROTEIN ERA. **Alex Bateman**

NO ABSTRACT 8:42 PM

NCBI DATABASES IN SUPPORT OF BIOPHYSICS RESEARCH. **David Landsman**

1622-WKSHP 9:06 PM

ARCHIVING OF INTEGRATIVE/HYBRID STRUCTURAL MODELS. **Helen Berman**, Brinda Vallat, John Westbrook, Benjamin Webb, Andrej Sali

### Workshop

#### Methods for Integrative Structure Modeling of Biomolecular Systems

7:30 PM - 9:30 PM, ROOM 309/310

Chair

*Jens Meiler, Vanderbilt University*

1623-WKSHP 7:30 PM

HIGH-RESOLUTION, INTEGRATIVE MODELLING OF BIOMOLECULAR COMPLEXES. **Alexandre M.J.J. Bonvin**

1624-WKSHP 7:54 PM

ROSETTA TOOLS FOR CRYOEM MODELING. **Frank DiMaio**

1625-WKSHP 8:18 PM

PROTOTYPING MULTISCALE CELLULAR VISUALIZATION & MODELING TECHNIQUES FOR HYPOTHESIS GENERATION, COMMUNICATION & LEARNING. **Graham Johnson**

1626-WKSHP 8:42 PM

MODELING PROTEIN MONOMERS AND COMPLEXES USING RESTRAINTS FROM CROSSLINKING MASS SPECTROMETRY. **Maya Topf**

1627-WKSHP 9:06 PM

INTEGRATED STRUCTURAL BIOLOGY FOR ALPHA-HELICAL MEMBRANE PROTEIN STRUCTURE DETERMINATION. **Jens Meiler**

### Workshop

#### Squeezing the Most Out of Your Data - Bayesian Statistical Inference for Biophysics

7:30 PM - 9:30 PM, ROOM 314/315

Chair

*Michael Nilges, Pasteur Institute, France*

1628-WKSHP 7:30 PM

BAYESIAN STRUCTURAL MODELING OF LARGE BIOMOLECULAR SYSTEMS. **Michael Habeck**

1629-WKSHP 7:54 PM

SIMULTANEOUS DETERMINATION OF PROTEIN STRUCTURE AND DYNAMICS USING CRYO-ELECTRON MICROSCOPY. **Massimiliano Bonomi**

1630-WKSHP 8:18 PM

MACHINE LEARNING METHODS TO PUSH ALL-ATOM MD BEYOND THE SECONDS TIMESCALE AND SIMULATE PROTEIN-PROTEIN ASSOCIATION AND DISSOCIATION. **Frank Noé**

NO ABSTRACT 8:42 PM

CLOSING THE LOOP IN AUTOMATED DESIGN AND MEASUREMENT: SCALABLE BAYESIAN INFERENCE FOR BIOPHYSICAL EXPERIMENTS. **John Chodera**

NO ABSTRACT 9:06 PM

BAYESIAN MODELLING IN INTEGRATIVE STRUCTURAL BIOLOGY. **Michael Nilges**

## Workshop Methods for X-Ray Tomography and Electron Microscopy

7:30 PM - 9:30 PM, ROOM 316/317

### Chair

*Carolyn Larabell, Lawrence Berkely National Laboratory*

**NO ABSTRACT 7:30 PM**  
ELECTRON CRYOMICROSCOPY OF ROTARY ATPASES. **John Rubinstein**

**1631-WKSHP 7:54 PM**  
TOWARDS NEAR-ATOMIC RESOLUTION FOR IN SITU STRUCTURES BY  
CRYO-ELECTRON TOMOGRAPHY. **Peijun Zhang**

**1632-WKSHP 8:18 PM**  
BISPECTRAL INVARIANTS FOR IMAGE CLASSIFICATION AND ALIGNMENT  
IN CRYOEM. Philip R. Baldwin, **Steven J. Ludtke**

**1633-WKSHP 8:42 PM**  
HYBRID MODELING APPROACHES TO STUDY STRUCTURES AND DY-  
NAMICS OF BIOLOGICAL SYSTEMS. **Florence Tama**

**1634-WKSHP 9:06 PM**  
CT SCANS OF SINGLE CELLS WITH SOFT X-RAY TOMOGRAPHY. **Carolyn  
A. Larabell**, Jian-Hua Chen, Venera Weinhardt, Axel Ekman, Gerry Mc-  
Dermott, Mark A. Le Gros

## Workshop Single-Molecule Methods

7:30 PM - 9:30 PM, ROOM 318/319/320

### Chair

*Bo Huang, University of California, San Francisco*

**1635-WKSHP 7:30 PM**  
MOLECULAR HIGHWAYS - TORSIONAL CONSEQUENCES OF DNA MOTOR  
PROTEINS. **Michelle Wang**

**NO ABSTRACT 7:54 PM**  
FROM SINGLE MOLECULE FLUORESCENCE TO SUPERENZYME ENGINEER-  
ING AND BEYOND. **Taekjip Ha**

**1636-WKSHP 8:18 PM**  
PROVIDING 3D FOR SUPER-RESOLUTION MICROSCOPY AND SINGLE-PARTI-  
CLE TRACKING IN CELLS WITH SINGLE MOLECULES. **William Moerner**

**NO ABSTRACT 8:42 PM**  
REVEALING THE INNER WORKING OF MOLECULAR MACHINERIES USING  
IN-VIVO SINGLE MOLECULE IMAGING. **Jie Xiao**

**1637-WKSHP 9:06 PM**  
MAPPING THE INNER WORLD OF CELLS. **Bo Huang**

## SOBLA (The Society for Latinoamerican Biophysicists) Meeting

8:00 PM - 10:00 PM, ROOM 327/328/329

# TUESDAY POSTER SESSIONS

1:45 PM–3:45 PM, EXHIBIT HALL C

*Below is the list of poster presentations for Tuesday of abstracts submitted by October 1. The list of late abstracts scheduled for Tuesday is available in the Program Addendum, and those posters can be viewed on boards beginning with LB.*

Posters should be mounted beginning at 6:00 PM on Monday and MUST be removed by 4:00 PM on Tuesday evening. Posters will be on view until 10:00 PM on Monday, the night before presentation. Poster numbers refer to the program order of abstracts as they appear in the online Abstracts Issue. Board numbers indicate where boards are located in the Exhibit Hall.

On Tuesday, the Exhibit Hall will close completely at 4:30 PM to accommodate the tear down of exhibits. **ALL POSTERS MUST BE REMOVED BY 4:00 PM.** Posters remaining on boards after this time will be discarded. Posters being presented on Wednesday may be mounted beginning at 7:00 AM on Wednesday.

**ODD-NUMBERED BOARDS 1:45 PM–2:45 PM | EVEN-NUMBERED BOARDS 2:45 PM–3:45 PM**

Board Numbers	Category
B1–B16	Protein Structure and Conformation III
B17–B41	Protein Stability, Folding, and Chaperones II
B42–B72	Protein Dynamics and Allostery I
B73–B85	Membrane Protein Dynamics II
B86–B104	Intrinsically Disordered Proteins (IDP) and Aggregates II
B105–B129	RNA Structure and Dynamics
B130–B150	DNA Structure & Dynamics I
B151–B159	Ribosomes and Translation
B160–B177	Membrane Dynamics II
B178–B188	Membrane Fusion and Non-Bilayer Structures
B189–B221	General Protein-Lipid Interactions
B222–B244	Mechanosensation
B245–B267	Intracellular Calcium Channels and Calcium Sparks and Waves
B268–B276	Muscle Regulation
B277–B297	Voltage-gated Na Channels
B298–B322	Ligand-gated Channels II
B323–B347	Ion Channel Regulatory Mechanisms
B348–B373	Skeletal Muscle Mechanics, Structure, and Regulation
B374–B396	Kinesins, Dyneins, and Other Microtubule-based Motors
B397–B422	Cell Mechanics, Mechanosensing, and Motility II
B423–B434	Energy Transducing Membrane Protein Complexes
B435–B455	Systems Biology and Disease
B456–B458	Systems Neuroscience
B459–B473	Molecular and Cellular Neuroscience
B474–B490	Force Spectroscopy and Scanning Probe Microscopy
B491–B493	Diffraction and Scattering Techniques
B494–B524	Molecular Dynamics II
B525–B548	Optical Microscopy and Superresolution Imaging III
B549–B563	Biosensors II
B564–B578	Micro- and Nanotechnology II
B579–B592	Biophysics Education

It is the responsibility of the poster presenters to remove print materials from the board after their presentations. Please do not leave materials or belongings under poster boards or in the poster area. Posters will not be collected or stored for pick-up at a later time. The Biophysical Society is not responsible for any articles left in the poster area.

## Protein Structure and Conformation III (Boards B1 - B16)

- 1638-Pos**      **BOARD B1**  
CHARACTERIZATION OF THE NOVEL DNA BINDING ACTIVITY OF THE BRG1 AT-HOOK-BROMODOMAIN. **Julio C. Sanchez**, Liyang Zhang Zhang, Miles Pufall, Catherine Musselman
- 1639-Pos**      **BOARD B2**  
EVALUATION OF THERMAL HYSTERESIS ACTIVITY OF ICE-BINDING PROTEIN USING MOLECULAR DYNAMICS SIMULATION. Hyun Jung Yoon, Hak Jun Kim, **Sangwook Wu**
- 1640-Pos**      **BOARD B3**  
MOLECULAR BASIS OF CALMODULIN-DEPENDENT CALCINEURIN ACTIVATION. **Bin Sun**, Trevor P. Creamer, Jonathan P. Davis, Peter M. Kekeneshuskey
- 1641-Pos**      **BOARD B4**  
BIOPHYSICAL COMPARISON OF FULL LENGTH AND STABILIZED STEM FLU NANO-PARTICLE VACCINE CANDIDATES. **Gabriela C. Albright**
- 1642-Pos**      **BOARD B5**  
STRUCTURAL AND FUNCTIONAL STUDIES OF ANTIVIRAL PROTEIN IFITM3. **Emma H. Garst**, Avital Percher, Hang Hoang, Howard Hang
- 1643-Pos**      **BOARD B6**      **TRAVEL AWARDEE**  
RATIONAL TARGETING AND TESTING OF MYCOBACTERIAL L-ASPARAGINASE, ESSENTIAL FOR SURVIVAL OF MTB INSIDE HOSTS. **Arti Kataria**, Bishwajit Kundu
- 1644-Pos**      **BOARD B7**  
REVEALING THE DISORDERED INTER-DOMAIN DYNAMICS OF PEPTIDYL-PROLYL CIS/TRANS ISOMERASE PIN1 BY SINGLE MOLECULE FRET MEASUREMENTS. **Sungho Kim**, Seung Won Lee, Hajin Kim
- 1645-Pos**      **BOARD B8**      **TRAVEL AWARDEE**  
STRUCTURAL CHARACTERIZATION OF FOSM FROM *MYCOBACTERIUM ABSCESSUS*. **Madeline R. Shay**, Skye Travis, Matthew K. Thompson
- 1646-Pos**      **BOARD B9**  
SELECTIVE ISOPEPTIDE MODIFICATION OF PROTEINS WITH A PILIN POLYMERASE SORTASE FROM *CORYNEBACTERIUM DIPHThERIAE*. **Scott A. McConnell**
- 1647-Pos**      **BOARD B10**  
AUTOMATED AND OPTIMALLY FRET-ASSISTED STRUCTURAL MODELING. **Mykola Dimura**, Thomas Ottavio Peulen, Hugo Sanabria, Dmitro Rodnin, Katherina Hemmen, Claus A. M. Seidel, Holger Gohlke
- 1648-Pos**      **BOARD B11**  
EXPLORING THE ROLE OF A SINGLE MUTATION OF THE RRM CSTF-64 ON THE CLEAVAGE AND POLYADENYLATION PROCESS. **Elahe Masoumzadeh**
- 1649-Pos**      **BOARD B12**  
OPTIMIZATION OF FORMULATION CONDITIONS FOR BROADLY NEUTRALIZING ANTIBODIES (BNAB): UTILIZING ISOTHERMAL CHEMICAL DENATURATION AS A HIGH-THROUGHPUT SCREENING METHOD. **Marianna L. Fleischman**, Rajoshi Chaudhuri, Ria T. Caringal, Lisa Kueltz, K.C. Cheng, Frank Arnold
- 1650-Pos**      **BOARD B13**  
EXPERIMENTAL STRATEGY FOR ENGINEERING PH SWITCH PROTEINS. Jaime L. Sorenson, **Jamie L. Schlessman**, Peregrine Bell-Upp, Aaron C. Robinson, Bertrand Garcia-Moreno E.
- 1651-Pos**      **BOARD B14**  
SOLVING THE STRUCTURE OF INCLUSION MEMBRANE PROTEIN A IN *C. TRACHOMATIS*. **Katherine Ahn**, Tracy A. Caldwell, Linda Columbus

**1652-Pos**      **BOARD B15**  
MODELING CONFORMATIONAL CHANGES IN PROTEINS BASED ON SECOND HARMONIC GENERATION DATA. **Seth D. Axen**, Bason Clancy, Joshua Salafsky, Andrej Sali

**1653-Pos**      **BOARD B16**  
OPTIMAL DRIFT TIME FOR CROSSING FITNESS VALLEYS. **Mario E. Di Salvo**, Kimberly Reynolds, Milo M. Lin

## Protein Stability, Folding, and Chaperones II (Boards B17 - B41)

**1654-Pos**      **BOARD B17**  
APPLICATION OF NUMERICAL SIMULATIONS TO EXTRACT PROTEIN FOLDING PARAMETERS FROM HYDROGEN EXCHANGE MASS SPECTROMETRY EXPERIMENTS UNDER NATIVE CONDITIONS. **Jasper Flint**, Nilesh K. Aghera, Raghavan Varadarajan, Sheila Jaswal

**1655-Pos**      **BOARD B18**  
THE TRANSIENT COLLAPSED ENSEMBLE:  $T_0$  OF THE FOLDING PATHWAY. **Elisha Haas**, Dan Amir, Gil Rahamim, Osman Bilsel

**1656-Pos**      **BOARD B19**  
ANOMALOUS PROPERTIES OF LYS RESIDUES BURIED IN HYDROPHOBIC ENVIRONMENTS IN PROTEINS. Aaron C. Robinson, Valeria Hernandez-Munoz, Patrick Keating, Bhavitha Kotha, Thomas Labarca, Ilana Olin, AsiaLuna Patlis, Vrshank Raviveeraraghavan, Lynn Stanwyck, **Bertrand Garcia-Moreno**

**1657-Pos**      **BOARD B20**  
MAPPING THE FREE ENERGY CHANGE OF UNFOLDING VERSUS TEMPERATURE FOR TWO HOMOLOGOUS CYTOCHROMES C ADAPTED TO DIFFERING ENVIRONMENTAL TEMPERATURES. **Emily Tabaie**, Miranda Wilson, Logan Tillery, Katherine E. Frato

**1658-Pos**      **BOARD B21**  
CHARACTERIZATION OF THE STRUCTURAL FORCES GOVERNING THE REVERSIBILITY OF THE UNFOLDING OF THE HUMAN ACIDIC FIBROBLAST GROWTH FACTOR. **Shilpi Agrawal**

**1659-Pos**      **BOARD B22**  
THE EFFECT OF INPUT SET TO CONSENSUS DERIVED PROTEINS AND THEIR RELATIONSHIP TO ANCESTRAL PROTEINS. **Charlotte Nixon**, Shion A. Lim, Michael Harms, Susan Marqusee

**1660-Pos**      **BOARD B23**  
CHRONIC ER STRESS LEADS TO HEPATIC DAMP PRODUCTION. **Alexander P. Andersohn**, M. Iveth Garcia, Abdikarim Abdullahi, Marc Jeschke, Darren Boehning

**1661-Pos**      **BOARD B24**  
ASSESSING FOLDX FOR PREDICTING PROTEIN-PROTEIN BINDING AFFINITY CHANGES DUE TO MULTIPLE MUTATIONS. **Jonathan Barnes**, F. Marty Ytreberg

**1662-Pos**      **BOARD B25**  
HIGH-PRESSURE STRUCTURAL STUDIES OF DIHYDROFOLATE REDUCTASE IN SOLUTION. **Susana C. M. Teixeira**, Ryan Penhallurick, James T. Hoopes, Russell J. Hemley, Toshiko Ichiye

**1663-Pos**      **BOARD B26**  
ROBUST FOLDING OF HIV-1 PROTEASE MONOMER VIA DIVERSE FOLDING PATHWAYS. Janghyun Yoo, John M. Louis, **Hoi Sung Chung**

**1664-Pos**      **BOARD B27**  
MEASURING THE UNFOLDING AND LIGAND-BINDING OF CUSF, A COPPER CHAPERONE. **Isabel Zecua**, Blake Gillespie



**1665-Pos BOARD B28**

PROTEIN STRUCTURAL FLUCTUATIONS AT CRITICALITY IN THE TEMPERATURE-PRESSURE-CROWDING FOLDING PHASE DIAGRAM. PROTEIN STRUCTURAL FLUCTUATIONS AT CRITICALITY IN THE TEMPERATURE-PRESSURE-CROWDING FOLDING PHASE DIAGRAM. **Margaret S. Cheung**, Andrei G. Gasic, Caleb Daugherty

**1666-Pos BOARD B29**

INCREASE IN SOLUBILITY OF MONOCLONAL ANTIBODIES - FORMULATION PERSPECTIVE AND THE "MAGIC" OF ARGININE. **Slobodanka D. Manceva**, Amy L. Chamberlain, Rahul Rangunathan, Hsing-Ho (Vasha) Hsu, Elihu Ihms, Lisa Kuelztzo, Kc Cheng, Frank Arnold

**1667-Pos BOARD B30**

EFFECTS OF HYDROSTATIC PRESSURE ON A PUTATIVE PIEZOPHILIC HOMOLOGUE OF STAPHYLOCOCCAL NUCLEASE BY FLUORESCENCE AND HIGH-PRESSURE NMR. **Kacey Kilpatrick**, Grayson Gerlich, Catherine A. Royer

**1668-Pos BOARD B31**

A MUTAGENESIS STUDY TO INVESTIGATE THE ROLE OF ALANINE TO SERINE MUTATIONS IN THE ADAPTATION OF A DIATOM CYTOCHROME C<sub>6</sub> TO COLD TEMPERATURES. **Miranda Wilson**, Jordyn Preusker, Inaara Bhola, Katherine Frato

**1669-Pos BOARD B32**

PREDICTING THE STABILITY OF MONOCLONAL ANTIBODIES AT HIGH CONCENTRATION FORMULATIONS. **Kylie M. Konrath**, Sean Nugent, Amy L. Chamberlain, Rahul Rangunathan, Vasha Hsu, Hairong Wang, Marianna L. Fleischman, Elihu Ihms, Rajoshi Chaudhuri, Slobodanka M. Mančeva, Lisa A. Kuelztzo, KC Cheng, Frank Arnold

**1670-Pos BOARD B33**

A DECOY FOLDING NUCLEUS CAN MODULATE PROTEIN FOLDING KINETICS. **Anirban Das**, Anju Yadav, Mona Gupta, Purushotham R, Vishram L. Terse, Shachi Gosavi, Ranabir Das, Sri Rama Koti Ainavarapu, Sudipta Maiti

**1671-Pos BOARD B34**

INTERPLAY BETWEEN NATIVE STATE TOPOLOGY AND SEQUENCE IN TWO-STATE PROTEIN FOLDING. **Stefan Wallin**, Daniel Trotter

**1672-Pos BOARD B35**

STRUCTURAL CHARACTERIZATION OF A UBIQUITIN FOLDING INTERMEDIATE BY PRESSURE-JUMP NMR. **Joseph M. Courtney**, Cyril Charlier, Ad Bax

**1673-Pos BOARD B36**

INTERFACES OF THE TOPOISOMERASE V (HHH)<sub>2</sub> DOMAINS HAVE SURPRISING CONTRIBUTIONS TO THERMODYNAMIC STABILITY. **Mark Petersen**, Rebecca Fang, Ananya Majumdar, Doug Barrick

**1674-Pos BOARD B37**

UNRAVELLING THE ROLE OF S100A9 IN THE DEVELOPMENT OF NEURODEGENERATIVE DISEASE. **Philip T.F. Williamson**, Jack Horrocks, Luckshi Maheswaran, Maria Concistre, Ludmilla Morozova-Roche

**1675-Pos BOARD B38**

EFFECT OF HSP70 CHAPERONE ON CNG ION CHANNELS RELATED TO CHANNELOPATHIES. **Karina Juárez**, Angelica Lopez-Rodriguez, Ivan Meneses-Morales

**1676-Pos BOARD B39**

INNOVATION OF A NOVEL PULSE-CHASE IN CELL FOOTPRINTING METHOD FOR THE STUDY OF PROTEIN FOLDING PHENOMENA. **Danté T. Johnson**, Benjamin Punshon-Smith, Anne Gershenson, Lisa M. Jones

**1677-Pos BOARD B40**

MONITORING PROTEIN FOLDING ON AND OFF THE RIBOSOME USING X-RAY FOOTPRINTING MASS SPECTROMETRY. **Shawn M. Costello**, Natalie R. Dall, Avi J. Samelson, Sayan Gupta, Corie Y. Ralston, Susan Marqusee

**1678-Pos BOARD B41**

COCHAPERONES ENABLE HSP70 TO USE ATP ENERGY FOR NON-EQUILIBRIUM STABILIZATION OF NATIVE PROTEINS. **Huafeng Xu**

## Protein Dynamics and Allostery I (Boards B42 - B72)

**1679-Pos BOARD B42**

DESCRIPTION OF STRUCTURAL CHANGES BY MOTION TREE. **Ryotaro Koike**, Kei Moritsugu, Motonori Ota

**1680-Pos BOARD B43**

SIMULATING THE FOLDING TRAJECTORIES OF LATTICE PROTEINS WITHIN AN OSCILLATORY ENVIRONMENT. **Xuanye Zhu**, Qizhang Jia, Kateri H. DuBay

**1681-Pos BOARD B44**

UNFOLDING TRANSITIONS AND INTERDOMAIN COUPLING IN HUMAN DYSTROPHIN SPECTRIN REPEATS. Lisa Ito, **Madison Nohner**

**1682-Pos BOARD B45**

DRUG RESISTANCE INDUCED BY LOCAL AND ALLOSTERIC CONFORMATIONAL CHANGES IN ONCOGENIC TYROSINE KINASES. **Mitsugu Araki**, Yasushi Okuno

**1683-Pos BOARD B46**

HYDROGEN EXCHANGE REVEALS THE MECHANISM OF STABILIZATION OF P53 RESCUE MUTANTS N235K AND N239Y. **Melanie J. Cocco**, Jenaro Soto, Ali Alhoshani, Colleen Moody

**1684-Pos BOARD B47**

NOVEL REGULATORY MECHANISMS IDENTIFIED IN VIRAL DNA PACKAGING PROTEINS USING MOLECULAR DYNAMICS SIMULATIONS. **Joshua Pajak**, Gaurav Arya

**1685-Pos BOARD B48**

UNVEILING A NEW REGULATION MECHANISM OF SMALL GTPASES ON THE ACTIVITY OF PLEXIN-B1 MEMBRANE RECEPTOR. **Zhenlu Li**, Matthias Buck

**1686-Pos BOARD B49**

WHAT MODULATES THE USP7 FUNCTION...A DYNAMIC POCKET OR INTER-REGULATORY DOMAINS? **Mitul Srivastava**, Charu Suri, Shailendra Asthana

**1687-Pos BOARD B50**

ALLOSTERIC EFFECTS AND SIGNAL TRANSDUCTION IN THE PEPTIDE-MHC BINDING TO A HUMAN T CELL RECEPTOR. **Buyong Ma**, John P. Orban, Roy Mariuzza, Ruth Nussinov

**1688-Pos BOARD B51**

THE MECHANISM OF PI3KA ACTIVATION AT THE ATOMIC LEVEL. **Mingzhen Zhang**, Hyunbum Jang, Ruth Nussinov

**1689-Pos BOARD B52**

EXAMINATION OF ALLOSTERIC PATHWAYS IN MODEL PROTEINS USING INFORMATION-THEORETIC AND SIMULATION METHODS: REGULATORY MECHANISM OF THE KIX AND PDZ DOMAINS. **Cyprian Kleist**, Jacek Czub, Michal Olewniczak, Karol Jacek, Michal Jurkowski, Michal Badocha

**1690-Pos BOARD B53**

ESTIMATING THE HIGH DIMENSIONAL RUGGEDNESS OF PROTEIN FREE ENERGY LANDSCAPES FROM MOLECULAR DYNAMICS TRAJECTORIES. **Andreas Volkhardt**, Helmut Grubmueller

**1691-Pos BOARD B54**

HIGH BANDWIDTH SENSING OF SINGLE PROTEIN DYNAMICS USING NANOPORES AND DNA ORIGAMI. **Sonja Schmid**, Pierre Stoemmer, Hendrik Dietz, Cees Dekker

**TRAVEL AWARDEE**

**1692-Pos BOARD B55**  
INFLUENZA VIRULENCE AND TRANSMISSIBILITY THROUGH THE COMPUTATIONAL MICROSCOPE. **Lorenzo Casalino**, Christian Seitz, Ian A. Wilson, Rommie E. Amaro

**1693-Pos BOARD B56**  
ALLOSTERY MODULATES RESISTANCE DRIVER MUTATIONS IN TEM-1. **Tushar Modi**, Banu Ozkan

**1694-Pos BOARD B57**  
PRESSURE-EFFECTS AND ADAPTATION MECHANISMS OF AMBIENT AND DEEP-SEA BACTERIAL ENZYMES. **Ryan Penhallurick**, J. Todd Hoopes, Toshiko Ichiye, Susana Teixeira

**1695-Pos BOARD B58**  
MOLECULAR MECHANISMS OF TRANSITION FROM CATCH TO SLIP BONDS IN FIBRIN. **Rustem I. Litvinov**, Olga Kononova, Artem Zhmurov, Kenneth A. Marx, Valeri Barsegov, Dave Thirumalai, John W. Weisel

**1696-Pos BOARD B59**  
MULTISCALE MODELING OF DYNAMIN PROTEIN ALLOSTERY. **Frank X. Vázquez**, Dalia M. Hassan, Joseph Marte

**1697-Pos BOARD B60**  
CHARACTERISTIC DYNAMICS ON THE EVOLUTION OF HIV-1 PROTEASE BY COMPARING CORRELATED DYNAMICS PROFILES. **Joseph Hess**

**1698-Pos BOARD B61**  
INTEGRATIVE MODELING OF PROTEIN DYNAMICS FROM TIME-SERIES DATA OF SINGLE-MOLECULE EXPERIMENTS AND MOLECULAR DYNAMICS SIMULATIONS. **Yasuhiro Matsunaga**, Yuji Sugita

**1699-Pos BOARD B62**  
CHARACTERIZING DYNAMICAL DIFFERENCES BETWEEN TEM-1 AND TEM-52 BETA-LACTAMASES. **Christopher Avery**, Jenny Farmer, Matthew C.S. Tsilimigras, Charles David, Dennis R. Livesay, Donald J. Jacobs

**1700-Pos BOARD B63**  
COMPUTATIONAL STUDY ON THE REGULATION OF FAM20C BY FAM20A. **Hua Yu**, Man Xue, Lei Wang, Chen Song

**1701-Pos BOARD B64**  
NORMAL MODE ANALYSIS OF ALLOSTERIC EFFECTS IN ACTOMYOSIN COMPLEX. **Zhixia Liu**

**1702-Pos BOARD B65**  
SINGLE POINT MUTATIONS MODULATE DYNAMICAL ALLOSTERY IN IGG4 MONOCLONAL ANTIBODIES. **Lonnie Baker**, Shahid Uddin, Azhagiya Singam, Donald J. Jacobs, Jose Casas-Finet

**1703-Pos BOARD B66**  
THE CONTRIBUTION OF A SOLVENT ON PROTEIN DYNAMICS. **Hyuntae Na**, Injung Kim, Anshuman Bose Majumdar

**1704-Pos BOARD B67**  
HOMO AND HETERODIMERIC STRUCTURES OF CCR5 AND CXCR4: MOLECULAR DYNAMICS SIMULATION AS AN ALTERNATIVE TO X-RAY DIFFRACTION. **Daniele Di Marino**, Stefano Motta, Vittorio Limongelli

**1705-Pos BOARD B68**  
DYNAMICS OF AMPA RECEPTORS FROM SIMULATIONS AND ELECTRON MICROSCOPY. **James M. Krieger**, B  atriz Herguedas, Bishal Singh, Jiyoung Lee, Burak Kaynak, Ingo Greger, Ivet Bahar

**1706-Pos BOARD B69**  
STRUCTURAL AND FUNCTIONAL STUDIES OF THE EFFECTS OF PHOSPHORYLATION ON EPHRIN RECEPTOR TYROSINE KINASE, EPHA2, RECEPTOR INTRACELLULAR DOMAINS AND THE RELATIONSHIP WITH ITS SAM DOMAIN AS AN AUTOINHIBITOR. Fatima Razelle Javier, Xiaojun Shi, ZhenLu Li, Jeannine Mueller-Greven, Deanna Bowman, Belinda Willard, Bing-Cheng Wang, Adam W. Smith, **Matthias Buck**

**1707-Pos BOARD B70**  
FLEXIBILITY OF FREE AND ACRB-BOUND ACRA IN THE ACRAB-TOLC MULTIDRUG EFFLUX PUMP OF *ESCHERICHIA COLI* DETERMINED USING 3D PMFS. **Anthony Hazel**, James C. Gumbart

**1708-Pos BOARD B71**  
CONFORMATIONAL DYNAMICS OF T-CELL RECEPTOR CHASSIS FOR MECHANOSENSING. **Wonmuk Hwang**, Robert J. Mallis, Matthew J. Lang, Ellis L. Reinherz

**1709-Pos BOARD B72 TRAVEL AWARDEE**  
DIFFERENTIAL DOMAIN INSERTION PERMISSIBILITY IS A MEASURE OF ENGINEERABLE ALLOSTERIC CAPACITY IN ION CHANNELS. **Willow Coyote-Maestas**, Yungui He, Chad Myers, Daniel Schmidt

## Membrane Protein Dynamics II (Boards B73 - B85)

**1710-Pos BOARD B73 TRAVEL AWARDEE**  
BAYESIAN ESTIMATION OF THE DIFFUSION CONSTANT FOR MEMBRANE PROTEIN DYNAMICS IN AN ARBITRARY LANDSCAPE OF OBSTRUCTING BOUNDARIES. **Hanieh Mazloom-Farsibaf**, Keith Lidke

**1711-Pos BOARD B74**  
DETERMINING THE UNBINDING PATHWAY FOR A TSPO-PK11195 COMPLEX. **Thomas Dixon**, Alex Dickson

**1712-Pos BOARD B75**  
PURIFICATION OF AN ENGINEERED MEMBRANE PROTEIN FHUA FOR SIZE-DEPENDENT SEPARATION. **Alina M. Thokkadam**, Prasangi Rajapaksha, Yu-Ming Tu, Manish Kumar, Yinan Wei

**1713-Pos BOARD B76**  
EFFECTS OF MEMBRANE HETEROGENEITY AND AGGREGATION ON THE LATERAL MIGRATION AND COLOCALIZATION OF PROTEINS. **Asanga Bandara Ekanayaka Mudiyansele**, George A. Pantelopulos, Tetsuro Nagai, John E. Straub

**1714-Pos BOARD B77**  
SUBSTRATE-INDUCED CONFORMATIONAL DYNAMICS OF THE DOPAMINE TRANSPORTER. Anne Kathrine Nielsen, Ingvar R. M  ller, S  ren G.F. Rasmussen, Kasper D. Rand, **Claus J. Loland**

**1715-Pos BOARD B78**  
THE PRESENCE OF A LIPOPOLYSACCHARIDE SUBSTRATE STIMULATES LATERAL GATING IN LPTD. **Karl Lundquist**

**1716-Pos BOARD B79**  
HOW SHAPE, FLEXIBILITY, AND CROWDING AFFECT CURVATURE SENSING AND GENERATION BY GENERIC SCAFFOLDING PROTEINS. **Zack Jarin**, Patricia Bassereau, Gregory A. Voth

**1717-Pos BOARD B80**  
MOLECULAR DETERMINANTS OF NEISSERIAL OPA PROTEIN INTERACTIONS WITH HUMAN CEACAMS. **Jennifer N. Martin**, Alison K. Criss, Linda Columbus

**1718-Pos BOARD B81**  
MODULATION OF GLUTAMATE TRANSPORTER GLTPH BY ARACHIDONIC ACID HOMOLOGUES. **Xiaoyu Wang**, Gabriel G. Gregorio, Scott C. Blanchard, Olga Boudker

**1719-Pos BOARD B82**  
UNDERSTANDING MEMBRANE TRANSPORT PROCESSES USING ENM AND MD SIMULATIONS. **Sayane Shome**, Edward W. Yu, Robert L. Jernigan

**1720-Pos BOARD B83**  
MOLECULAR DYNAMICS STUDY OF THE GATING MECHANISM OF CFTR. **Zhi Wei Zeng**, Christopher Ing, R  gis Pom  s

**1721-Pos BOARD B84**  
ELUCIDATING MECHANISMS OF SUBSTRATE TRANSPORT IN MEMBRANE TRANSPORTERS. **Diwakar Shukla**

**1722-Pos BOARD B85**  
EFFECT OF CELL CORTEX BASED TRANSIENT CONFINEMENT ON EPIDERMAL GROWTH FACTOR RECEPTOR INTERACTIONS IN INTACT CELLS. **Michael Zucker, Arnd Pralle**

## Intrinsically Disordered Proteins (IDP) and Aggregates II (Boards B86 - B104)

**1723-Pos BOARD B86**  
DISEASE-LINKED MUTATIONS IN UBQLN2 PROLINE-RICH REGION PROMOTE PHASE SEPARATION AND LIQUID-TO-SOLID PHASE TRANSITIONS. **Carlos A. Castaneda, Thuy P. Dao, Brian Martyniak, Yongna Lei, Ashley Canning, Erica Colicino, Michael S. Cosgrove, Heidi Hehnly**

**1724-Pos BOARD B87**  
TUNING AND EXPLORING THE REFORMATION PROCESS OF A CATIONIC TRIPEPTIDE HYDROGEL. **David M. DiGuseppi, Lavenia Thursch, Nicolas Alvarez, Reinhard Schweitzer-Stenner**

**1725-Pos BOARD B88**  
ALTERED NUCLEOLAR PHASE SEPARATION BY NPM1 IN ALS. **Michael R. White, Diana M. Mitrea, Peipei Zhang, Christopher B. Stanley, Devon Cassidy, Amanda Nourse, Aaron H. Phillips, Michele Tolbert, J. Paul Taylor, Richard Kriwacki**

**1726-Pos BOARD B89**  
MOLECULAR INSIGHTS INTO THE ROLE OF RNA STRUCTURE IN THE PHASE SEPARATED NUCLEOLUS. **Michele Tolbert, Paul C. Parish, Samuel W. Olson, Diana M. Mitrea, Kevin Weeks, Richard W. Kriwacki**

**1727-Pos BOARD B90 TRAVEL AWARDEE**  
INTERNAL STRUCTURE OF NETWORK FLUID CONDENSATES FORMED BY LIQUID-LIQUID PHASE SEPARATION OF A MULTIVALENT OLIGOMERIC PROTEIN AND A DISORDERED LINEAR PEPTIDE. **Jeong-Mo Choi, Diana M. Mitrea, Christopher B. Stanley, Kiersten M. Ruff, Alex S. Holehouse, Richard W. Kriwacki, Rohit V. Pappu**

**1728-Pos BOARD B91**  
COMPUTATIONAL STUDIES OF THE PHASE TRANSITIONS AND NETWORK STRUCTURE OF DENSE LIQUIDS FORMED BY LINEAR MULTIVALENT PROTEINS. **Furqan Dar, Jeong-Mo Choi, Rohit V. Pappu**

**1729-Pos BOARD B92**  
EXPERIMENTAL AND THEORETICAL METHODS FOR MAPPING COEXISTENCE CURVES OF PHASE-SEPARATING BIOLOGICAL MACROMOLECULES. **Ammon E. Posey, Alex S. Holehouse, Kiersten M. Ruff, Rohit V. Pappu**

**1730-Pos BOARD B93**  
EXPLORING THE TUNABILITY OF THE AGGREGATION AND GELATION PROCESS OF THE TRIPEPTIDE GAG. **Thursch Lavenia, Nicolas J. Alvarez, David DiGuseppi, Reinhard Schweitzer-Stenner**

**1731-Pos BOARD B94 TRAVEL AWARDEE**  
MOLECULAR FACTORS UNDERLYING STRESS-TRIGGERED PHASE-SEPARATION OF PAB1. **Darren N. Kahan, Ruofan Chen, Joshua Riback, Christopher Katanski, Allan Drummond, Tobin R. Sosnick**

**1732-Pos BOARD B95**  
EXPLORING THE INITIAL PHASE OF FMOCFF DIPEPTIDES GELATION IN MIXTURE OF WATER AND DIMETHYLSULPHOXIDE. **Nathan J. Hennessy, Matthew Levine, David DiGuseppi, Lihi Abramovich, Reinhard Schweitzer-Stenner**

**1733-Pos BOARD B96**  
EXPLORING THE UNEXPECTED PH TRIGGERED SELF-ASSEMBLY AND GELATION OF THE GHG TRIPEPTIDE IN WATER. **Morgan Hesser, David DiGuseppi, Lavenia Thursch, Nicolas Alvarez, Reinhard Schweitzer-Stenner**

**1734-Pos BOARD B97**  
A HIGH-THROUGHPUT APPROACH TO PHASE SEPARATION OF DISORDERED PROTEINS. **Gregory L. Dignon, Wenwei Zheng, Youngchan Kim, Jeetain Mittal**

**1735-Pos BOARD B98**  
USING SITE-SPECIFIC VIBRATIONAL SPECTROSCOPY TO DETERMINE STRUCTURE OF MEMBRANE-BOUND N-TERMINALLY ACETYLATED ALPHA-SYNUCLEIN. **Samuel McCalpin, Franklin Kostas, Casey H. Londergan**

**1736-Pos BOARD B99**  
INTRINSIC FLUORESCENCE-BASED FRET: A NOVEL APPROACH TO MONITOR EARLY STAGES OF AMYLOID AGGREGATION. **Nabin Kandel, Suren A. Tatulian**

**1737-Pos BOARD B100 TRAVEL AWARDEE**  
DETERMINATION OF MICROSCOPIC PARAMETERS OF AMYLOID AGGREGATION BY MONITORING REAL-TIME GROWTH USING TIRF MICROSCOPY. **Subhas C. Bera, Shamasree Ghosh, Timir B. Sil, Kanchan Garai**

**1738-Pos BOARD B101**  
THE NOREPINEPHRINE INHIBITS ALZHEIMER'S AMYLOID-B PEPTIDE AGGREGATION BY BINDING TO THE C-TERMINAL HYDROPHOBIC REGION. **Yu Zou, Hongsheng Qian, Qingwen Zhang**

**1739-Pos BOARD B102**  
CYSTEINE-RICH GRANULIN-3 RAPIDLY PROMOTES AGGREGATION OF AMYLOID-BETA IN BOTH REDOX STATES. **Anukool A. Bhopatkar, Gaurav Ghag, Lauren M. Wolf, Dexter N. Dean, Melissa A. Moss, Vijay Rangachari**

**1740-Pos BOARD B103**  
AMYLOID -BETA OLIGOMERIZATION IN THE PRESENCE OF ANIONIC PHOSPHOLIPIDS. **Jhinuk Saha, Dexter N. Dean, Vijay Rangachari**

**1741-Pos BOARD B104**  
PROTEIN-DRUG INTERACTIONS IN THE MEMBRANE: THE SMALL MOLECULE ANLE138B AND ITS BINDING TO A-SYNUCLEIN OLIGOMERS. **Leif Antonschmidt, Riza Dervisoglu, Sergey Ryazanov, Andrei Leonov, Melanie Wegstroth, Karin Giller, Stefan Becker, Roland Benz, Gregor Eichele, André Fischer, Armin Giese, Loren Andreas, Christian Griesinger**

## RNA Structure and Dynamics (Boards B105 - B129)

**1742-Pos BOARD B105**  
THE ROLE OF  $Mg^{2+}$  ION INTERACTIONS IN FOLDING OF THE TWISTER RIBOZYME AND PREQ1 RIBOSWITCH REVEALED THROUGH UMBRELLA SAMPLING COMBINED WITH OSCILLATING CHEMICAL POTENTIAL GRAND CANONICAL MONTE CARLO/MOLECULAR DYNAMICS SIMULATIONS. **Abhishek A. Kognole, Alexander D. MacKerell**

**1743-Pos BOARD B106**  
STUDY OF ION EFFECTS IN GROUP II INTRONS. **Ailun Wang, Mariana Levi, Udayan Mohanty, Paul C. Whitford**

**1744-Pos BOARD B107**  
FUNCTIONAL SOMATIC EXOSOMAL NONCODING NCRNA BY MODULAR BIOCOMBINATORICS AND ALGORITHMS: FROM GENETIC INTRONS TO CODES FOR EPIGENETIC FUNCTIONS. **Josef H. H. Wissler**

- 1745-Pos BOARD B108**  
PREFERENTIAL INTERACTIONS OF K<sup>+</sup>/CL<sup>-</sup> AND TMAO WITH A MODEL RNA OLIGOMER. **Jacob C. Miner**, Kyle Hackett
- 1746-Pos BOARD B109 TRAVEL AWARDEE**  
DEVELOPING AN ACCURATE ALL-ATOM FIXED-CHARGE FORCE FIELD FOR RNA WITH IMPLICITLY POLARIZED CHARGES. **Chapin E. Cavender**, Louis G. Smith, Alan Grossfield, David H. Mathews
- 1747-Pos BOARD B110**  
RNA BASE PAIR FOLDING KINETICS FROM MD SIMULATIONS: FORCE FIELD DEPENDENCE. Fengfei Wang, **XiaoJun Xu**
- 1748-Pos BOARD B111**  
ONE-BEAD COARSE-GRAINED MODEL FOR RNA 3D STRUCTURE WITH NON-CANONICAL INTERACTIONS. **Mario Villada-Balbuena**, Mauricio D. Carbajal-Tinoco
- 1749-Pos BOARD B112**  
RNA STRUCTURE AND KINETICS INCLUDING PSEUDOKNOTS THROUGH COMPLETE LANDSCAPE ENUMERATION. **Ofer Kimchi**, Tristan Cragolini, Rees Garmann, Vinodhan N. Manoharan, Michael P. Brenner, Lucy J. Colwell
- 1750-Pos BOARD B113**  
SECONDARY STRUCTURE PREDICTIONS AND DETERMINATION OF FOLDING PATHWAYS FOR TPP RIBOSWITCH. **Subash Godar**, Junyan Ma, Hugo Sanabria, Joshua Alper
- 1751-Pos BOARD B114**  
TOWARDS OBTAINING A NANOSCALE STRUCTURE OF TERMINAL REGIONS OF JAPANESE ENCEPHALITIS VIRUS GENOME. Tyler Mrozowich, Vanessa Meier-Stephen, Justin Vigar, Astha, Janusz M. Bujnicki, Hans-Joachim Wieden, **Trushar R. Patel**
- 1752-Pos BOARD B115**  
SCREENING FOR SMALL MOLECULE BINDERS TO THE ZTP RIBOSWITCH, A BACTERIAL REGULATOR OF FOLATE METABOLISM. **Brandon N. Tran**, Christopher P. Jones, Colleen Connelly, John S. Schneckloth, Adrian R. Ferre-D'Amare
- 1753-Pos BOARD B116**  
PEPTIDE NUCLEIC ACID INTERACTIONS WITH C9ORF72 (G4C2)<sub>N</sub> REPEATS. **Madeline Tatosian**, Shivaji Thadke, Danith Ly, Mihaela-Rita Mihailescu
- 1754-Pos BOARD B117**  
THE IMPORTANCE OF WATER IN RNA FOLDING. **Clark Templeton**
- 1755-Pos BOARD B118**  
PRESSURE EFFECTS ON FOLDING OF AN RNA G-QUADRUPLEX STRUCTURE. **Balasubramanian Harish**, Jinqiu Wang, Eric Hayden, Catherine Royer
- 1756-Pos BOARD B119**  
SINGLE-MOLECULE INSIGHTS INTO THE TEMPERATURE DEPENDENT CONFORMATIONAL CHANGES OF A RNA THERMOMETER IN THE PRESENCE OF CROWDERS AND OSMOLYTES. **Loana Arns**
- 1757-Pos BOARD B120**  
SINGLE MOLECULE UNFOLDING OF RNA HAIRPINS. **Jasmine Li**, Sarah Plachinski, Micah J. McCauley, Mark C. Williams, Megan E. Nunez
- 1758-Pos BOARD B121**  
FOLLOWING FOLDING PATHWAYS OF COMMON RIBOSWITCH MOTIFS WITH TIME-RESOLVED SINGLE-MOLECULE FRET. **Alex Plumridge**, Lois Pollack
- 1759-Pos BOARD B122**  
MANIPULATION OF GQ-BASED RNA APTAMERS AT THE SINGLE MOLECULE LEVEL USING INTEGRATED FORCE-FLUORESCENCE SPECTROSCOPY. **Jaba Mitra**, Taekjip Ha

- 1760-Pos BOARD B123**  
SPECIFIC STRUCTURAL ELEMENTS OF THE T-BOX RIBOSWITCH DRIVE THE TWO-STEP BINDING OF THE TRNA LIGAND. **Jiacheng Zhang**, Bhaskar Chetnani, Eric Cormack, Dulce Alonso, Wei Liu, Alfonso Mondragon, Jingyi Fei
- 1761-Pos BOARD B124**  
SOLUTION STRUCTURE OF A C-JUN 5' UTR STEM-LOOP ASSOCIATED WITH CAP-DEPENDENT EIF3 SPECIALIZED TRANSLATION INITIATION. **Matthew Walker**
- 1762-Pos BOARD B125**  
SIGNAL ANALYSIS OF NANOPORE RNA SEQUENCING TO INTERROGATE POLY(A) TAILS AND POST-TRANSCRIPTIONAL MODIFICATIONS. **Roham Razaghi**, Timothy Gilpatrick, Norah Sadowski, Paul Tang, Rachael Workman, Jared Simpson, Winston Timp
- 1763-Pos BOARD B126**  
FUNCTION AND DYNAMICS OF THE LSM2-8 PROTEIN RING DURING SPLICEOSOME ACTIVATION. **Harpreet Kaur**, Margaret L. Rodgers, Aaron A. Hoskins
- 1764-Pos BOARD B127**  
SELECTIVE ISOTOPE LABELING TO FACILITATE STRUCTURAL AND DYNAMICS STUDIES OF RNAs BY NMR SPECTROSCOPY. **Lukasz T. Olginski**, Owen Becette, Hyeyeon Nam, Kehinde M. Taiwo, Theodore K. Dayie
- 1765-Pos BOARD B128**  
INVESTIGATING THE STRUCTURE AND DYNAMICS OF RNAs THAT DISTINGUISH BETWEEN HUMAN AND CHIMPANZEE BY NMR USING SELECTIVE ISOTOPICALLY LABELED RNAs. **Kehinde M. Taiwo**, Hyeyeon Nam, Olginski Lukasz, Owen Becette, Kwaku Dayie
- 1766-Pos BOARD B129**  
CHARACTERIZATION OF STRUCTURAL ELEMENTS IN THE HCV GENOME USING ATOMIC FORCE MICROSCOPY. Jamie L. Gilmore, Hideki Aizaki, Takaji Wakita, **Kunio Takeyasu**
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- 1767-Pos BOARD B130 TRAVEL AWARDEE**  
THE EFFECT OF INTRAstrand BASE-STACKING INTERACTIONS ON THE ENERGETICS AND STRUCTURAL DYNAMICS OF DNA INTERNAL LOOPS. Michael P. Leveille, Roman S. Solecki, **Brian L. Cannon**
- 1768-Pos BOARD B131**  
THE EFFECT OF SMALL MOLECULES ON THE STABILITY OF G-QUADRUPLEXES. **Christopher G. Bentsen**, Massimiliano Lamberto, Davis Jose
- 1769-Pos BOARD B132**  
WHAT ARE THE DYNAMICS OF DNA NANOCAGES? FROM DESIGN TO APPLICATIONS IN DRUG DELIVERY. **Jonathon B. Ferrell**, Garrett J. Chan, Marlo L. Zorman, Jianing Li
- 1770-Pos BOARD B133**  
A SPECTROSCOPIC APPROACH TO UNDERSTAND THE STRUCTURAL INTRICACIES OF NON-CANONICAL NUCLEIC ACID CONFORMATIONS USING FLUORESCENT BASE ANALOGUES. Kirsten P. Lawson, Michal M. Kalisz, Christopher G. Bentsen, **Davis Jose**
- 1771-Pos BOARD B134**  
USE OF CYANO PROBES IN QM/MM SIMULATIONS TO STUDY THE EFFECT OF ION CONCENTRATION AND TEMPERATURE OF THE ENVIRONMENT ON A URACIL NUCLEOTIDE AND DNA. **Anmol Kumar**, Alexander D. MacKerell
- 1772-Pos BOARD B135**  
BACTERIAL NUCLEIC ACID QUADRUPLEX FORMATION. **Amelia Cecere**, Hikari Murayama, Sally Shepardson-Fungairino, Megan E. Nunez

**1773-Pos BOARD B136**  
TAMRA-POLYPYRROLE FOR A/T SEQUENCE VISUALIZATION ON DNA MOLECULES. **Seonghyun Lee**, Kyubong Jo

**1774-Pos BOARD B137**  
QUANTIFYING DNA ELASTICITY IN THE COURSE OF BINDING OF SMALL MOLECULE TO DNA. **Anurag Singh**, Amar Nath Gupta

**1775-Pos BOARD B138**  
DNA AGGREGATION REGIME - HOW DIVALENT IONS AND POLYMERS CAN INDUCE CREATION OF DNA NANOPARTICLES. **Piotr Trochimczyk**, Robert Holyst

**1776-Pos BOARD B139**  
INTERCALATION OF SMALL RHODIUM COMPLEXES INTO MATCHED AND MISMATCHED DNA. **Guðfríður Björg Möller**, Liam Price, Grace Ferris, Micah J. McCauley, Ioulia Rouzina, Megan Núñez, Mark C. Williams

**1777-Pos BOARD B140**  
EFFECT OF TETRAMERIC BASE-PAIR CONTEXT ON THE SEQUENCE-DEPENDENT CONFIGURATIONS OF DNA MINICIRCLES. **Robert T. Young**, Benjamin Cohen, Luke Czaplá, Pamela J. Perez, Wilma K. Olson

**1778-Pos BOARD B141**  
BINDING OF LARGININAMIDE TO A DNA APTAMER: A VOLUMETRIC STUDY. **Lutan Liu**

**1779-Pos BOARD B142 TRAVEL AWARDEE**  
WATSON-CRICK LIKE MISMATCHES IN REPLICATION FIDELITY. **Atul Kaushik Rangadurai**, Eric S. Szymanski, Honglue Shi, Hashim M. Al-Hashimi

**1780-Pos BOARD B143**  
STRUCTURE AND DYNAMICS OF THE BCL-2 PROMOTER G-QUADRUPLEX USING THE DRUDE POLARIZABLE FORCE FIELD. **Brian D. Ratnasinghe**, Alexa M. Salsbury, Danielle L. Porier, Justin A. Lemkul

**1781-Pos BOARD B144**  
VISUALIZING BASE OPENING IN NUCLEIC ACID DUPLEXES. **Honglue Shi**, Bei Liu, Atul Rangadurai, Mary Clay, Christoph Kreutz, Hashim Al-Hashimi

**1782-Pos BOARD B145**  
THERMODYNAMIC VERIFICATION OF KISSING-LOOP INTERACTIONS. Carolyn E. Carr, **Luis A. Marky**

**1783-Pos BOARD B146**  
SEQUENCE EFFECTS ON  $Mg^{+2}$  ION MEDIATED DNA - DNA INTERACTIONS. **Amit Srivastava**, Raju Timsina, Sajeewa M. Dewage, Xiangyun Qiu, Serdal Kirmizialtin

**1784-Pos BOARD B147**  
ADDITIVITY IN ION-MODULATED DNA-DNA INTERACTIONS. Wei Meng, Raju Timsina, Kurt Andresen, **Xiangyun Qiu**

**1785-Pos BOARD B148 TRAVEL AWARDEE**  
POLARIZABLE MOLECULAR DYNAMICS SIMULATIONS OF *C-KIT* ONCOGENE PROMOTER G-QUADRUPLEXES OF DISTINCT CONFORMATIONS. **Alexa M. Salsbury**, Justin A. Lemkul

**1786-Pos BOARD B149**  
DNA THERMAL STABILITY DEPENDS ON SOLUTION VISCOSITY. **Nancy C. Stellwagen**, Earle Stellwagen

**1787-Pos BOARD B150**  
A NEW, RAPID, EFFICIENT AND NON-TOXIC METHOD FOR BACTERIAL DNA EXTRACTION. **Semire Uzun Gocmen**, Ahmet Aslan, Muhyittin Temiz

## Ribosomes and Translation (Boards B151 - B159)

**1788-Pos BOARD B151**  
THE GENETIC CODE IS READ BY AN IDIOSYNCRATIC AND HIGHLY-CONNECTED DECODING NETWORK. **Stephen D. Fried**, Thomas S. Elliott, Mirko Wagner, Thomas Carell, Jason W. Chin

**1789-Pos BOARD B152**  
MEASURING THE MECHANICAL FORCES DURING RIBOSOME TRANSLLOCATION VIA EF-G CROSSLINKING. **Miriam Gavriliuc**, Yuhong Wang

**1790-Pos BOARD B153**  
A FORCE METHOD TO STUDY THE EF-G MECHANISM DURING THE RIBOSOME TRANSLLOCATION AND FRAMESHIFTING. **Yuhong Wang**, HENG YIN, Shoujun Xu

**1791-Pos BOARD B154**  
THERMODYNAMIC CONTROL OF RIBOSOMAL FRAMESHIFTING. **Lars V. Bock**, Neva Caliskan, Natalia Korniy, Frank Peske, Marina V. Rodnina, Helmut Grubmueller

**1792-Pos BOARD B155**  
FORCE SPECTROSCOPY OF THE FRAMESHIFT SIGNAL FROM WEST NILE VIRUS REVEALS MULTIPLE FOLDING PATHWAYS AND STRUCTURAL HETEROGENEITY. **Matthew T. Halma**, Dustin B. Ritchie, Michael T. Woodside

**1793-Pos BOARD B156**  
A HIGH-RESOLUTION *IN VITRO* SINGLE-MOLECULE ASSAY FOR EUKARYOTIC CAP-DEPENDENT INITIATION KINETICS. **Xiaohui Qu**, Hongyun Wang, Anthony Gaba, Lexi Sun

**1794-Pos BOARD B157**  
CHARACTERIZATION OF ONC12 EFFECT ON RIBOSOMES AND ASSOCIATED PROTEINS IN LIVE *E. COLI* CELLS USING SUPERRESOLUTION MICROSCOPY. **Mainak Mustafi**, James C. Weisshaar

**1795-Pos BOARD B158**  
TRANSCRIPTION AND TRANSLATION EFFECTS OF HERG CHANNEL GENE SYNONYMOUS VARIATION. **Jlajia Yang**, Marika Osterbur Badhey, Thomas V. McDonald, Alexander Bertqalovitz

**1796-Pos BOARD B159**  
NASCENT PROTEINS INTERACT WITH KEY REGIONS OF THE OUTER SURFACE OF THE RIBOSOME. **Andrew M. Fuchs**, Valeria Guzman-Luna, Rayna M. Addabbo, Silvia Cavagnero

## Membrane Dynamics II (Boards B160 - B177)

**1797-Pos BOARD B160**  
COARSE-GRAINED SIMULATIONS OF THE PATHWAY TO MEMBRANE LYSIS. **Egor Antipov**, Sathish Thiyagarajan, Ben O'Shaughnessy

**1798-Pos BOARD B161**  
EFFICIENT REPLACEMENT OF OUTER LEAFLET LIPIDS OF PLASMA MEMBRANE USING EXOGENOUS LIPIDS WITH MINIMAL CELL DAMAGE. Guangtao Li, Shinako Kakuda, **Pavana Suresh**, Erwin London

**1799-Pos BOARD B162**  
MODELING RELAXATION TIMESCALES OF COUPLED MEMBRANE/PROTEIN SYSTEMS. **Kayla Sapp**, Alexander J. Sodt, Lutz Maibaum

**1800-Pos BOARD B163**  
INTERPLAY OF CURVATURE, LIPID SEGREGATION AND STABILITY MODULATION IN COMPLEX LIPID BILAYERS. Kevin J. Boyd, Nathan N. Alder, **Eric R. May**

**1801-Pos BOARD B164**

ACTIVATING THE SURFACE: A STUDY ON LIPID CHIRALITY, AND ITS POTENTIAL FUNCTION FOR TRIGGERING INTERFACIAL INTERACTION. Viviana Cristiglio, Bernhard Frick, **Beate Klösgen**, Tilo Seydel, Chen Shen

**1802-Pos BOARD B165**

EFFECTS OF DC MAGNETIC FIELDS ON MAGNETOLIPOSOMES. **Raymundo Rodríguez López**, Jonathan S. de Lira Escobedo, Milton Muñoz Navia, Perla Xochil Viveros Méndez, Armando Encinas Oropesa, Elsie Araujo, Sonia Saucedo Anaya, Said Eduardo Aranda Espinoza

**1803-Pos BOARD B166**

LIPID- AND CHOLESTEROL-MEDIATED TIMESCALE-SPECIFIC MODULATION OF MEMBRANE PROTEIN DYNAMICS. Lukas Frey, Sebastian Hiller, Roland Riek, **Stefan Bibow**

**1804-Pos BOARD B167**

UNSUPERVISED MACHINE LEARNING TO DETECT FEATURES OF DOMAIN GROWTH AND LIPID SEGREGATION. Cesar A. López, Boian Alexandrov, **S Gnanakaran**

**1805-Pos BOARD B168**

SOFTENING OF DMPG LIPID MEMBRANES ALONG THE ANOMALOUS GEL-FLUID TRANSITION. **Elizabeth G. Kelley**, Paul D. Butler, Michihiro Nagao

**1806-Pos BOARD B169**

PINNING CHOLESTEROL CHEMICAL POTENTIAL IMPACTS THE MISCIBILITY TRANSITION IN ISOLATED PLASMA MEMBRANE VESICLES. **Anna Gaffney**, Thomas Shaw, Sarah L. Veatch

**1807-Pos BOARD B170**

MTHK CHANNEL ACTIVITY IN PLANAR TETRAETHER LIPID MEMBRANES. **Alexander P. Bonanno**, Alexandre G. Vouga, Brad S. Rothberg, Parkson L.-G. Chong

**1808-Pos BOARD B171**

HOW NANOSCALE PROTEIN INTERACTIONS DETERMINE THE MESOSCALE DYNAMIC ORGANISATION OF MEMBRANE PROTEINS. **Anna L. Duncan**, Maximilian A R Bandurka, Matthieu G. Chavent, Patrice Rassam, Wanling Song, Oliver Birkholz, Jean Helie, Tyler Reddy, Dmitry Beliaev, Ben Hambly, Jacob Piehler, Colin Kleanthous, Mark S. P. Sansom

**1809-Pos BOARD B172**

COARSE-GRAINED MOLECULAR DYNAMICS SIMULATION OF METHANE INTERACTING WITH INTRACYTOPLASMIC MEMBRANES. **Ravindra Gudneppanavar**, Kyle T. Whiddon, Alan Grossfield, Michael C. Konopka

**1810-Pos BOARD B173**

SOLID-STATE  $^2\text{H}$  NMR INVESTIGATIONS OF VIRAL AM2 ION CHANNEL DRUGS. **Soohyun Lee**, Rami Musharrafieh, Xiaolin Xu, Trivikram R. Molugu, Andrey V. Struts, Wang Jun, Michael F. Brown

**1811-Pos BOARD B174**

MODELING AND SIMULATION OF OUTER MEMBRANES WITH LPS, ECAS, AND CPS. **Ya Gao**, Jumin Lee, Wonpil Im

**1812-Pos BOARD B175**

THE DURABILITY OF LIPID BILAYERS MODIFIED WITH A MINIMAL ACTIN CORTEX (MAC) FOR NANOPORE SENSING AND ION CHANNEL ELECTROPHYSIOLOGY. **Amanda J. Smith**, Theo Larsen, Samuel Virolainen, Lisa Burden, Daniel L. Burden

**1813-Pos BOARD B176**

TEMPOCHOLINE MEMBRANE PROBES MEASURE OXYGEN IN HYDROPHOBIC REGIONS: INSIGHT FROM MOLECULAR SIMULATIONS. **Gary Angles**

**1814-Pos BOARD B177**

MESOSCOPIC DYNAMICS IN PHOSPHOLIPID MEMBRANES UNDER OSMOTIC STRESS. **Trivikram R. Molugu**, Soohyun Lee, K. J. Mallikarjunaiah, Constantin Job, Michael F. Brown

**Membrane Fusion and Non-Bilayer Structures (Boards B178 - B188)****1815-Pos BOARD B178**

TWO-DIMENSIONAL MUTUAL DIFFUSION DYNAMICS IN HETEROGENEOUS LIPID DOMAINS. **Hyunwoo Jang**, Dae-Woong Jeong, Byung-Chang Oh, Suho Lee, Hasaeam Cho, Chi Won Ahn, Siyoung Choi, Changbong Hyeon, Hee-Seung Lee, Myung Chul Choi

**1816-Pos BOARD B179**

MECHANISMS OF ALCOHOL-ALTERED MEMBRANE FUSION. Devin M. Fuller, Miguel A. Ibarra, Robert E. Coffman, Austin L. Zimmerman, Andrew T. Barton, **Dixon J. Woodbury**

**1817-Pos BOARD B180**

ESTABLISHING FORCE SPECTROSCOPY WITH LIPID VESICLE PROBES TOWARDS THE INVESTIGATION OF MEMBRANE FUSION. **Ines Lüchtfeld**, Tomaso Zambelli, Janos Vörös

**1818-Pos BOARD B181**

MEASURING NEUTRALIZATION OF ENVELOPED VIRUSES USING MICROFLUIDICS. **Anjali Sengar**, Robert J. Rawle, Rebecca R. Pompano, Peter Kasson

**1819-Pos BOARD B182**

MORPHOLOGY OF LIPID AGGREGATES ON CLAY MINERALS AND CONNECTIONS TO MACROSCOPIC WETTABILITY. **Brenda L. Kessenich**, Nihit Pokhrel, Markus Flury, Lutz Maibaum, James J. De Yoreo

**1820-Pos BOARD B183**

MYOMAKER AND MYOMERGER WORK INDEPENDENTLY TO CONTROL DISTINCT STEPS OF MEMBRANE REMODELING DURING MYOBLAST FUSION. **Evgenia Leikina**, Dilani G. Gamage, Vikram Prasad, Leonid Chernomordik, Douglas P. Millay

**1821-Pos BOARD B184**

THE EFFECT OF IONS ON MEMBRANE ELASTICITY - IMPLICATIONS FOR VESICLE FUSION. **Christoph Allolio**, Daniel Harries

**1822-Pos BOARD B185**

SYNERGISTIC ROLES OF SYNAPTOTAGMIN AND COMPLEXIN IN  $\text{Ca}^{2+}$ -REGULATED EXOCYTOSIS. **Shyam S. Krishnakumar**

**1823-Pos BOARD B186**

ATOMIC-RESOLUTION SIMULATIONS SHOW TWO SEQUENTIAL FUSION PEPTIDE MECHANISMS IN INFLUENZA MEMBRANE FUSION. **Anna Pabis**, Peter Kasson

**1824-Pos BOARD B187**

MOLECULAR DYNAMICS STUDIES OF RHAMNOLIPID SURFACTANTS. **Charles Luft**, Steven Schwartz

**1825-Pos BOARD B188**

MEMBRANE BINDING, BENDING AND REMODELING BY CALCIUM SENSOR PROTEINS. **Raya Sorkin**, Margherita Marchetti, Emma Logtenberg, Emma Kerklingh, Guy Brand, Rashmi Voleti, Josep Rizo, Wouter H. Roos, Alexander J. Groffen, Gijs J. L. Wuite

**General Protein-Lipid Interactions (Boards B189 - B221)****1826-Pos BOARD B189**

ACTIVE SITE MUTATION A126G ABROGATES  $\text{PI}(4,5)\text{P}_2$ -MEDIATED ALLOSTERIC ACTIVATION OF THE TUMOR SUPPRESSOR PTEN. Caroline Zedler, Sven-Andreas Freibert, Christian R. Halaszovich, Dominik Oliver, **Kirstin Hobiger**

**1827-Pos BOARD B190**  
MOLECULAR MECHANISMS OF THE INTERACTION BETWEEN ARF1 AND ASAP1 PH DOMAIN AT THE MEMBRANE INTERFACE. **Olivier Soubias**, Frank Heinrich, Yue Zhang, Yifei Li, Jess Li, Vitalii I. Silin, Paul Randazzo, Mathias Losche, Robert A. Byrd

**1828-Pos BOARD B191**  
EVIDENCE FOR AN INTERACTION BETWEEN INFLUENZA HEMAGGLUTININ AND PIP2. Nikki M. Curthoys, Michael J. Mlodzianoski, **Matthew T. Parent**, Michael B. Butler, Prakash Raut, Jaqulin N. Wallace, Jennifer Lilieholm, Kashif Mehmood, Melissa S. Maginnis, Hang Waters, Brad Busse, Joshua Zimmerberg, Samuel T. Hess

**1829-Pos BOARD B192**  
AUTOINHIBITION MECHANISM FOR PHOSPHOINOSITIDE BINDING BY THE ENDOSOMAL TRAFFICKING PROTEIN TOM1. **Daniel G. Capelluto**, Wen Xiong, Evan Littleton, Liang Jiang, Anne M. Brown, Carla Finkelstein

**1830-Pos BOARD B193**  
INVESTIGATING HOW MEMBRANE LOCALIZATION REGULATES PROTEIN ASSEMBLY DURING CLATHRIN-MEDIATED ENDOCYTOSIS. **Sewwandi S. Rathnayake**, Kalina Hristova, Margaret E. Johnson

**1831-Pos BOARD B194**  
PHOSPHORYLATION OF THE NT17 DOMAIN OF HTT INFLUENCES ITS INTERACTION WITH MODEL LIPID MEMBRANES. **Sharon E. Groover**, Maryssa Beasley, Justin A. Legleiter

**1832-Pos BOARD B195**  
REGULATION OF THE PALMITOYL ACYLTRANSFERASE DHHC5 BY PHOSPHORYLATION IN CARDIOMYOCYTES. **Autumn N. Marsden**, Jie J. Chen, C. Anthony Scott, Askar M. Akimzhanov, Darren Boehning

**1833-Pos BOARD B196**  
THE PALMITOYL ACYLTRANSFERASE DHHC5 MEDIATES BETA-ADRENERGIC SIGNALING IN THE HEART BY TARGETING G ALPHA PROTEINS. **Jie Jessica Chen**, Autumn N. Marsden, Askar M. Akimzhanov, Darren Boehning

**1834-Pos BOARD B197**  
OLIGOMERIZATION STATE OF SP-C INVOLVED IN MEMBRANE FRAGMENTATION AND INNATE DEFENSE. Alejandro Barriga, Jesus Perez-Gil, **Begoña Garcia-Alvarez**

**1835-Pos BOARD B198 TRAVEL AWARDEE**  
HUMAN PICOBIRNAVIRUS CAPSIDS AS POTENTIAL NANOCARRIERS FOR DRUG DELIVERY WITHIN PULMONARY SURFACTANT CONTEXTS. **Cristina García Mouton**, Álvaro Ortega-Esteban, José R Castón, Antonio Cruz, Jesus Perez-Gil

**1836-Pos BOARD B199**  
ACCELERATION OF DRUG RELEASE FROM LIPOSOMES BY THE MACROLITINS, A SYNTHETICALLY EVOLVED FAMILY OF PORE-FORMING PEPTIDES. **Leisheng Sun**, William C. Wimley

**1837-Pos BOARD B200**  
INTERACTION OF THERMORESPONSIVE LIPOSOME COMPONENTS WITH HUMAN SERUM ALBUMIN. **Johannes Schnur**, Daniel Eckhardt, Ulrich Massing, Heiko H. Heerklotz

**1838-Pos BOARD B201**  
TWO NEW TYPES OF POLYMER NANODISCS FOR MEMBRANE PROTEIN STUDIES. **Mariana C. Fiori**, Yunjiang Jiang, Wan Zheng, Miguel Anzaldúa, Mario J. Borgnia, Guillermo A. Altenberg, Hongjun Liang

**1839-Pos BOARD B202**  
ADP-REGULATED MID51-PHOSPHOLIPID INTERACTIONS COUPLE CELLULAR BIOENERGETICS TO MITOCHONDRIAL MEMBRANE REMODELING. **Nikhil Bharambe**, Rajesh Ramachandran

**1840-Pos BOARD B203**  
PROBING THE EFFECT OF CARDIOLIPIN ON THE REDOX-PARTNER RECOGNITION BETWEEN CYTOCHROME C<sub>2</sub> AND CYTOCHROME BC<sub>1</sub> COMPLEX. **Chun Kit Chan**, Abhishek Singharoy, Emad Tajkhorshid

**1841-Pos BOARD B204**  
IS THE HUMAN DOMAIN SWAPPED DIMER OF CYTOCHROME C THE PEROXIDASE IN APOPTOSIS? **Harmen B. Steele**, JB Alexander Rosss, Bruce E. Bowler

**1842-Pos BOARD B205**  
IMPACT OF LIPID-PROTEIN INTERACTIONS ON ALPHA-HELICAL MEMBRANE PROTEIN FOLD. **Nicole Swope**, Linda Columbus

**1843-Pos BOARD B206**  
THE BINDING OF TIM PROTEINS TO PHOSPHATIDYL SERINE IS HIGHLY SENSITIVE TO THE MEMBRANE CONTEXT. **Daniel H. Kerr**, Zhiliang Gong, Tiffany Suwatthee, Gregory T. Tietjen, Erin J. Adams, Ka Yee C. Lee

**1844-Pos BOARD B207**  
INVESTIGATING MEMBRANE CURVATURE DEPENDENCE OF SNF7 POLYMERIZATION USING HIGH-SPEED ATOMIC FORCE MICROSCOPY. **Nebojsa Jukic**, Aurelien Roux, Simon Scheuring

**1845-Pos BOARD B208**  
MOLECULAR MECHANISM OF SELECTIVE CHOLESTEROL UPTAKE IN CLASS B SCAVENGER RECEPTOR LIMP-2. **Anna Liang**, Christopher E. Ing, Régis Pomès

**1846-Pos BOARD B209**  
FREE ENERGY OF SPECIFIC CHOLESTEROL-GPCR INTERACTIONS. **Lewen Yang**, Edward R. Lyman

**1847-Pos BOARD B210**  
MEMBRANE BINDING OF SYNAPTOTAGMIN-LIKE PROTEIN 4: INSIGHT FROM MOLECULAR DYNAMICS SIMULATIONS. **Mikias Negussie**, Sherleen Tran, Nara L. Chon, Julianna Oviedo, Aml Alnaas, Hai Lin, Jefferson Knight

**1848-Pos BOARD B211**  
SUBSTRATE BINDING BY  $\Gamma$ -SECRETASE: CONFORMATIONAL DYNAMICS OF THE ENZYME ACTIVE SITE AND SUBSTRATE RECOGNITION WITH AN EXAMPLE OF THE AMYLOID PRECURSOR PROTEIN. **Lukasz Piotr Nierzwicki**, Michal Olewniczak, Pawel Chodnicki, Jacek Czub

**1849-Pos BOARD B212**  
STRUCTURAL FACTORS CONTROLLING ORIENTATION OF KRAS G-DOMAIN MEMBRANE BINDING. **Anda Trifan**, Emad Tajkhorshid

**1850-Pos BOARD B213 TRAVEL AWARDEE**  
AN INTERPLAY BETWEEN KMP-11 INDUCED PHASE ALTERATION OF MACROPHAGE MEMBRANE AND IMMUNE SUPPRESSION DEFINES THE MOLECULAR MECHANISM OF LEISHMANIASIS. **Achinta Sannigrahi**, Sanat Karmakar, Junaid Jawed, Subrata Majumdar, Krishnananda Chattopadhyay

**1851-Pos BOARD B214**  
RECRUITMENT DYNAMICS OF ESCRT-III PROTEINS DURING HIV-1 GAG ASSEMBLY AND PLASMA MEMBRANE SCISSION. **Daniel S. Johnson**, Marina Bleck, Sanford M. Simon

**1852-Pos BOARD B215 TRAVEL AWARDEE**  
PROTEIN PARTITIONING TO LIPID DOMAINS IN ALL-ATOM MD SIMULATION. **George A. Pantelopulos**, Asanga Bandara, John E. Straub

**1853-Pos BOARD B216**  
ADVANCING MULTI-SCALE SIMULATION METHODS FOR BIOLOGICAL MEMBRANE SYSTEMS. **Astrid F. Brandner**, Stepan Timr, Simone Melchionna, Philippe Derreumaux, Marc Baaden, Fabio Sterpone

**1854-Pos BOARD B217**  
MOLECULAR SIMULATION AND CONTINUUM MODELING OF N-BAR-INDUCED LIPID MEMBRANE DEFORMATIONS. **Andrew H. Beaven**, Alexander J. Sodt

**1855-Pos BOARD B218**  
MOLECULAR AND CONTINUUM MODELING METHODS FOR UNDERSTANDING THE ROLE OF POLYPHOSPHOINOSITIDES IN INDUCING CELLULAR MORPHOLOGY CHANGES. **Ryan Bradley**, David Slochower, Ololade Fatunmbi, Sreeja Kutti Kandy, Robert Bucki, Paul A. Janmey, Ravi Radhakrishnan

**1856-Pos BOARD B219**  
A PARTIALLY CLOSED STATE IN NHTMEM16 SCRAMBLASE IS ENABLED BY LIPID TAIL INSERTION INTO THE PROTEIN GROOVE. **George Khelashvili**, Maria Falzone, Xiaolu Cheng, Alessio Accardi, Harel Weinstein

**1857-Pos BOARD B220**  
THE OUTER MEMBRANE PROTEINS OMPA, FHUA, OMPF, ESTA, BTUB AND OMPX HAVE UNIQUE LIPOPOLYSACCHARIDE FINGERPRINTS. **Jonathan Shearer**, Damien F. Jefferies, Syma Khalid

**1858-Pos BOARD B221**  
A MOLECULAR MECHANISM FOR MEMBRANE GEOMETRY-SPECIFIC PROTEIN LOCALIZATION. **Gabriele Kockelkoren**

## Mechanosensation (Boards B222 - B244)

**1859-Pos BOARD B222**  
A SYSTEMATIC STUDY OF CELL MECHANICS AND FUNCTION MODULATED BY NANOTOPOGRAPHY. **Xiao Li**, Lasse Klausen, Wei Zhang, Bianxiao Cui

**1860-Pos BOARD B223**  
CELL-CELL ADHESION AND MYOSIN ACTIVITY REGULATE CORTICAL ACTIN ASSEMBLY IN MAMMARY GLAND EPITHELIUM ON CONCAVED SURFACE. **Wei-Hung Jung**, Khalid Elawad, Sung Hoon Kang, Yun Chen

**1861-Pos BOARD B224 TRAVEL AWARDEE**  
REGION-SPECIFIC STRETCH-INDUCED DISRUPTION OF CAVEOLAE DECREASES EXPRESSION OF MECHANOSENSITIVE CHLORIDE CHANNELS AND STIMULATES FIBROGENESIS PROMOTING ARRHYTHMOGENIC ATRIAL ECTOPY IN FAILING MICE. **Zachary D. Piro**, Rylie Lodin, Leonid Tyan, Evi Lim, Di Lang, Alexey V. Glukhov

**1862-Pos BOARD B225**  
MICROTUBULE MECHANOTRANSDUCTION THROUGH NOX2-ROS INITIATES TRPV4 CALCIUM INFLUX AND PURINERGIC CALCIUM OSCILLATIONS THAT REGULATE OSTEOCYTE MECHANO-SENSING. **Katrina M. Williams**, Nicole Gould, Derek Jones, Ramzi Khairallah, Christopher W. Ward, Joseph P. Stains

**1863-Pos BOARD B226**  
CLASSIFICATION OF DIFFERENT CANCER CELL TYPES BY SPECIES SPECIFICITY FOR CELL ELASTICITY. **Sangwoo Kwon**, Se Jik Han, Kyung Sook Kim

**1864-Pos BOARD B227**  
THE SWELL1-LRRC8 COMPLEX REGULATES ENDOTHELIAL PI3K-AKT2-GRB2-ENOS SIGNALING AND VASCULAR FUNCTION. **Ahmad F. Alghanem**, Chau Ta, Oluwaseun Adeola, Susheel K. Gunasekar, Urooj Fatima, Elliot-Hudson Elliot-Hudson, Yanhui Zhang, Megan Riker, Robert F. Mullins, Litao Xie, Rajan Sah

**1865-Pos BOARD B228**  
AGE-DEPENDENT PLASTICITY OF SOMATOSENSORY MECHANOSENSATION. **Niklas Michel**, Pratibha Narayanan, Manuela Schmidt

**1866-Pos BOARD B229**  
A FIRST STEP TOWARD UNDERSTANDING OBSCURIN'S MOLECULAR MECHANISM. **Charles J. White**, Shaston Newman, Daniel Conway, Nathan T. Wright

**1867-Pos BOARD B230**  
FORCE-INDUCED UNFOLDING OF A MECHANOSENSORY DOMAIN IN PLATELET GLYCOPROTEIN (GP)IB-IX UNDER SOLUTION AND ADHERENT CONDITIONS. **M. Edward Quach**, Dale Combs, Khalid Salaita, Renhao Li

**1868-Pos BOARD B231**  
DESMIN IS CRITICAL TO THE NUCLEAR ARCHITECTURE OF CARDIOMYOCYTES. **Patrick Robison**, Julie Heffler, Rajan Jain, Benjamin Prosser

**1869-Pos BOARD B232 TRAVEL AWARDEE**  
BILE CANALICULI CONTRACTILITY IS REGULATED BY CANALICULAR PRESSURE SENSING VIA PIEZO1. **Kapish Gupta**, Inn Chuan Ng, Boon C. Low, Hanry Yu

**1870-Pos BOARD B233**  
MYOSIN-II MEDIATED TRACTION FORCES EVOKE LOCALIZED PIEZO1 CA<sup>2+</sup> FLICKERS. Kyle L. Ellefsen, Alice Chang, Jamison L. Nourse, Jesse R. Holt, Janahan Arulmoli, Armen Mekhdjian, Hamid Aburwarda, Francesco Tombola, Lisa A. Flanagan, Alexander R. Dunn, Ian Parker, **Medha M. Pathak**

**1871-Pos BOARD B234**  
CHOLESTEROL-DEPENDENT PIEZO1 CLUSTERS ARE ESSENTIAL FOR EFFICIENT CELLULAR MECHANOTRANSDUCTION. Pietro Ridone, Elvis Pandzic, Massimo Vassalli, Charles D. Cox, Alex M. Macmillan, Philip A. Gottlieb, **Boris Martinac**

**1872-Pos BOARD B235 TRAVEL AWARDEE**  
FORCE-DEPENDENT CONFORMATIONAL CHANGES IN THE MECHANOSENSITIVE PIEZO1 CHANNEL. **Alper D. Ozkan**, Jerome J. Lacroix

**1873-Pos BOARD B236**  
VOLTAGE DEPENDENCE AND MODULATION OF BACTERIAL CHANNEL MSCL. **Joseph S. Najem**, Ian Rowe, Andriy Anishkin, Joseph Maramba, Donald J. Leo, Sergei Sukharev

**1874-Pos BOARD B237**  
DELETION OF MSCL IN VIBRIO CHOLERAЕ (C6706) INCREASES OSMOTIC VIABILITY THROUGH OVEREXPRESSION OF MSCS AND SUGGESTS A SPECIAL CROSSTALK MECHANISM IN MECHANOSENSITIVE CHANNEL REGULATION. **Madolyn Britt**

**1875-Pos BOARD B238**  
MECHANICS, STRUCTURE, AND ENERGETICS OF MSCL THROUGH LOCAL STRESS CALCULATIONS AND STEERED MD SIMULATIONS. **Juan M. Vanegas**, Rajitha R. Tatikonda

**1876-Pos BOARD B239**  
EVOLUTIONARY SPECIALIZATION OF *CORYNEBACTERIUM GLUTAMICUM* MSCCG, AN MSCS-LIKE MECHANOSENSITIVE CHANNEL, IN GLUTAMATE EXPORT. **Yoshitaka Nakayama**, Kosuke Komazawa, Navid Bavi, Ken-ichi Hashimoto, Hisashi Kawasaki, Boris Martinac

**1877-Pos BOARD B240**  
PHYSIOLOGICAL ROLE OF BACTERIAL-LIKE MECHANOSENSITIVE CHANNELS IN PROTOZOAN PARASITES. Noopur Dave, Monica Hernandez, Tiffine Pham, Megna Tiwari, Heather Lynch, Joshua Fonbuena, Kristy Nguyen, **Veronica Jimenez**

**1878-Pos BOARD B241**  
THE BACTERIAL MECHANOSENSITIVE CHANNEL MSCL AS A NOVEL ANTIBIOTIC TARGET. **Irene Iscla**, Robin Wray, Paul Blount

**1879-Pos BOARD B242**  
ELUCIDATING THE MOLECULAR BASIS OF PH-TRIGGERED ACTIVATION OF AN ENGINEERED MECHANOSENSITIVE CHANNEL. Kalyan Immadisetty, Reid Shelton, **Mahmoud Moradi**

**1880-Pos BOARD B243**  
FORCE LOADING DURING MECHANOSENSING EMERGES FROM NON-MECHANOSENSITIVE ACTIVE DISPLACEMENTS. Lea Feld, Ariel Livne, Yuri Lubomirsky, Abhishek Mukherjee, Eran Bouchbinder, **Haguy Wolfenson**



**1881-Pos BOARD B244**  
BENDING-INDUCED STRAIN DELAYS COLLAGEN DEGRADATION BY COLLAGENASE. **Karanvir Saini**, Manu Tewari, Jerome Irianto, Charlotte Pfeifer, Cory Alvey, Dennis E. Discher

## Intracellular Calcium Channels and Calcium Sparks and Waves (Boards B245 - B267)

**1882-Pos BOARD B245 TRAVEL AWARDEE**  
HIGH-THROUGHPUT SCREENING YIELDS ALLOSTERIC INHIBITORS OF LEAKY RYRS FOR THERAPEUTIC DEVELOPMENT. **Robyn T. Rebbeck**, Daniel P. Singh, Kenneth S. Ginsburg, Xiaoqiong Dong, David D. Thomas, Donald M. Bers, Bradley S. Launikonis, Razvan L. Cornea

**1883-Pos BOARD B246**  
MACHINE LEARNING AND SUPER-RESOLUTION MICROSCOPY REVEAL DETAILED HIERARCHY OF RYANODINE RECEPTOR DISTRIBUTION IN CARDIAC PACEMAKER CELLS. Alexander V. Maltsev, **Pooja Ajay Warriar**, Oliver Monfredi, Magdalena Juhaszova, Edward G. Lakatta, Victor A. Maltsev, Michael D. Stern

**1884-Pos BOARD B247**  
THE ROLE OF CYSTEINE 3602 IN RYR2 REGULATION BY CALMODULIN AND OXIDATIVE STRESS. **Roman Nikolaienko**, Elisa Bovo, Robyn T. Rebbeck, Donald M. Bers, Razvan L. Cornea, Aleksey V. Zima

**1885-Pos BOARD B248**  
PACEMAKER ORGANIZATION AT THE NANOSCALE: IMAGING OF RYANODINE RECEPTORS AS CLUSTERS IN SINGLE SINOATRIAL NODAL CELLS. **Maura Greiser**, Humberto C. Joca, W. Jonathan Lederer

**1886-Pos BOARD B249**  
ALCOHOL DECREASES THE ACTIVITY OF NATIVE RYANODINE RECEPTORS FROM RAT HEART. Yanping Ye, Logan Stewart, Kelsey North, Lie Wang, **Alex M. Dopic**

**1887-Pos BOARD B250**  
IMPAIRED LIGAND REGULATION OF NATIVE RYR2 CHANNELS IN THE CATECHOLAMINERGIC POLYMORPHIC VENTRICULAR TACHYCARDIA MUTATION, RYR2-V2475F(+/-). **Abigail D. Wilson**, Elisa Venturi, Charalampos Sigalas, Yuanlong Song, Carmen R. Valdivia, Héctor H. Valdivia, Ming Lei, Rebecca M. Sitsapesan

**1888-Pos BOARD B251**  
EFFECT OF RYR2 EXPRESSION LEVEL ON ACTIVATION AND TERMINATION OF SPONTANEOUS CA-INDUCED CA RELEASE. Roman Nikolaienko, Elisa Bovo, **Aleksey V. Zima**

**1889-Pos BOARD B252 TRAVEL AWARDEE**  
STRUCTURAL DYNAMICS OF CALMODULIN IN REGULATION OF RYR CALCIUM RELEASE CHANNELS. **Megan R. McCarthy**, Robyn T. Rebbeck, Razvan L. Cornea, David D. Thomas

**1890-Pos BOARD B253**  
DIFFERENT CONTEXT FOR SHEAR SIGNALING IN LEFT *VERSUS* RIGHT ATRIAL MYOCYTES: DIFFERENTIAL ROLES OF P2Y<sub>1</sub>- AND P2X<sub>4</sub>-PURINOCEPTORS. Joon-Chul Kim, Min-Jeong Son, Qui A. Le, Kyoung-Hee Kim, **Sun-Hee Woo**

**1891-Pos BOARD B254**  
THE BINDING INTERACTIONS THAT MAINTAIN THE EC COUPLING JUNCTIONS IN SKELETAL MUSCLE. **Eduardo Rios**, Dirk Gillespie, Clara Franzini-Armstrong

**1892-Pos BOARD B255**  
PHARMACOLOGICAL MODULATION OF MITOCHONDRIAL CA<sup>2+</sup> UPTAKE REGULATES SARCOPLASMIC RETICULUM CA<sup>2+</sup> RELEASE VIA OXIDATION OF RYANODINE RECEPTOR BY REACTIVE OXYGEN SPECIES. **Shanna Hamilton**, Radmila Terentyeva, Tae Yun Kim, Peter Bronk, Jin O-Uchi, Gyorgy Csordas, Bum Rak Choi, Dmitry Terentyev

**1893-Pos BOARD B256**  
SMALL ANKYRIN 1 INTERACTS WITH PHOSPHOLAMBAN TO REGULATE MUSCLE SERCA1. **Amanda Labuza**, Patrick F. Desmond, Allison E. Mancini, Joaquin Muriel, Mark A. Rizzo, Robert J. Bloch

**1894-Pos BOARD B257**  
TRPV4 CONTRIBUTES TO STRETCH-INDUCED HYPERCONTRACTILITY AND TIME-DEPENDENT DYSFUNCTION IN HEARTS OF AGED MICE. **Adam B. Veteto**, Michelle D. Lambert, Kerry S. McDonald, Tim L. Domeier

**1895-Pos BOARD B258**  
IP<sub>3</sub> R1-MEDIATED LOCAL CA<sup>2+</sup> RELEASE EVENTS ARE ENHANCED IN THE GAIN-OF-FUNCTION D2594K MUTANT CHANNEL. Madeleine R. Mascitti, Karyn M. DiNovo, Michael Fill, S.R. Wayne Chen, Josefina Ramos-Franco, **Rafael Mejia-Alvarez**

**1896-Pos BOARD B259**  
B-ADRENERGIC PATHWAY IS ENHANCED BY HORMONE-INDUCED MATURATION OF HUMAN INDUCED PLURIPOTENT STEM CELL-DERIVED CARDIOMYOCYTES (IPS-CM). **David Carreras**, Rebecca Martinez-Moreno, Elisabet Selga, Ramon Brugada, Fabiana S. Scornik, Guillermo J. Perez

**1897-Pos BOARD B260**  
EARLY AFTERDEPOLARIZATIONS AND ALTERNANS ARE THE UNDERLYING MECHANISM TO CAUSE ARRHYTHMOGENIC DISORDER IN THE MUTANT CALSEQUESTRIN 2 (CASQ2). **Aman Ullah**, Roshan Paudel, W. Jonathan Lederer, M. Saleet Jafri

**1898-Pos BOARD B261 TRAVEL AWARDEE**  
TRIGGERED CALCIUM EVENTS REVEAL ELECTROPHYSIOLOGICAL ALTERATIONS IN A COHORT OF PATIENTS SUSCEPTIBLE TO MALIGNANT HYPERTHERMIA. **Lourdes Figueroa**, Natalia Kraeva, Carlo Manno, Eshwar R. Tammineni, Sheila Riazi, Eduardo Rios

**1899-Pos BOARD B262 TRAVEL AWARDEE**  
THE INTERPLAY BETWEEN NAADP AND PI(3,5)P<sub>2</sub> IN THE ACTIVATION OF LYSOSOMAL TWO-PORE CHANNEL 2. **Qiaochu Wang**, Michael X. Zhu

**1900-Pos BOARD B263**  
IOCBIO SPARKS DETECTION AND ANALYSIS SOFTWARE. Martin Laasmaa, Niina Karro, Rikke Birkedal, **Marko Vendelin**

**1901-Pos BOARD B264**  
NON-RYR CALCIUM LEAK OF THE SARCOPLASMIC RETICULUM IS GOVERNED BY TRPC1 IN CARDIOMYOCYTES. **Azmi A. Ahmad**, Molly E. Streiff, Chris Hunter, Frank B. Sachse

**1902-Pos BOARD B265**  
ACTIVATION OF ENDOGENOUS PP1 ENHANCES CALCIUM SPARK ACTIVITY IN WILD TYPE CARDIOMYOCYTES. **Radoslav Janicek**, Duilio Michele Potenza, Miguel Fernandez-Tenorio, Hector H. Valdivia, Ernst Niggli

**1903-Pos BOARD B266**  
ABNORMAL GLUCOSE METABOLISM AND CALCIUM SIGNALING IN MALIGNANT HYPERTHERMIA (MHS) PATIENTS. **Eshwar R. Tammineni**, Carlos Ibarra, Lourdes Figueroa, Carlo Manno, Natalia Kraeva, Eduardo Rios, Sheila Riazi

**1904-Pos BOARD B267**  
THE ANTI-CANCER DRUG VATALANIB (PTK787/ZK222584) SUPPRESSES NORMAL SPONTANEOUS FIRING OF RABBIT SINOATRIAL NODE CELLS (SANC). **Tatiana M. Vinogradova**, Kirill V. Tarasov, Yelena S. Tarasova, Edward G. Lakatta

## Muscle Regulation (Boards B268 - B276)

- 1905-Pos BOARD B268**  
CYTOTOXICITY OF TRUNCATED SLOW SKELETAL MUSCLE TROPONIN T IN *TNNT1* MYOPATHIES. **Hanzhong Feng**, J.-P. Jin
- 1906-Pos BOARD B269**  
LOSS OF THE SLOW SKELETAL MUSCLE ISOFORM OF TROPONIN T IMPAIRS MOTOR COORDINATION IN MICE. **Kentaro Oki**, Han-Zhong Feng, J.-P. Jin
- 1907-Pos BOARD B270**  
MYOSIN BINDING PROTEIN-C SLOW IN HEALTH AND DISEASE. **Janelle Geist**, Janis Stavusis, Baiba Lace, Nathan T. Wright, Christopher W. Ward, Carsten Bonnemann, Aikaterini Kontrogianni-Konstantopou
- 1908-Pos BOARD B271**  
EXPRESSION OF MYOSIN STORAGE MYOPATHY MUTATIONS IN *DROSOPHILA* DISRUPTS SKELETAL AND CARDIAC MUSCLE STRUCTURE AND FUNCTION. **Meera C. Viswanathan**
- 1909-Pos BOARD B272**  
FLUORESCENTLY LABELLED MYOSIN REGULATORY LIGHT CHAINS AS BIOSENSORS FOR THICK FILAMENT ACTIVATION IN HEART MUSCLE. **Priyanka Parijat**, Malcolm Irving, Thomas Kampourakis
- 1910-Pos BOARD B273**  
STRAIN-DEPENDENCE OF THE ACTIN-MYOSIN WORKING STEP. **Josh E. Baker**, Travis J. Stewart, Christine R. Cremo
- 1911-Pos BOARD B274 TRAVEL AWARDEE**  
EFFECTS OF ACTIN-BINDING COMPOUNDS ON THE ATPASE ACTIVITY OF MYOSIN FROM SKELETAL AND CARDIAC MUSCLE. **Ananya Tripathi**, Lien A. Phung, Piyali Guhathakurta, David D. Thomas
- 1912-Pos BOARD B275 TRAVEL AWARDEE**  
THE ROLE OF UBIQUITIN-PROTEASOME SYSTEM (UPS)-ASSOCIATED GENES IN THE PRESERVATION OF CARDIAC AND MUSCLE FUNCTION IN *DROSOPHILA MELANOGASTER*. **Maria L. Khan**
- 1913-Pos BOARD B276**  
MODELING THE CYTOTOXIC SWELLING OF DYSTROPHIC MUSCLE FIBERS. **Catherine E. Morris**, Bela Joos

## Voltage-gated Na Channels (Boards B277 - B297)

- 1914-Pos BOARD B277**  
FGF12A COUNTERACTS LONG QT SYNDROME-LINKED INACTIVATION DEFICIENCY. **Paweorn Angsutararux**
- 1915-Pos BOARD B278**  
AN ATTEMPTED MOLECULAR RESCUE OF AN ARRHYTHMOGENIC CARDIAC DISEASE MUTATION. **Sara Nathan**, Sophie Shoemaker, Federica Fari-nelli, Jesse Yoder, L.Mario Amzel, Gordon F. Tomaselli, Sandra B. Gabelli
- 1916-Pos BOARD B279**  
CONSTANT PH STUDY OF A SODIUM CHANNEL. **Ana Damjanovic**, Ada Y. Chen, Robert L. Rosenberg, Daniel Roe, Bernard R. Brooks
- 1917-Pos BOARD B280**  
PROTX-II INHIBITS NAV1.7 THROUGH AN ELECTROSTATIC GATING MODULATION MECHANISM. **Tianbo Li**
- 1918-Pos BOARD B281**  
DIFFERENCES BETWEEN TONIC AND USE-DEPENDENT BINDING SITES IN VOLTAGE-GATED SODIUM CHANNELS. Amanda Buyan, **Ben Corry**
- 1919-Pos BOARD B282**  
SODIUM CHANNELS IMPLEMENT A MOLECULAR LEAKY INTEGRATOR TO SENSE SPIKING FREQUENCY AND REGULATE NEURONAL FIRING. **Marco A. Navarro**, Jenna Lin, Autoosa Salari, Mirela Millescu, Lorin S. Millescu
- 1920-Pos BOARD B283**  
MULTISCALE MOLECULAR DYNAMICS TO EXPLORE VOLTAGE-GATED SODIUM CHANNEL OLIGOMERISATION. **William Glass**, Philip C. Biggin
- 1921-Pos BOARD B284**  
ENUMERATING VIABLE N-STATE MARKOV MODELS OF SODIUM CHANNEL DYNAMICS. **Kathryn Mangold**, Jonathan Silva
- 1922-Pos BOARD B285**  
BIOPHYSICAL AND PHARMACOLOGICAL PROFILING OF MULTIPLE VOLTAGE-GATED SODIUM CHANNEL SUBTYPES ON QPATCH II. **Daniel R. Sauter**, Rasmus B. Jacobsen, Goeran Mattsson
- 1923-Pos BOARD B286**  
IN SEARCH OF A MOLECULAR MECHANISM FOR SLOW INACTIVATION IN VOLTAGE-GATED NA CHANNELS USING THE SCAM TECHNIQUE IN D2-S6 OF HNAV1.4. **John P. O'Reilly**, Kevin Bokum, Jonathan Beard, Penny Shockett
- 1924-Pos BOARD B287**  
INTERACTION OF NAV1.2 IQ MOTIF WITH DISEASE-CAUSING MUTANTS OF CALMODULIN. **Ryan W. Mahling**, Adina M. Kilpatrick, Holly M. Isbell, Madeline A. Shea
- 1925-Pos BOARD B288**  
PRODUCTION AND APPLICATIONS OF NANOBODIES AGAINST VOLTAGE-GATED SODIUM CHANNEL, NAV1.4. **Lakshmi Srinivasan**
- 1926-Pos BOARD B289**  
USING SCAM TO INVESTIGATE RECONFIGURATION OF MOLECULAR DETERMINANTS IN D1-S6 DURING SLOW INACTIVATION OF HNAV1.4. **Jon M. Beard**, Penny Shockett, John P. O'Reilly
- 1927-Pos BOARD B290**  
THE INSECTICIDE FENVALERATE BINDS TO NAVMS SODIUM CHANNELS, MAKING THEM A SUITABLE TEMPLATE FOR MODELLING STRUCTURES OF HOUSEFLY-INSECTICIDE COMPLEXES. **Altin Sula**, Edina Molnar, Bonnie A. Wallace
- 1928-Pos BOARD B291**  
NA CHANNEL ACTIVATION AND INACTIVATION: ROLE OF DOMAIN 4. **Clay M. Armstrong**, Steve Hollingworth
- 1929-Pos BOARD B292**  
EXTRACELLULAR ACIDOSIS EXHIBITS DOMAIN-SPECIFIC EFFECTS ON NAV1.5. **Emily M. Wagner**, Brittany D. Brumback, Taylor L. Voelker, Wandu Zhu, Jonathan R. Silva
- 1930-Pos BOARD B293**  
BIOPHYSICAL AND MOLECULAR CHARACTERIZATION OF CALCIUM PERMEABLE HONEYBEE DSC1 (AMCA<sub>v4</sub>) CHANNEL EXPRESSED IN MAMMALIAN CELLS. Olivier Thériault, Matthieu Rousset, Collet Claude, Thierry Cens, Pierre Charnet, **Mohamed Chahine**
- 1931-Pos BOARD B294**  
DOMAIN I COUNTERCHARGES LIMIT SLOW INACTIVATION IN HNAV1.4 SODIUM CHANNELS. **James R. Groome**, Andromeda Wheeler, Ryann Camp
- 1932-Pos BOARD B295 TRAVEL AWARDEE**  
CARDIAC SODIUM CURRENT IS SEVERELY IMPAIRED IN INDUCED PLURIPOTENT STEM CELL-DERIVED CARDIOMYOCYTES FROM BRUGADA SYNDROME PATIENTS. **Rebecca Martinez-Moreno**, Elisabet Selga, Georgia Sarquella-Brugada, Ramon Brugada, Guillermo Perez, Fabiana Scornik

**1933-Pos BOARD B296**  
PREDICTING VARIANT PATHOGENICITY IN THE CARDIAC SODIUM CHANNEL USING PARALOGUE ANNOTATION. **Svetlana Tarnovskaya**, Vyacheslav Korkosh, Boris S. Zhorov, Dmitriy Frishman

**1934-Pos BOARD B297**  
CHRONIC EXPOSURE TO TUMOR NECROSIS FACTOR IN VIVO INDUCES HYPERALGESIA, UPREGULATES SODIUM CHANNEL GENE EXPRESSION AND ALTERS THE CELLULAR ELECTROPHYSIOLOGY OF DORSAL ROOT GANGLION NEURONS. **Michael E. O'Leary**, Andrea Bottaro, Igor Kuzin, Cojen Ho, Brad Fischer

## Ligand-gated Channels II (Boards B298 - B322)

**1935-Pos BOARD B298 TRAVEL AWARDEE**  
LOOP G OF THE GABAAR ORTHOSTERIC BINDING SITE IS INVOLVED BOTH IN BINDING AND GATING PROCESSES. **Marek Brodzki**, Michal A. Michalowski, Jerzy W. Mozrzymas

**1936-Pos BOARD B299**  
EFFECT OF HYPERGLYCEMIA IN THE ACTIVITY OF GLYCINE RECEPTORS IN INSULIN SECRETING CELLS. **Amanda Schukarucha Gomes**, Silvana Bordin, Fernando Abdulkader

**1937-Pos BOARD B300**  
TARGETED STATE DEPENDENT CROSSLINKING MASS SPECTROMETRY (CXMS) OF THE HUMAN ALPHA 1 GLYCINE RECEPTOR (GLYR). **Kayce A. Tomcho**, Hannah E. Gering, Rathna J. Veeramachaneni, David J. Lapinsky, Michael Cascio

**1938-Pos BOARD B301**  
AROMATIC RESIDUES IN THE GLYCINE RECEPTOR TRANSMEMBRANE FORM A NETWORK REQUIRED FOR FUNCTION. **Sarah C. Lummis**, Bijun Tang

**1939-Pos BOARD B302**  
PHARMACOLOGICAL SELECTIVITY OF A STEROID BINDING SITE AT THE BETA<sup>-</sup>-ALPHA<sup>-</sup> INTERFACE OF ALPHA1 BETA3 GABA-A RECEPTORS. **Selwyn S. Jayakar**, Xiaojuan Zhou, Bo Wu, Keith W. Miller, Karol S. Bruzik, Jonathan B. Cohen

**1940-Pos BOARD B303**  
IDENTIFICATION OF A HIGH-AFFINITY NEUROSTEROID BINDING SITE IN HUMAN ALPHA1BETA3 GABA<sub>A</sub>R USING A PHOTOREACTIVE THDOC ANALOG. **David C. Chiara**, Bo Wu, Xiaojuan Zhou, Selwyn S. Jayakar, Katherine Titterton, Stuart A. Forman, Keith W. Miller, Karol S. Bruzik, Jonathan B. Cohen

**1941-Pos BOARD B304 TRAVEL AWARDEE**  
A COMPARISON BETWEEN HOMOMERIC AND HETEROMERIC 5-HT<sub>3</sub> RECEPTORS IN RESPONSE TO THE ANTIDEPRESSANT BUPROPION. **Antonia Stuebler**, Michaela Jansen

**1942-Pos BOARD B305**  
IN-VIVO AND IN-VITRO STUDIES TO IDENTIFY THE INTERACTION SITE OF THE INTRACELLULAR DOMAIN OF SEROTONIN TYPE 3A (5-HT<sub>3A</sub>-ICD) AND CHAPERON PROTEIN RIC-3. **Elham Pirayesh**, Antonia G. Stuebler, Michaela Jansen

**1943-Pos BOARD B306**  
MICROSECOND-SCALE MOLECULAR DYNAMICS SIMULATIONS REVEAL DESENSITIZED BEHAVIOR OF 5HT<sub>3</sub>. **Nicholas B. Guros**, Arvind Balijepalli, Jeffery B. Klauda

**1944-Pos BOARD B307**  
LONG DISTANCE NMR RESTRAINTS FOR THE FLEXIBLE A7NACHR INTRACELLULAR DOMAIN. **Vasyl Bondarenko**, Marta Wells, Qiang Chen, Tommy Tillman, Yan Xu, Pei Tang

**1945-Pos BOARD B308**  
FUNCTIONAL TOLERANCE OF HUMAN A7 NICOTINIC ACETYLCHOLINE RECEPTOR TO CYSTEINE LABELING. **Tommy S. Tillman**, Yan Xu, Pei Tang

**1946-Pos BOARD B309**  
ROLE OF THE CYTOPLASMATIC M3-M4 LOOP FOR THE HOMOPENTAMERIC ASSEMBLY OF A CHIMERIC NICOTINIC ALPHA 7 RECEPTOR. **Jonas Deppe**, Lena Hauswirth, Heike Lauks, Achim Kless, Ralf Hausmann, Guenther Schmalzing

**1947-Pos BOARD B310**  
PROBABILITY OF OPENING DURING RECOVERY FROM ACETYLCHOLINE RECEPTOR DESENSITIZATION. **Radhakrishnan Gnanasambandam**, Anthony Auerbach

**1948-Pos BOARD B311 TRAVEL AWARDEE**  
STRUCTURE MEETS FUNCTION: AGONIST ACTIONS AT NEUROTRANSMITTER BINDING SITES. **Sushree Tripathy**, Wenjun Zheng, Anthony Auerbach

**1949-Pos BOARD B312**  
A PHOTOACTIVATABLE NICOTINE FOR INTERROGATING NATIVE NACHRS AND CHOLINERGIC TRANSMISSION. **Sambashiva Banala**

**1950-Pos BOARD B313**  
INTEGRATIVE STRUCTURE DETERMINATION OF A7NACHR INTRACELLULAR DOMAIN. **Marta M. Wells**, Vasyl Bondarenko, Tommy S. Tillman, Kevin Singewald, Matthew J. Lawless, Joel Caporoso, Nicole Brandon, Charles Chen, Monica N. Kinde, Sunil Saxena, Yan Xu, Erik Lindahl, Pei Tang

**1951-Pos BOARD B314 TRAVEL AWARDEE**  
STRUCTURE-ACTIVITY RELATIONSHIP OF POTENT PHOTO-SWITCHABLE NEUROMUSCULAR INHIBITORS. **Clara Herrera-Arozamena**, Martin H. Estrada-Valencia, Carlos A. Villalba-Galea, Maria Isabel Rodriguez-Franco

**1952-Pos BOARD B315**  
IDENTIFYING STEROID BINDING SITES IN A NICOTINIC ACETYLCHOLINE RECEPTOR (NACHR) WITH A PHOTOREACTIVE ANALOG OF ALPHAXALONE. **Zhiyi Yu**, Pavel Y. Savechenkov, Karol S. Bruzik, Jonathan B. Cohen

**1953-Pos BOARD B316**  
PROBING THE BINDING SITE(S) OF BUPROPION IN GLIC BY SITE-DIRECTED MUTAGENESIS. **Akash Pandhare**, R. Bryan Sutton, Michaela Jansen

**1954-Pos BOARD B317**  
ALLOSTERIC POTENTIATION OF A LIGAND-GATED ION CHANNEL IS MEDIATED BY ACCESS TO A DEEP MEMBRANE-FACING CAVITY. **Stephanie Heusser**, Marie Lycksell, Xueqing Wang, Sarah McComas, Rebecca J. Howard, **Erik Lindahl**

**1955-Pos BOARD B318 TRAVEL AWARDEE**  
UNDERSTANDING THE CONFORMATIONAL DYNAMICS OF A PENTAMERIC LIGAND-GATED ION CHANNEL THROUGH MARKOV STATE MODELING. **Cathrine C. Bergh**, Laura Orellana, Rebecca J. Howard, Erik Lindahl

**1956-Pos BOARD B319**  
PHARMACOLOGICAL CHARACTERIZATION OF THE ZINC-ACTIVATED CHANNEL: A CYS-LOOP RECEPTOR GATED BY ZN<sup>2+</sup>, CU<sup>2+</sup> AND PROTONS. **Nawid Madjroh**, Anders A. Jensen, Paul A. Davies

**1957-Pos BOARD B320**  
STRUCTURAL STUDIES OF THE GATING MECHANISM IN A PENTAMERIC LIGAND-GATED ION CHANNEL CONTAINING TWO ADDITIONAL N-TERMINAL PERIPLASMIC DOMAINS. **Marc H. Delarue**, Haidai Hu, Rebecca J. Howard, Urska Rovsniak, Sirine Hlioui, Erik Lindahl

**1958-Pos BOARD B321**  
ALLOSTERIC TRANSITIONS OF PENTAMERIC LIGAND-GATED ION CHANNELS STUDIED BY FLUORESCENCE QUENCHING TO EXPLORE PATHOLOGICAL MUTATIONS AND PHARMACOLOGICAL EFFECTORS. **Solene N. Lefebvre**, Anais Menny, Marc Gielen, Pierre-Jean Corringer

**1959-Pos BOARD B322**  
ACTIVATION AND INACTIVATION GATING IN BESTROPHIN ION CHANNELS. George Vaisey, Alexandria N. Miller, **Stephen B. Long**

## Ion Channel Regulatory Mechanisms (Boards B323 - B347)

**1960-Pos BOARD B323**  
 $G_{\alpha/11}$ -COUPLED MUSCARINIC RECEPTOR ENHANCEMENT OF KCNQ2/3 "M-TYPE"  $K^+$  CHANNELS AND ACTIVATION OF TRPC CATION CHANNELS IN MULTIMODAL CONTROL OF EXCITABILITY IN DENTATE GYRUS GRANULE NEURONS IN HIPPOCAMPUS. Chase M. Carver, Shayne D. Hastings, **Mark S. Shapiro**

**1961-Pos BOARD B324**  
INVESTIGATING ION TRANSPORT MECHANISMS VIA STRAIN, CHARGE, AND BIAS IN FUNCTIONALIZED SUB-NANOSCALE PORES. **Subin Sahu**, Christoph Rohmann, Justin Elenewski, Michael Zwolak

**1962-Pos BOARD B325**  
THE ROLE OF HCN DOMAIN IN CHANNEL GATING. **Anna Moroni**, Alessandro Porro, Andrea Saponaro, Matteo Pisoni, Federica Gasparri, Gerardo Abbandonato, Gerhard Thiel, Bina Santoro

**1963-Pos BOARD B326**  
STIM1 INDUCES ORA11 ACTIVATION VIA DIRECT BINDING TO ITS C-TERMINAL DOMAIN. **Zainab Haydari**

**1964-Pos BOARD B327**  
IMPACT OF CODON USAGE AND PROLYL ISOMERIZATION ON K CHANNEL FUNCTION. **Gerhard Thiel**, Kerri Kukovetz, Anja Engel, Anna Moroni

**1965-Pos BOARD B328**  
KCNQ1/KCNE1 MEMBRANE EXPRESSION IS REGULATED BY THE MEMBRANE PHOSPHOINOSITIDE PI4P: CONSEQUENCES FOR LONG QT1. Chen Braun, **Coeli Lopes**

**1966-Pos BOARD B329**  
NEW  $G_{\beta}$ -PROTEIN BIASED  $\mu$ -OPIOID RECEPTOR LIGANDS ACT AS PARTIAL AGONISTS ON ION CHANNEL EFFECTORS OF  $G_{\beta\gamma}$  SIGNALING. **Yevgen Yudin**, Tibor Rohacs

**1967-Pos BOARD B330**  
A PHOSPHOINOSITIDE BINDING MODULE CONTROLS TMEM16A DESENSITIZATION. **Son C. Le**, Zhiguang Jia, Jianhan Chen, Huanghe Yang

**1968-Pos BOARD B331**  
STATE-DEPENDENCE OF ION AND ATP TRANSPORT IN VDAC1 PROTEIN INVESTIGATED WITH GCMC/BD SIMULATIONS. **Kazi S. Amin**, Tatiana K. Rostovtseva, Sergey M. Bezrukov, Sergei Y. Noskov, Van Ngo

**1969-Pos BOARD B332**  
KCNE1 SUBUNIT PHOSPHORYLATION LEADS TO IKS INTERNALIZATION IN RESPONSE TO CHRONIC CALCIUM-DEPENDENT PKC ACTIVATION. **Elsa Ronzier**, Xiaorong Xu Parks, Coeli M Lopes

**1970-Pos BOARD B333**  
SYSTEMATIC SCANNING MUTAGENESIS OF THE PORE HELICES IN THE TREK-2 K2P CHANNEL. **Manuel Arcangeletti**, Stephen J. Tucker

**1971-Pos BOARD B334**  
A COMPUTATIONAL STUDY OF THE ESSENTIAL TRANSMEMBRANE PROTEIN NARK AS NITRATE/NITRITE EXCHANGER. **Nara L. Chon**, Hongjin Zheng, Hai Lin

**1972-Pos BOARD B335**  
A NOVEL STOCHASTIC SELF-ASSEMBLY MODEL FOR ION CHANNEL TRAFFICKING AND CLUSTERING IN EXCITABLE CELLS. **Gonzalo Hernandez Hernandez**, Collin Matsumoto, Claudia M. Moreno, Sendoa Tajada, Rose E. Dixon, Manuel F. Navedo, Marc D. Binder, Colleen E. Clancy, L. Fernando Santana, Daisuke Sato

**1973-Pos BOARD B336**  
IRBIT EXPANDS SIGNALING REPERTOIRE AT THE ER/PM JUNCTIONS. **Wooyoung Chung**, Seonghee Park, Shmuel Muallem

**1974-Pos BOARD B337 TRAVEL AWARDEE**  
STRUCTURE FUNCTION STUDIES OF A PLANT NON SELECTIVE CATION CHANNEL INVOLVED IN DROUGHT TOLERANCE. **Srinivasan Krishnan**, Koustav Maity, Aaron P. McGrath, Leon Kochian, Geoffrey Chang, Miguel Piñeros

**1975-Pos BOARD B338**  
INTERACTION OF PEGS WITH THE ANTHRAX TOXIN CHANNEL AND THEIR ROLE IN ALTERING THE 1/F CURRENT NOISE. **Oluwasegun Akinniyi**, Goli Yamini, Ekaterina M. Nestorovich

**1976-Pos BOARD B339**  
DISSECTING THE STRUCTURE AND FUNCTION OF BESTROPHIN CHANNELS. Alec Kittredge, Changyi Ji, Austin Hopiavuori, Nancy Ward, Shoudeng Chen, Yota Fukuda, Yu Zhang, **Tingting Yang**

**1977-Pos BOARD B340**  
THERMODYNAMICS OF THE NMDA RECEPTOR AMINO-TERMINAL DOMAIN. **Remy A. Yovanno**, Albert Y. Lau

**1978-Pos BOARD B341**  
SUPPRESSIVE EFFECTS OF BETA AMYLOID PEPTIDES (1-42) AND (25-35) ON KV1.1 CHANNEL ACTIVITY. **Joseph Farley**, Kristi DeBoeuf, Mohammad F. Islam, Nicholas Thelen

**1979-Pos BOARD B342**  
PALMITOYLATION OF KIR6.2 AT POSITION C166 PROMOTES KATP CHANNEL OPENING. **Hua-Qian Yang**, JongIn Hwang, William A. Coetzee

**1980-Pos BOARD B343**  
INTERACTIONS OF JUNCTOPHILINS AND STIM1 WITH ER CALCIUM-RELEASING CHANNELS. **Stefano Perni**, Kurt G. Beam

**1981-Pos BOARD B344**  
MODULATION OF GIRK CHANNELS BY PROTEIN KINASE C. **Kirin Gada**, Yu Xu, Takeharu Kawano, Leigh D. Plant, Diomedes E. Logothetis

**1982-Pos BOARD B345**  
MECHANISTIC INSIGHTS INTO VOLTAGE-INDUCED CLOSURE OF BACTERIAL BETA-BARREL CHANNELS. **Deborah Aurora Perini**, Antonio Alcaraz, Vicente M. Aguilera, Maria Queral-Martín

**1983-Pos BOARD B346**  
MECHANISTIC DIFFERENCES BETWEEN  $Ca^{2+}$ -SPARKS AND  $Ca^{2+}$ -PUFFS REVEALED THROUGH SIMULATIONS OF HETEROGENEOUS POPULATIONS. **DeAnalisa C. Jones**, Eric A. Sobie

**1984-Pos BOARD B347**  
HUMAN VOLTAGE-GATED PROTON CHANNELS IN CHORION-DERIVED MESENCHYMAL STEM CELLS. Beata Meszaros, Ferenc Papp, Gabor Tajti, **Gyorgy Panyi**

## Skeletal Muscle Mechanics, Structure, and Regulation (Boards B348 - B373)

**1985-Pos BOARD B348**  
A *DROSOPHILA* CARDIAC MYOSIN ISOFORM ENABLES JUMP MUSCLE CYCLICAL POWER PRODUCTION. **Kaylyn M. Bell**, Douglas M. Swank

**1986-Pos BOARD B349**  
COOPERATIVITY IN THIN FILAMENT ACTIVATION DEPENDS ON THE FORCE OF THE MYOSIN MOTOR. Marco Caremani, Cristina Gallart, Irene Pertici, Gabriella Piazzesi, Vincenzo Lombardi, **Marco Linari**

**1987-Pos BOARD B350**  
MUSCLE MEASUREMENTS SHOW WEAKLY BOUND CROSS-BRIDGES ACT AS A VISCOUS DRAG. Sam Walcott, **Katelyn Jarvis**

**1988-Pos BOARD B351**  
DO CARDIAC MYOFIBRILS EXHIBIT RESIDUAL FORCE ENHANCEMENT PROPERTIES? **Seong-won Han**, Venus Joumaa, Walter Herzog

**1989-Pos BOARD B352**  
SPECIFIC CLEAVAGE OF THE TITIN SPRINGS IN SITU UNCOVERS THE ROLE OF TITIN-BASED FORCE IN SARCOMERE STRUCTURE AND MUSCLE CONTRACTION. Yong Li, Andreas Unger, Marion von Frieling-Salewski, Andres Rivas-Pardo, Jorge Alegre-Cebollada, Julio M. Fernandez, **Wolfgang A. Linke**

**1990-Pos BOARD B353**  
SHORTENING DEACTIVATION CHARACTERISTICS OF *DROSOPHILA* AND *LETHOCERUS* MUSCLE TYPES. **Amy K. Loya**, Bernadette M. Glasheen, Douglas M. Swank

**1991-Pos BOARD B354**  
RESTORING REAL-SPACE IMAGES OF THE STRUCTURE OF MUSCLE AND OTHER BIOLOGICAL SPECIMENS FROM CONVENTIONAL X-RAY DIFFRACTION PATTERNS. **Hiroyuki Iwamoto**

**1992-Pos BOARD B355**  
HYDRODYNAMIC AND POLYELECTROLYTE PROPERTIES OF CYTOSKELETON FILAMENTS. **Ernesto Alva**

**1993-Pos BOARD B356**  
DOWNSIZING THE GIANT TITIN REVEALS ITS DOMINANT ROLES IN SKELETAL MUSCLE PASSIVE STIFFNESS AND LONGITUDINAL HYPERTROPHY. Ambjorn Brynne, Yaeren Hernandez, Balazs Kiss, Johan Lindqvist, Maya Adler, Justin Kolb, Robbert Van der Pijl, Jochen Gohlke, Joshua Strom, John E III Smith, **Henk L. Granzier**

**1994-Pos BOARD B357**  
X-RAY DIFFRACTION RESOLVES HOW ACTIN-MYOSIN SPACING EXPLAINS THE DIFFERENCES OF TWO MUSCLES WITH IDENTICAL STEADY STATE PROPERTIES. **Travis Tune**, Thomas Irving, Simon Sponberg

**1995-Pos BOARD B358**  
TIME-RESOLVED X-RAY DIFFRACTION AND MOLECULAR DYNAMICS STUDIES OF SKELETAL MUSCLE RELAXATION WITH 2 DEOXY-ATP. Weikang Ma, Matthew C. Childers, Jason D. Murray, Henry Gong, Valerie Daggett, **Thomas C. Irving**, Michael Regnier

**1996-Pos BOARD B359**  
STRESS RELAXATION IN ACTIVE SARCOMERES AND A HYPOTHESIZED CALCIUM-DEPENDENT GLASS TRANSITION. **Khoi D. Nguyen**, Madhusudhan Venkadesan

**1997-Pos BOARD B360**  
STRUCTURE OF THICK FILAMENTS FROM *DROSOPHILA* INDIRECT FLIGHT MUSCLE BY CRYO-EM. **Nadia Daneshparvar**, Dianne Taylor, Hamidreza Rahmani, Kenneth A. Taylor

**1998-Pos BOARD B361 TRAVEL AWARDEE**  
TIME-RESOLVED X-RAY STUDIES OF SKELETAL MUSCLE FROM A DUCHENNE MUSCULAR DYSTROPHY RAT MODEL. **Chen-Ching Yuan**, Joseph D. Powers, Jason Murray, Saffie Mohran, Weikang Ma, Shawn M. Luttrell, Thomas C. Irving, Michael Regnier, David L. Mack

**1999-Pos BOARD B362**  
REGULATION OF MYOFILAMENT FORCE AND LOADED SHORTENING BY SKELETAL MYOSIN BINDING PROTEIN-C. **Joel C. Robinett**, Laurin M. Hanft, Janelle Geist, Aikaterini Kontrogianni-Konstantopoulos, Kerry S. McDonald

**2000-Pos BOARD B363**  
ZEBRAFISH EMBRYOS ENABLE MULTI-SCALE HIGH-THROUGHPUT MUSCLE MECHANICS. **Andrew Mead**, Guy Kennedy, Samantha Previs, Bradley Palmer, Alicia Ebert, David Warshaw

**2001-Pos BOARD B364**  
NOVEL MYBPC1 MUTATIONS IN MYOPATHY WITH TREMOR. **Aikaterini Kontrogianni-Konstantopou**, Janelle Geist, Janis Stavusis, Baiba Lace, Christopher W. Ward, Carsten Bonnemann

**2002-Pos BOARD B365**  
NEW INSIGHTS INTO FORCE AFTER ACTIVE STRETCH IN DAMAGED SKINNED MUSCLE FIBRES. **Venus Joumaa**, Sadhiq Nazeer, Faruk Ortes, Walter Herzog

**2003-Pos BOARD B366**  
INCREASED MICROTUBULE DENSITY AND LEVEL OF DETYROSINATION OCCUR COINCIDENT WITH SARCOMERE MALFORMATIONS IN DISEASED AND AGING SKELETAL MUSCLE. **Anicca Harriot**, Andrew Coleman, Shama R. Iyer, Camilo Venagas, Guoli Shi, Richard M. Lovering, Humberto C. Joca, Joseph P. Stains, Chris W. Ward

**2004-Pos BOARD B367**  
IMPAIRED REDOX CAPACITY, MUSCLE INJURY, AND MICROTUBULE ALTERATIONS CONSPIRE TO IMPACT SKELETAL MUSCLE FUNCTION. **Camilo Vanegas**

**2005-Pos BOARD B368**  
ALTERATION OF T-TUBULAR ARCHITECTURE AND CAPACITANCE CHANGES IN HUNTINGTON'S DISEASE. **Sabrina K. Metzger**, Shannon H. Romer, Mark M. Rich, Andrew A. Voss

**2006-Pos BOARD B369**  
LATTICE ARRANGEMENT OF MYOSIN FILAMENTS CORRELATES WITH FIBER TYPE IN RAT SKELETAL MUSCLE. Weikang Ma, Kyoung Hwan Lee, Shixin Yang, Thomas Irving, **Roger Craig**

**2007-Pos BOARD B370**  
BIOPHYSICAL EVIDENCE FOR THE SIMPLE HARMONIC MOTION OF TROPOMYOSIN IN THE REGULATION OF MUSCLE CONTRACTION. **James J. Earley**

**2008-Pos BOARD B371**  
CRYOEM SINGLE PARTICLE RECONSTRUCTION OF DEPHOSPHORYLATED HMM FROM SMOOTH MUSCLE. **Alimohammad Hojjatian**

**2009-Pos BOARD B372**  
DYSFERLIN MUTANTS: DEFECTS IN TRAFFICKING AND ASSOCIATION WITH PROTEINS OF THE TRANSVERSE TUBULE. **Daniel D. Garman**, Joaquin M. Muriel, Robert J. Bloch

**2010-Pos BOARD B373 TRAVEL AWARDEE**  
MYOSIN ORIENTATION IN A MUSCLE FIBER USING BIFUNCTIONAL SPIN LABELS WITH 4 DEGREES ANGULAR RESOLUTION. **Yahor Savich**, D. Grant Lewis, Benjamin P. Binder, Peter D. Martin, David D. Thomas

## Kinesins, Dyneins, and Other Microtubule-based Motors (Boards B374 - B396)

**2011-Pos BOARD B374**  
THREE-DIMENSIONAL MODEL OF COOPERATIVE TRANSPORT OF PAIRS OF KINESIN-1 AND -2 MOTORS. **Wiphu Youyen**, Iman Mousavi, Keith Mickolajczyk, William Hancock, Erkan Tüzel

**2012-Pos BOARD B375**  
KINESIN-3 KIF14 EXHIBITS BIMODAL MOTION, EITHER DIFFUSIVE OR SUPERPROCESSIVE. **Iliia Zhernov**, Radan Matura, Stefan Diez, Zdenek Lansky, Marcus Braun

**2013-Pos BOARD B376 TRAVEL AWARDEE**  
DYNAMICAL EFFECTS OF KIF1A MUTATIONS IN NEURODEVELOPMENTAL DISORDERS. **Shashank Jariwala**, Breane G. Budaitis, Kristen J. Verhey, David Sept

**2014-Pos BOARD B377**  
SPHERICAL DNA ORIGAMI AS A PROGRAMMABLE CARGO STRUCTURE FOR INVESTIGATING THE EMERGENT MOTILITY OF DYNEIN AND KINESIN ENSEMBLES. JJ Hu, Jessica Morgan, Yang Yang, Chenxiang Lin, **Nathan D. Derr**

**2015-Pos BOARD B378**  
FLEXURAL RIGIDITY OF MICROTUBULES MEASURED WITH NANOMETER-LEVEL LOCALIZATION PRECISION. **Hang Zhou**, Naoto Isozaki, Taviare L. Hawkins, Jennifer L. Ross, Ryuji Yokokawa

**2016-Pos BOARD B379**  
HIGHLY EFFICIENT PHOTOCONTROL OF MITOTIC KINESIN EG5 FUNCTION USING A NOVEL INHIBITOR COMPOSED OF PHOTOCROMIC COMPOUND DIMER. **Kei Sadakane**, Islam MD Alrazi, Kenichi Taii, Tomisin Happy Ogunwa, Takayuki Miyaniishi, Shinsaku Maruta

**2017-Pos BOARD B380**  
CHOLESTEROL INFLUENCES THE EFFECT OF TAU ON MEMBRANE-COUPLED KINESIN-1. Qiaochu Li, Stephen J. King, Michael Vershinin, Ajay Gopinathan, **Jing Xu**

**2018-Pos BOARD B381**  
ATOMISTIC DETAILS OF THE DYNEIN MOTOR MECHANISM REVEALED BY MOLECULAR DYNAMICS SIMULATIONS. **Jodi A. Hadden**, Yale E. Goldman

**2019-Pos BOARD B382**  
UNVEILING MOLECULAR MECHANISMS OF KINESIN-5 FUNCTION USING MULTISCALE COMPUTATIONAL TECHNIQUES. **Aram Davtyan**, Qian Wang, Anatoly B. Kolomeisky

**2020-Pos BOARD B383 TRAVEL AWARDEE**  
CARGO ADAPTORS REGULATE THE MECHANICAL PROPERTIES OF MAMMALIAN DYNEIN-DYNACTIN. **John Canty**

**2021-Pos BOARD B384**  
UNRAVELLING THE ROLE OF ELECTROSTATICS IN REGULATING THE PROCESSIVITY OF CYTOPLASMIC DYNEIN AT SINGLE MOLECULE LEVEL. **Ashok Pabbathi**, Hailey Lovelace, Joshua Alper

**2022-Pos BOARD B385**  
CONNECTION BETWEEN ELECTROSTATIC INTERACTIONS AND BINDING AFFINITY OF DYNEIN AND MICROTUBULES. **Hailey D. Lovelace**, Matheu Spencer, Jared Eller, Hugo Sanabria, Joshua Alper

**2023-Pos BOARD B386**  
PHOTOCROMIC INHIBITOR OF MITOTIC KINESIN EG5 COMPOSED OF SPIROPYRAN AND AZOBENZENE DERIVATIVES WHICH EXHIBITS MULTIPLE ISOMERIZATION STATES. **Islam MD Alraz**, Kei Sadakane, Shinsaku Maruta

**2024-Pos BOARD B387**  
DDB SWITCHES BETWEEN PROCESSIVE AND DIFFUSIVE RUNS. **Qingzhou Feng**, William O. Hancock

**2025-Pos BOARD B388**  
INSIGHTS INTO KINESIN-1 STEPPING DYNAMICS FROM BROWNIAN DYNAMICS SIMULATIONS AND HIGH-RESOLUTION TRACKING OF GOLD NANOPARTICLE-LABELED MOTORS. **Annan S. I Cook**, Keith J. Mickolajczyk, Janak Jethva, John Fricks, William O. Hancock

**2026-Pos BOARD B389**  
ROLE OF LOOP 8 IN REGULATING THE FUNCTION OF *SACCHAROMYCES CEREVISIAE* KINESIN-5 CIN8. **Sudhir Kumar Singh**, Himanshu Pandey, Noa Yeshaya, Hadasa Malka, Leah Gheber

**2027-Pos BOARD B390**  
HIGH-SPEED OBSERVATIONS OF THE UNBINDING/BINDING MOTIONS OF THE LEADING HEAD OF KINESIN-1 FROM/TO MICROTUBULE PROVIDE KINETIC EVIDENCE FOR THE FRONT-HEAD GATING MECHANISM. **Kohei Matsuzaki**, Yamato Niitani, Michio Tomishige

**2028-Pos BOARD B391**  
MAP7 TARGETS INTRACELLULAR TRANSPORT TOWARDS THE MICROTUBULE PLUS END BY RECRUITING KINESIN-1 TO MICROTUBULES. Abdullah R. Chaudhary, Hailong Lu, Kathleen M. Trybus, **Adam G. Hendricks**

**2029-Pos BOARD B392**  
STRUCTURAL ANALYSIS OF KINESIN-1 MOTOR DOMAIN IN COMPLEX WITH POLYMERIC MICROTUBULES BY MAGIC ANGLE SPINNING NMR. **Chunting Zhang**, Changmiao Guo, Mingyue Li, John C. Williams, Tatyana Polenova

**2030-Pos BOARD B393**  
INVESTIGATION OF MULTIPLE-DYNEIN TRANSPORT OF MELANOSOMES BY NON-INVASIVE FORCE MEASUREMENT USING THE FLUCTUATION THEOREM. Shin Hasegawa, Takashi Sagawa, Kazuho Ikeda, Yasushi Okada, **Kumiko Hayashi**

**2031-Pos BOARD B394 TRAVEL AWARDEE**  
THE REGULATORY ROLE OF LIS1 ON THE MECHANICS OF DYNEIN MOTILITY. **Emre Kusakci**, Zaw Htet, Samara Reck-Peterson, Ahmet Yildiz

**2032-Pos BOARD B395**  
BINDING KINETICS BETWEEN MEMBRANE-BOUND KINESIN MOTORS AND MICROTUBULES. **Rui Jiang**, SooHyun Park, Steven Vandal, Erkan Tüzel, Sheereen Majid, William O. Hancock

**2033-Pos BOARD B396**  
KATANIN CATALYZES MICROTUBULE DEPOLYMERIZATION INDEPENDENT OF TUBULIN CARBOXY-TERMINAL TAILS. **Liudmila Belonogov**, Megan Bailey, Madison Tyler, Arianna Kazemi, Jennifer L. Ross

## Cell Mechanics, Mechanosensing, and Motility II (Boards B397 - B422)

**2034-Pos BOARD B397**  
EFFECTS OF PTEN LOSS AND ACTIVATED KRAS OVEREXPRESSION ON VISCOELASTICITY OF BREAST EPITHELIAL CELLS. **Will Linthicum**, Minh-Tri Ho Thanh, Michele I. Vitolo, Qi Wen

**2035-Pos BOARD B398**  
MECHANOBIOLOGY IN MUSCLE FIBERS OF DYSTROPHIC MICE. Roberto Mendoza-Padilla, Robert Bloch, Hugo Gonzales-Serratos, **Karla P. Garcia-Pelagio**

**2036-Pos BOARD B399**  
LENGTH OF KASH DOMAINS AFFECT LINC COMPLEX FUNCTIONS. **Zeinab Jahed**, Hongyan Hao, Vyom Thakkar, Uyen T. Vu, Venecia A. Valdez, Akshay Rathish, Darya Fadavi, Daniel Starr, Mohammad R.K. Mofrad

**2037-Pos BOARD B400**  
MUTUALLY INHIBITORY RAS-PI(3,4)P2 FEEDBACK LOOPS MEDIATE CELL MIGRATION. **Xiaoguang Li**, Devreotes Peter

**2038-Pos BOARD B401**  
AN INTEGRATIVE COMPUTATIONAL MODEL OF CELL MIGRATION. Siarhei Hladyszau, Shlomi Cohen, Shuyi Nie, **Denis Tsygankov**

- 2039-Pos BOARD B402**  
MECHANOTRANSDUCTION IN BACTERIA: HOW *PSEUDOMONAS AERUGINOSA* ACTIVELY PROBES AND RESPONDS TO SUBSTRATE MECHANICS. **Matthias D. Koch**, Joshua W. Shaevitz, Zemer Gitai
- 2040-Pos BOARD B403**  
EGFR ACTIVATION ENABLES INCREASED INTEGRIN FORCES AND ORGANIZATION OF MATURE FOCAL ADHESIONS. **Tejeshwar C. Rao**, Victor Pui-Yan Ma, Tara M. Urner, Shreya Grandhi, Khalid Salaita, Alexa L. Mattheyses
- 2041-Pos BOARD B404**  
RULES OF CONTACT INHIBITION OF LOCOMOTION IN CELLS MIGRATING ON ECM MIMICKING FIBERS. **Jugroop Singh**, Puja Sharma, Amrinder Nain
- 2042-Pos BOARD B405**  
MECHANOCHEMICAL SIMULATIONS OF INTEGRATED MEMBRANE-CYTO-SKELETAL SYSTEMS. **Haoran Ni**, Garegin A. Papoian
- 2043-Pos BOARD B406 TRAVEL AWARDEE**  
DETERMINATION OF FIBROBLAST POLARIZATION UNDER THE COMBINATION OF PHYSICAL, MOLECULAR, AND GENETIC CUES. **GeonHui Lee**, Dong-Hwee Kim
- 2044-Pos BOARD B407**  
CELL-CELL JUNCTION AND NUCLEAR LINC COMPLEX FORCES REGULATE EPITHELIAL ACINI HOMEOSTASIS. Vani Narayanan, **Daniel E. Conway**
- 2045-Pos BOARD B408**  
NCAM EXPRESSION REGULATES INTEGRIN AND ACTIN CYTOSKELETAL FUNCTION IN HUMAN NATURAL KILLER CELLS. Amara Dixon, Justin Gun-esch, Jordan Orange, **Emily Mace**
- 2046-Pos BOARD B409 TRAVEL AWARDEE**  
THE FEEDBACK BETWEEN CELLULAR MECHANICS AND CHEMICAL SIGNALING DURING CYTOSKELETAL REMODELLING. **Jared Collette**, William Holmes, Vijay Rajagopal
- 2047-Pos BOARD B410**  
INVADOPODIA DYNAMICS IS REGULATED BY ECM CROSS-LINKING. Kam-nyar Esmaeili Pourfarhangi, Aviv Bergman, **Bojana Gligorijevic**
- 2048-Pos BOARD B411**  
CONSTRICTED MIGRATION INCREASES DNA DAMAGE AND REPRESSES CELL CYCLE. **Charlotte R. Pfeifer**, Yuntao Xia, Yee Fang Hum, Kuangzheng Zhu, Dazhen Liu, Jerome Irianto, Ruben C. Boot, Victor M. Morales Garcia, Leeza M. Santiago Millan, Brandon Niese, Dan Deviri, Roger A. Greenberg, Dennis E. Discher
- 2049-Pos BOARD B412**  
SUBSTRATE VISCOSITY DICTATES CELLULAR RESPONSE. **Thomas J. Petet**, Halston Deal, Ariana DeCastro, Christina Tang, Seth Weinberg, Christopher Lemmon
- 2050-Pos BOARD B413**  
COMPUTER AIDED SMALL MOLECULE MODULATION OF PANCREATIC CANCER MECHANOBIOLOGY. **Kathleen T. DiNapoli**, Eric Schiffhauer, Alexandra Surcel, Dustin Thomas, Pablo Iglesias, Douglas Robinson
- 2051-Pos BOARD B414**  
LOSS OF CHROMOSOMES MONITORED IN LIVE CELLS. **Kuangzheng Zhu**, Yuntao Xia, Dennis Discher
- 2052-Pos BOARD B415**  
MOTOR CLUTCH MODELING OF SINGLE-MOLECULE FRET-BASED MOLECULAR TENSION SENSORS. **Sarah M. Anderson**, Steven Tan, Cayla Miller, Alice Chang, Alexander R. Dunn, David J. Odde
- 2053-Pos BOARD B416**  
MOLECULAR FORCE OF AIRWAY SMOOTH MUSCLE CELL DURING CONTRACTION. **Myung Hyun Jo**, Byoung Choul Kim, Steven S. An, Taekjip Ha

**2054-Pos BOARD B417**  
RED BLOOD CELL MEMBRANE OXIDATION/AGING TOWARD CELL DEATH: PHOTOSENSITIZER STRESS OF CIS-PORPHYRIN. **Koji Kinoshita**, Gustavo Scanavachi, Tayana Tsubone, Vita Solovyeva, Jonathan Brewer, Rosangela Itri

**2055-Pos BOARD B418**  
BIOPHYSICAL MODEL REVEALS THE ROLE OF CCM PROTEINS IN COLLECTIVE BEHAVIOR OF ENDOTHELIAL CELLS. **Anastasia Zhurikhina**, Olga Chernaya, Sjarhei Hladyszau, William Pilcher, Katherine M. Young, Jillian Ortner, Vaishnavi Andra, Todd A. Sulchek, Denis Tsygankov

**2056-Pos BOARD B419**  
NANONET INTER-FIBER SPACING CONTROLS PLASTICITY IN CELL MIGRATION. **Aniket Jana**, Intawat Nookeah, Jugroop Singh, Bahareh Behkam Behkam, Aime T. Franco, Amrinder S. Nain

**2057-Pos BOARD B420**  
MECHANICAL CONTRACTION OF BLOOD CLOTS IMPAIRED DUE TO PLATELET DYSFUNCTION AND DISINTEGRATION. **Oleg V. Kim**, Rustem I. Litvinov, Mark S. Alber, John W. Weisel

**2058-Pos BOARD B421**  
FORCES OF PHAGOCYTOSIS WITH TWO-CHANNEL LIVE CELL BESSEL LIGHT SHEET 3D IMAGING. **Evan F. Nelsen**, Chad Hobson, Joe Hsiao, Michael R. Falvo, E. T. O'Brien III, Klaus Hahn, Sergio Grinstein, Richard Superfine

**2059-Pos BOARD B422**  
FIBRIN DENSITY AND TENSION REGULATES FIBRINOLYTIC SUSCEPTIBILITY. **Nathan E. Hudson**, Andrew T. Fuquay, Sean J. Cone

## Energy Transducing Membrane Protein Complexes (Boards B423 - B434)

**2060-Pos BOARD B423**  
LONG-RANGE REGULATION OF CYTOCHROME C BINDING TO  $BC_1$  COMPLEX. **Spencer B. Grewe**, Oleksandr Kokhan

**2061-Pos BOARD B424**  
ANIONIC LIPID-DEPENDENT GLIDING OF CYTOCHROME C ACROSS BIOENERGETIC MEMBRANES. **Aaron Chan**, Emad Tajkhorshid

**2062-Pos BOARD B425**  
STRUCTURAL ANALYSIS OF *SACCHAROMYCES CEREVISIAE* RESPIRATORY SUPERCOMPLEX COMPOSED OF COMPLEXES III AND IV. **Eugenia Mileykovskaya**, Matthew Baker, Venkata Mallampalli, Guizhen Fan, Irina I. Serysheva, William Dowhan

**2063-Pos BOARD B426**  
UNDERSTANDING THE MECHANISM OF PROTON-COUPLED ELECTRON TRANSFER IN THE BIOINSPIRED ARTIFICIAL PHOTOSYNTHETIC MIMIC, BENZIMIDAZOLE PHENOL PORPHYRIN. William Marshall, **Brian Mark**, Vidmantas Kalendra, Dalvin D. Mendez-Hernandez, Oleg G. Poluektov, Thomas A. Moore, Ana L. Moore, K. V. Lakshmi

**2064-Pos BOARD B427**  
MIMICKING NATURAL PHOTOSYNTHESIS ULTRAFAST CHARGE TRANSFER IN PPCA-PHOTOSENSITIZER COMPLEXES. **Oleksandr Kokhan**, Daniel R. Marzolf, Natalie L. Simmons, Matthew O'Malley, Coleman Swaim

**2065-Pos BOARD B428**  
THEORETICAL STUDY OF ELECTRON TRANSFER REACTIVITY FOR CRYPTOCYTOCHROME-DASH. **Ryuma Sato**, Makoto Tajji

**2066-Pos BOARD B429**  
EFFECT OF MUTATIONS AND LABELING ON STRUCTURAL STABILITY OF PPCA-RU(BPY)<sub>3</sub> COMPLEXES. **Natalie L. Simmons**, Daniel R. Marzolf, Oleksandr Kokhan

**2067-Pos BOARD B430**  
PERFORMANCE OF A BACTERIUM AS AN ENERGY CONVERSION DEVICE IN TERMS OF ENERGY-RETURN-ON-INVESTMENT DETERMINED FROM ATOMIC-DETAIL STRUCTURAL MODELS. **Melih Sener**, Andrew Hitchcock, Neil Hunter

**2068-Pos BOARD B431**  
ENERGETIC MODELLING OF MITOCHONDRIAL REDOX REACTIONS. **Peter J. Gawthrop**, Edmund J. Crampin

**2069-Pos BOARD B432**  
UNVEILING THE RATE-LIMITING STEP OF THE BC<sub>1</sub> COMPLEX REACTION MECHANISM. **Angela M. Barragan**, Alexander V. Soudackov, Zaida Luthy-Schulten, Klaus Schulten, Sharon Hammes-Schiffer, Iliia Solov'ov

**2070-Pos BOARD B433 TRAVEL AWARDEE**  
ELUCIDATING THE ROLE OF ZINC-BACTERIOCHLOROPHYLL A' IN THE PRIMARY PHOTOCHEMISTRY OF *CHLOROACIDOBACTERIUM THERMOPHILUM* REACTION CENTERS. **Philip Charles**, Vidmantas Kalendra, Zhihui He, Vasily Khurshov, Art van der Est, John H. Golbeck, Donald A. Bryant, K. V. Lakshmi

**2071-Pos BOARD B434**  
THE REVERSIBLE OPENING OF  $\mu$ CUC DEMONSTRATES A HIGH POTENTIAL AS A CELLULAR PROTECTION SYSTEM. **Lilia Morales-García**, Salvador Uribe-Carvajal, Natalia Chiquete-Felix, Emilio Espinoza-Simon

## Systems Biology and Disease (Boards B435 - B455)

**2072-Pos BOARD B435**  
MODELING OF PROTEIN COMPLEX ARCHITECTURES USING COMBINATORIAL GENETIC PERTURBATIONS. **Ignacia Echeverria**, Hannes Braberg, Peter Cimermancic, Riccardo Pellarin, Dina Schneidman, Anthony Shiver, Carol Gross, Nevan Krogan, Andrej Sali

**2073-Pos BOARD B436**  
BONDGRAPHTOOLS: MODELLING NETWORK BIOENERGETICS. **Peter Cudmore**, Edmund J. Crampin

**2074-Pos BOARD B437**  
A THERMODYNAMIC FRAMEWORK FOR MODELLING MEMBRANE TRANSPORTERS. **Michael Pan**, Peter J. Gawthrop, Kenneth Tran, Joseph Cursons, Edmund J. Crampin

**2075-Pos BOARD B438**  
A COMPUTATIONAL FRAMEWORK FOR PREFERENTIAL SWITCHING OF COMPETING AB AGGREGATION PATHWAYS BASED ON GAME THEORY APPROACH. Pratip Rana, Jhinuk Saha, Edward Steen, Ashwin Vaidya, Vijay Rangachari, **Preetam Ghosh**

**2076-Pos BOARD B439**  
DISCRETE AND CONTINUOUS MODELS OF PROBABILITY FLUX ON SWITCHING DYNAMICS: A CASE STUDY OF THE TOGGLE-SWITCH SYSTEM. **Anna Terebus**, Chun Liu, Jie Liang

**2077-Pos BOARD B440**  
FUNCTIONAL INTERPRETATION OF SINGLE AMINO ACID SUBSTITUTIONS IN 1,330 DISEASE-ASSOCIATED GENES. **Sumaiya Iqbal**, Jakob Berg Jespersen, Eduardo Perez-Palma, Patrick May, Aarno Palotie, Jeffrey R. Cottrell, Florence F. Wagner, Mark J. Daly, Arthur J. Campbell, Dennis Lal

**2078-Pos BOARD B441**  
THE STEADY STATE CONCENTRATION OF DIFFERENT BIOMARKERS OF OXIDATIVE STRESS REFLECT DIFFERENT TYPES OF OXIDATIVE STRESS-. **Dov A. Lichtenberg**, Ilya Pinchuk, Tilman Grune, Daniela Weber

**2079-Pos BOARD B442 TRAVEL AWARDEE**  
METABOLIC-RESPONSE ASSESSMENT OF MURINE BREAST CANCER CELLS IN 2D AND 3D CULTURES USING TWO-PHOTON FLUORESCENCE LIFETIME IMAGING MICROSCOPY OF INTRINSIC NAD(P)H. **Anh Cong**, Rafaela Marrocci Lima Pimenta, Venkatram Mereddy, Jon M. Holy, Ahmed A. Heikal

**2080-Pos BOARD B443**  
CHARACTERIZATION OF THE METABOLIC STATE AND MOLECULAR CROWDING IN BREAST CANCER SPHEROIDS. **Giulia Tedeschi**, Lorenzo Scipioni, Andrew Trinh, Karina A. Lee, Leonel Malacrida, Michelle A. Dignan, Enrico Gratton

**2081-Pos BOARD B444**  
CAN VIRAL GEOMETRY DETERMINE B CELL SELECTION DURING AN IMMUNE RESPONSE? **Assaf Amitai**, Arup Chakraborty, Mehran Kardar

**2082-Pos BOARD B445**  
HERITABILITY AND STOCHASTICITY IN PRIMARY ENDOTHELIAL CELL SIGNALING. Christina Kim, Gregory Seedorf, Steven Abman, **Douglas P. Shepherd**

**2083-Pos BOARD B446**  
CELL FATE DECISION BY AN ADAPTABLE MOLECULAR TIMER OF P53. **Xiaopeng Zhang**

**2084-Pos BOARD B447**  
PREDICTING CANDIDATE ONCO-GENESIS MUTATIONS AND COOPERATIVE UNITS FROM COMPUTED PROTEIN SURFACE POCKETS. **Xue Lei**, Wei Tian, Alan Perez-Rathke, Boshen Wang, Chia-Yi Chou, Jeffrey Tseng, Jie Liang

**2085-Pos BOARD B448**  
THE ROLE OF MYOFIBROBLAST SENEESCENCE IN ARRHYTHMOGENESIS OF THE AGED INFARCTED HEART. **Brett Baggett**, Kevin Murphy, Yueming Cao, Nilufer Turan, YiChun Lu, Lorraine Schofield, Tae Yun Kim, Dmitry Terentyev, Bum Rak Choi, John Sedivy, Gideon Koren

**2086-Pos BOARD B449**  
DEVELOPMENT OF AN INTEGRATED HUMAN MODEL OF ELECTROPHYSIOLOGY AND ACTIN-MYOSIN BINDING TO DESCRIBE SARCOMERE FORCE GENERATION IN CARDIOMYOCYTES. **Ruth E. Abrams**, Hans-Christoph Schneider, Tatiana Radziun, Britta Goebel, Laurence Lucats, Karim Azer, Howard Surks, Eric Sobie, Spyros Stamatelos

**2087-Pos BOARD B450**  
INVESTIGATING THE BENEFICIAL EFFECTS OF VOLUNTARY EXERCISE IN RATS WITH PULMONARY ARTERY HYPERTENSION. **Eleftheria Pervolaraki**, Ed White, Al Benson

**2088-Pos BOARD B451**  
INTRICATE LINK BETWEEN AUTOPHAGY AND AMYLOID-B KINETICS: MODELING AND SIMULATIONS. Kyungreem Han, Soon Ho Kim, **MooYoung Choi**

**2089-Pos BOARD B452 TRAVEL AWARDEE**  
EFFECTS OF IBUPROFEN ON MICE LIVER PROTEASOME. **Rasheed Sule**

**2090-Pos BOARD B453**  
MODELING THE IMPACT OF POINT MUTATIONS ON THE REGULATORY POTENCY OF THE SMALL RNA SGRS. **Troy A. Brier**, David Bianchi, Anustup Poddar, Muhammad S. Azam, Carin K. Vanderpool, Taekjip Ha, Zaida Luthy-Schulten

**2091-Pos BOARD B454**  
STRUCTURE-BASED METHOD FOR PREDICTING DELETERIOUS MISSENSE SNPS. **Boshen Wang**, Xue Lei, Wei Tian, Alan Perez-Rathke, Yanyuan Tseng, Jie Liang

**2092-Pos BOARD B455**  
CYTOTOXICITY OF VARIOUS GOLD NANOPARTICLES - AN IN VITRO STUDY. **Marika Musielak**, Karolina Rucińska, Joanna Maksim, Agnieszka Bos-Liedke, Maciej Kozak



## Systems Neuroscience (Boards B456 - B458)

- 2093-Pos**      **BOARD B456**  
TRANSIENT INCREASES IN MOUSE BRAIN WATER ACTIVITY DEDUCED FROM HYDRATION/DEHYDRATION RATES EX VIVO. **Maria P. McGee**, Michael Morykwas, Louis Argenta
- 2094-Pos**      **BOARD B457**  
MEASURING SIMULTANEOUSLY MUSCLE AND BRAIN CALCIUM ACTIVITY IN THE FRUIT FLY. **Amicia D. Elliott**, Adama Berndt, Feici Diao, Robert Scott, Hari Shroff, Benjamin White
- 2095-Pos**      **BOARD B458**      **TRAVEL AWARDEE**  
VELOCITY AND POSITION EFFECTS IN EYE TRACKING. **Gabriella Wheeler**, Robert de Ruyter van Steveninck

## Molecular and Cellular Neuroscience (Boards B459 - B473)

- 2096-Pos**      **BOARD B459**  
MAKING SWAPS UNTIL ACTIVITY DROPS - LOCALIZING THE DIFFERENT SPECIFIC ACTIVITY OF PRESENILIN HOMOLOGUES TO PROTEIN DOMAINS. **Fabian C. Schmidt**, Harald Steiner, Dieter Langosch
- 2097-Pos**      **BOARD B460**  
ACTIONS OF RAB27B-GTPASE ON CENTRAL EXCITATORY SYNAPTIC TRANSMISSION. **Erwin R. Arias-Hervet**
- 2098-Pos**      **BOARD B461**  
CHANGES IN MULTIPLE MEMBRANE CURRENTS UNDERPIN ENHANCED SYMPATHETIC FIRING RATE IN THE STELLATE GANGLIA OF THE SPONTANEOUSLY HYPERTENSIVE RAT. **Harvey Davis**, David J. Paterson, Neil Herring
- 2099-Pos**      **BOARD B462**  
CHANGES IN SECONDARY STRUCTURE OF HUMAN PRION PROTEIN PEPTIDE 30-90 UNDER THE INFLUENCE OF SELECTED DICATIONIC AND ANIONIC SURFACTANTS. **Julia Ludwiczak**, Maciej Kozak, Kosma Szutkowski, Igor Zhukov
- 2100-Pos**      **BOARD B463**  
CONSTRUCTION OF AN OPENSPIR LIGHT-SHEET MICROSCOPE FOR THE STUDY OF NEURAL CREST MIGRATION IN *DANIO RERIO*. Manuel Rocha, Matt Reyer, Walter Alvarado, Hendrik Glauning, Megan Hoinville, Courtney Kroll, Margo MacDonald, Eric Rouviere, Diane Schnitkey, **Iva Veseli**, Steven Wasserman, Victoria Prince, Adam Hammond
- 2101-Pos**      **BOARD B464**  
REVEALING ABNORMAL OLIGOMERIZATION OF PROTEINS IN SINGLE CELLS. **Annie Castonguay**, Louis-Etienne Lorenzo, Paul W. Wiseman, Alfredo Ribeiro-da-Silva, Yves De Koninck, Antoine G. Godin
- 2102-Pos**      **BOARD B465**      **TRAVEL AWARDEE**  
A RECEPTOR-INDEPENDENT LIPID MEMBRANE-MEDIATED PATHWAY FOR SEROTONIN ACTION. **Simli Dey**, Barun Kumar Maity, Ankur Gupta, Anirban Das, Dayana Surendran, Gilbert Walker, Sudipta Maiti
- 2103-Pos**      **BOARD B466**  
PHASE SEPARATION OF SYNAPTIC VESICLES AT THE NERVE TERMINAL. **Dragomir Milovanovic**, Pietro De Camilli
- 2104-Pos**      **BOARD B467**  
LIPOSOME NANO-CAPSULE FOR TARGET BRAIN DELIVERY. **Tingting Zheng**, Yun Chen, Li Liu, Qian Liu
- 2105-Pos**      **BOARD B468**  
SECONDARY ASSOCIATIVE MEMORY CELLS AND THEIR PLASTICITY IN THE PREFRONTAL CORTEX. **Jin-Hui Wang**, Jing Feng, Huajuan Xiao, Yang Xu

- 2106-Pos**      **BOARD B469**      **TRAVEL AWARDEE**  
CALCIUM FREQUENCY SETS THE LOCATION OF CALMODULIN-DEPENDENT ENZYME ACTIVATION IN DENDRITIC SPINES. **Matthew C. Pharris**, Neal M. Patel, Lakmini J. Wilson, Christopher W. Rust, Tamara L. Kinzer-Ursem
- 2107-Pos**      **BOARD B470**  
CHANGES IN LIPID MEMBRANE MAY TRIGGER AMYLOID TOXICITY IN ALZHEIMER'S DISEASE. Elizabeth Drolle, Stephen Turnbull, Nanqin Mei, Carina Filice, Brenda Y. Lee, Morgan Robinson, Evgeny Pavlov, Eric Finot, **Zoya Leonenko**
- 2108-Pos**      **BOARD B471**  
STRUCTURE AND *IN SILICO* ELASTICITY OF A COMPLETE PROTOCADHERIN-15 DIMER. Deepanshu Choudhary, Yoshie Narui, Brandon L. Neel, Lahiru N. Wimalasena, Carissa F. Klanseck, Conghui Chen, Pedro De-la-Torre, Raul Araya-Secchi, Elakkiya Tamilselvan, **Marcos Sotomayor**
- 2109-Pos**      **BOARD B472**      **TRAVEL AWARDEE**  
BINDING AND TRANSPORT OF AMYLOID-B BY P-GLYCOPROTEIN: A NOVEL THERAPEUTIC TARGET IN ALZHEIMER'S DISEASE. **Hope Holt**, Elizabeth Moore, Madeline Riese, Michelle Faucett, Francisco Gonzalez, Melissa Moss
- 2110-Pos**      **BOARD B473**  
PHOTOLYSIS OF A CAGED, FAST-EQUILIBRATING GLUTAMATE RECEPTOR ANTAGONIST, MNI-CAGED-GAMMA-D-GLUTAMYL-GLYCINE, TO INVESTIGATE TRANSMITTER DYNAMICS AND RECEPTOR PROPERTIES AT GLUTAMATERGIC SYNAPSES. Francisco Palma-Cerda, George Papageorgiou, Boris Barbour, Celine Auger, **David Ogden**

## Force Spectroscopy and Scanning Probe Microscopy (Boards B474 - B490)

- 2111-Pos**      **BOARD B474**  
USE OF MODIFIED GRAPHITE FOR SINGLE-MOLECULE ATOMIC FORCE MICROSCOPY OF BIOMACROMOLECULES. Dmitry V. Klinov, **Anna D. Protopopova**, Dmitry S. Andrianov, Rustem I. Litvinov, John W. Weisel
- 2112-Pos**      **BOARD B475**      **TRAVEL AWARDEE**  
CALIBRATION-INDEPENDENT ATOMIC FORCE MICROSCOPY. **Carmen Suay Corredera**, Carolina Pimenta-Lopes, Diana Velázquez-Carreras, David Sánchez-Ortiz, Jorge Alegre-Cebollada
- 2113-Pos**      **BOARD B476**      **TRAVEL AWARDEE**  
HOOKING ON VIRAL GLYCOPROTEINS WITH SINGLE MOLECULE FORCE SPECTROSCOPY TO STUDY SINGLE AND MULTIPLE BOND FORMATIONS. **Daniel Lauster**, Valentin Reiter-Scherer, Luis Jose Cuellar Camacho, Sumati Bhatia, Jürgen P. Rabe, Rainer Haag, Andreas Herrmann
- 2114-Pos**      **BOARD B477**  
MOLECULAR RESOLUTION OF GRAM POSITIVE BACTERIA CELL WALL USING AFM. **Laia Pasquina Lemonche**, Jonathan Burns, Robert Turner, Simon Foster, Jamie Hobbs
- 2115-Pos**      **BOARD B478**  
CLUSTERING AND IDENTIFICATION OF FORCE SPECTRA FROM NATIVE MEMBRANES. **Nicola Galvanetto**, Nina Ilieva, Alessandro Laio, Vincent Torre
- 2116-Pos**      **BOARD B479**  
UNFOLDING FOCAL ADHESION KINASE: GETTING CELLULAR INSIGHT THROUGH AFM AND MD. **Csaba Daday**, Magnus Bauer, Pilar Redondo, Hermann E. Gaub, Daniel Lietha, Frauke Gräter
- 2117-Pos**      **BOARD B480**  
DYNAMIC FORCE-SPECTROSCOPY ON A BUDGET: NEW DESIGNS AND OPEN-SOURCE SOFTWARE FOR BUILDING AN ELECTROMAGNETIC TWEETZER. **Daniel T. Kovari**, Joseph Piccolo, David Dunlap, Laura Finzi

**2118-Pos BOARD B481 TRAVEL AWARDEE**  
BINDING OF HANTAVIRUS TO ITS HOST CELL - A SINGLE VIRUS FORCE SPECTROSCOPY STUDY. **Malte Hilsch**, Niklaas Nilson, Daniel Lauster, Andreas Herrmann

**2119-Pos BOARD B482**  
INVESTIGATING CELL STIFFNESS IN WILD-TYPE *CANDIDA ALBICANS* AND ITS MORPHOLOGIES USING CONTACT ATOMIC FORCE MICROSCOPY. **Michelle K. Ash**, Jeff D. Stephens

**2120-Pos BOARD B483**  
SECOND VIRIAL COEFFICIENT OF LIPID VESICLE REGULATED BY SURFACE CHARGE DENSITY AND ELECTRIC DOUBLE LAYER: OPTICAL CONFINEMENT STUDY. **Jaehee Lee**, Bopil Gim, Myung Chul Choi, Seongmin Park, Chang-Young Park, Sohee Kim, Hyunwoo Jang, Suho Lee, Ou-Yang H. Daniel, Joon Heon Kim, Changbong Hyeon, Suyong Kwon

**2121-Pos BOARD B484**  
CHARACTERIZATION OF CELL MEMBRANE USING ATOMIC FORCE MICROSCOPY. Lin Liu, Yuhui Wei, Kaizhe Wang, Lihua Wang, Jun Hu, **Bin Li**

**2122-Pos BOARD B485**  
DIRECTLY PROBING THE DISSOCIATION EFFECTS OF GRAPHENE OXIDE NANOSHEETS ON HIAPP FIBRILS. **Shujie Li**, Xiaofeng Hu, Xinju Yang

**2123-Pos BOARD B486 TRAVEL AWARDEE**  
UTILIZING ATOMIC FORCE MICROSCOPY TO EXPLORE THE BIOPHYSICAL CHEMISTRY OF THE BACTERIAL PREDATOR *BDELLOVIBRIO BACTERIOVORUS*. **Asriel Walker**, Cindy Peraza, Catherine B. Volle, Megan A. Ferguson, Eileen M. Spain, Megan E. Nunez

**2124-Pos BOARD B487**  
EXPLORING THE SULFATASE 1 CATCH BOND FREE ENERGY LANDSCAPE USING JARZYNSKI'S EQUALITY. Volker Walhorn, Ann-Kristin Moeller, Christian Bartz, Thomas Dierks, **Dario Anselmetti**

**2125-Pos BOARD B488**  
ADHESION FORCES IN BACTERIAL PREDATOR-PREY AND PREY-PREY SYSTEMS. **Dylan Fitzmaurice**, Puja Saha, Megan E. Nunez, Eileen M. Spain, Catherine M. Volle, Megan A. Ferguson

**2126-Pos BOARD B489**  
HIGH-PERFORMANCE IMAGE-BASED MEASUREMENTS OF BIOLOGICAL FORCES AND INTERACTIONS IN A DUAL OPTICAL TRAP. Jessica L. Killian, James T. Inman, **Michelle D. Wang**

**2127-Pos BOARD B490**  
DETERMINATION OF ELASTIC MODULUS OF WHITE BLOOD CELLS WITH VARYING TEMPERATURES USING OPTICAL TWEEZERS. **Jeff Miller**, Brooke Hester

## Diffraction and Scattering Techniques (Boards B491 - B493)

**2128-Pos BOARD B491**  
VIRUS DYNAMICS STUDIED BY TIME-RESOLVED SMALL ANGLE X-RAY SCATTERING. **Josue San Emeterio**, Lois Pollack

**2129-Pos BOARD B492**  
MESOSCALE ARCHITECTURE OF BETA CELLS UPON GLUCOSE AND EX-4 STIMULATION. **Kate L. White**, Jitin Singla, John Francis, Jian-Hua Chen, Axel Ekman, Carolyn Larabell, Raymond C. Stevens

**2130-Pos BOARD B493**  
THE NEUTRON SPIN ECHO SPECTROMETER @ SNS AND ITS BIOPHYSICS APPLICATIONS. **Laura R. Stingaciu**

## Molecular Dynamics II (Boards B494 - B524)

**2131-Pos BOARD B494**  
EXPLORING THE EFFECTS OF DIRECTED EVOLUTION ON THE DYNAMICS OF ARTIFICIAL RETRO ALDOLASES. **Joseph Schafer**, Ioanna Zoi, Steven D. Schwartz

**2132-Pos BOARD B495 TRAVEL AWARDEE**  
COMPUTATIONAL INSIGHTS ON SMALL MOLECULE BINDING TO THE HV1 PROTON CHANNEL. **Victoria T. Lim**, Nathan M. Lim, Andrew D. Geragotelis, J. Alfredo Freites, Francesco Tombola, David L. Mobley, Douglas J. Tobias

**2133-Pos BOARD B496**  
PROTON TRANSPORT IN E. COLI CLC TRANSPORT PROTEIN BY ADAPTIVE QM/MM CALCULATIONS. **Baris O. Aydintug**, Adam Duster, Christina Garza, Mikias Negussie, Hai Lin

**2134-Pos BOARD B497**  
MOLECULAR DYNAMICS SIMULATION STUDIES OF THE INTERFERON-INDUCED TRANSMEMBRANE PROTEIN (IFITM3). **Hwayoung Lee**, Wonpil Im

**2135-Pos BOARD B498**  
MOLECULAR DYNAMICS SIMULATIONS OF PHOSPHORYLATED INTRINSICALLY DISORDERED PROTEINS. **Liam I. Haas-Neill**, Sarah Rauscher

**2136-Pos BOARD B499**  
EXAMINING THE REFOLDING OF PERTURBED PROTEIN STRUCTURE INTERMEDIATES USING VARIOUS MOLECULAR MECHANICS FORCE FIELDS. **David Wang**, Piotr E. Marszalek

**2137-Pos BOARD B500**  
ION PERMEATION THROUGH ORAI PROTEINS. **Tugba N. Ozturk**, Guillaume Lamoureux

**2138-Pos BOARD B501**  
MODULATING THE CHEMICAL TRANSPORT PROPERTIES OF THE CLC ANTIporter VIA ALTERNATIVE ANION FLUX AND MUTATION. **Zhi Wang**, Jessica M. J. Swanson, Gregory A. Voth

**2139-Pos BOARD B502**  
COMPUTATIONAL INVESTIGATIONS OF A COMPLEX FORMATION BETWEEN NEUROGLOBIN AND CYTOCHROME C FERRIC HEME PROTEINS. **Purushottam Tiwari**, Prem Chapagain, Aykut Uren

**2140-Pos BOARD B503**  
EXAMINING REACTION MECHANISMS OF CATECHOL O-METHYLTRANSFERASE. **Xi Chen**, Steven Schwartz

**2141-Pos BOARD B504**  
STRUCTURAL INSIGHTS INTO THE ACTIVATION OF BLOOD COAGULATION FACTOR XI ZYMOGEN BY THROMBIN: A COMPUTATIONAL MOLECULAR DYNAMICS STUDY. **Divi Venkateswarlu**

**2142-Pos BOARD B505**  
COMPARATIVE MOLECULAR DYNAMICS DYNAMICS OF THE BRAF ACTIVATION LOOP REVEALS A BIOPHYSICAL MECHANISM OF CANCER RECURRENCE UNDER DRUG INHIBITION. **Gregory A. Babbitt**, Andre Hudson, Lily Adams

**2143-Pos BOARD B506**  
CAPTURING THE MECHANISM UNDERLYING TOP-BINDING TO THE LARP1 DM15 REGION. Kevin C. Cassidy, Roni M. Lahr, Jesse C. Kaminsky, Andrea J. Berman, **Jacob D. Durrant**

**2144-Pos BOARD B507**  
NICOTINIC ACETYLCHOLINE RECEPTOR CLUSTERING IN DHA-ENRICHED DOMAINS. **Kristen N. Woods**, Liam M. Sharp, Grace Brannigan

**2145-Pos BOARD B508**  
LB3B4 CONFORMATIONS OF THE *FLAVIVIRIDAE* NS3H PROTEIN. **Russell B. Davidson**, Martin McCullagh

**2146-Pos BOARD B509**  
THEORETICAL MODELING OF THE RNA-ENHANCED NTPASE ACTIVITY OF DENGUE AND ZIKA NS3 HELICASES. **Russell B. Davidson**, Martin McCullagh

**2147-Pos BOARD B510**  
CONFORMATIONAL FLUCTUATIONS AND CHANGES OF SR-CA<sup>2+</sup>-ATPASE ON THE E1/E2 TRANSITION. **Chigusa Kobayashi**, Yasuhiro Matsunaga, Jaewoon Jung, Yuji Sugita

**2148-Pos BOARD B511**  
UTILIZING UMBRELLA SAMPLING AND BROWNIAN DYNAMICS TO STUDY THE FUNCTIONAL AND DYNAMIC CHARACTERISTICS OF CARDIAC TROPONIN C. **Jacob D. Bowman**, Steffen Lindert

**2149-Pos BOARD B512**  
VIRTUAL SCREENING FINDS TROPONIN CALCIUM SENSITIZERS AND UMBRELLA SAMPLING SIMULATIONS ELUCIDATE DIFFERENCES IN TROPONIN C ISOFORM AND MUTANT HYDROPHOBIC PATCH EXPOSURE. **Jacob Bowman**, Melanie Aprahamian, Svetlana Tikunova, Jonathan P. Davis, **Steffen Lindert**

**2150-Pos BOARD B513**  
HOW LIGAND BINDING ALTERS THE DYNAMICS OF TOLL-LIKE RECEPTOR 4 (TLR4) AND ITS CO-RECEPTOR MYELOID DIFFERENTIATION FACTOR 2 (MD-2): A MOLECULAR DYNAMICS SIMULATION. **Alireza Tafazzol**, Yong Duan

**2151-Pos BOARD B514**  
ACTIVATION OF THE VOLTAGE GATED PROTON CHANNEL HV1: A CONSTANT PH MOLECULAR DYNAMICS STUDY. **Jack A. Henderson**, Jana Shen

**2152-Pos BOARD B515**  
EARLY TRANSLOCATION OF ANTHRAX LETHAL FACTOR: KINETICS FROM MOLECULAR DYNAMICS SIMULATIONS AND MILESTONING THEORY. **Piao Ma**, Alfredo E. Cardenas, Mangesh Chaudhari, Ron Elber, Susan L. Rempe

**2153-Pos BOARD B516**  
CENP-A HIJACKS THE HISTONE CHAPERONE NETWORK IN CANCER--COMPUTATIONAL INSIGHTS. **Mary Pitman**, Yamini Dalal, Garegin A. Papoian

**2154-Pos BOARD B517**  
PROTEIN KINASE FREE ENERGY LANDSCAPES: THE ROLE OF THE ACTIVATION LOOP. **Shima Arasteh**, Peng He, Allan Haldane, Ronald M. Levy

**2155-Pos BOARD B518 TRAVEL AWARDEE**  
EXPLORATIONS OF DRUG TRANSPORT BY P-GLYCOPROTEIN USING MOLECULAR DYNAMICS ENABLED BY HIGH RESOLUTION CRYSTAL STRUCTURES. **Lauren E. Ammerman**, Pia D. Vogel, John G. Wise

**2156-Pos BOARD B519**  
PEPTIDE BINDING INTERACTION BETWEEN ARKA AND ABP1SH3 USING MARKOV STATE MODELS. **Henry Huang**, Gabriella Gerlach

**2157-Pos BOARD B520**  
EFFECT OF CAPSID TAIL ON SEMI-FLEXIBLE POLYMER PACKING INTO A CAPSID IN A CROWDED ENVIRONMENT. **Nada Ahmed Alnaamani**

**2158-Pos BOARD B521 TRAVEL AWARDEE**  
STRUCTURE AND DYNAMICS OF ALZHEIMER'S ASSOCIATED AMYLOID-BETA PEPTIDE. **Thomas Löhner**, Kai Kohlhoff, Gabriella Heller, Michele Vendruscolo

**2159-Pos BOARD B522**  
INSIGHT INTO AMYLOID INTERACTIONS: MOLECULAR DYNAMICS SIMULATIONS OF MODEL PEPTIDE FRAGMENTS. **Nicholas A. Cramer**, Grant Kawecki, David R. Bevan, Anne M. Brown

**2160-Pos BOARD B523 TRAVEL AWARDEE**  
MOLECULAR DYNAMICS INVESTIGATION OF THE PHYSICAL BINDING OF THE NNK DIAZONIUM ION TO EXON 5 OF TP53. **David M. Wahl**, Christos Deligkaris

**2161-Pos BOARD B524**  
MOLECULAR DYNAMICS SIMULATIONS USING ACCURATE CHARGE-CHARGE INTERACTIONS PREDICT UNEXPECTED PHASE BEHAVIORS OF DNA CONTROLLED BY EPIGENETIC MODIFICATIONS. Sunjoo You, **Jejoong Yoo**

## Optical Microscopy and Superresolution Imaging III (Boards B525 - B548)

**2162-Pos BOARD B525**  
UNDERSTANDING CARDIAC TUBE FORMATION IN DEVELOPING DROSOPHILA EMBRYOS USING LIGHT SHEET MICROSCOPY AND CARDIAC DRUG SCREENING. **Christopher Mj McFaul**, Rodrigo Fernandez-Gonzalez, Christopher M. Yip

**2163-Pos BOARD B526**  
PAIR CORRELATION ANALYSIS OF LOCALIZATION MICROSCOPY DATA WHEN SAMPLING DENSITY IS NOT UNIFORM. **Thomas R. Shaw**, Sarah A. Shelby, Sarah L. Veatch

**2164-Pos BOARD B527**  
ACHIEVING AXIAL SUPER-RESOLUTION WITH THE TWO-PHOTON DUAL-COLOR Z-SCAN METHOD. **Siddarth Reddy Karuka**, Isaac Angert, John Kohler, G. W. Gant Luxton, Louis M. Mansky, Joachim D. Mueller

**2165-Pos BOARD B528 TRAVEL AWARDEE**  
DEVELOPMENT AND OPTIMIZATION OF THE Y-FAST:FLUOROGEN SYSTEM FOR SUPER-RESOLUTION IMAGING. **Elizabeth M. Smith**, Arnaud Gautier, Elias M. Puchner

**2166-Pos BOARD B529**  
A NOVEL VIEWPOINT TO ANALYZE STRUCTURED ILLUMINATION MICROSCOPY (SIM) DATA. **Isotta Cainero**, Simone Pelicci, Melody Di Bona, Alberto Diaspro, Luca Lanzano'

**2167-Pos BOARD B530**  
SINGLE-CELL CORRELATIONS OF INTRON, MRNA, AND PROTEIN CONTENT IN HUMAN IMMUNE-IMMUNE CELLS. **Daniel Kalb**, Samantha Adikari, Pulak Nath, Elizabeth Hong-Geller, James Werner

**2168-Pos BOARD B531**  
OPTIMIZATION OF SINGLE MOLECULE PALM IMAGING CONDITIONS USING MEOS2. **Ragnar Stefánsson**

**2169-Pos BOARD B532**  
IMAGING CANCER CELLS AND THEIR INTERACTIONS WITHIN 3D MICROENVIRONMENT - A QUANTITATIVE STUDY USING CRYO SOFT X-RAY TOMOGRAPHY. **Jian-Hua Chen**, Axel Ekman, Venera Weinhardt, Gerry McDermott, Mark A. Le Gros, Carolyn A. Larabell

**2170-Pos BOARD B533**  
SPATIAL CUMULANT ANALYSIS TO STUDY D2-LIKE DOPAMINE RECEPTOR DYNAMICS ON PLASMA MEMBRANE. **Daniel J. Foust**, Alessandro Ustione, David W. Piston

**2171-Pos BOARD B534**  
LIVE CELL SUPER-RESOLUTION IMAGING WITH RED-SHIFTED STATES OF CONVENTIONAL BODIPY FLUOROPHORES. **Santosh Adhikari**, Joe Moscatelli, Elias Puchner

**2172-Pos BOARD B535**  
OPTIMIZING ASTIGMATISM FOR 3D STOCHASTIC OPTICAL RECONSTRUCTION MICROSCOPY. **Alondra Escobar**, Christopher M. Yip

**2173-Pos BOARD B536**

DISTRIBUTION OF CHOLESTEROL AND HER2 IN PATIENT BREAST CANCER CELLS USING QUANTITATIVE SINGLE MOLECULE LOCALIZATION MICROSCOPY. **Matthew S. Brehove**, Steven J. Tobin, Devin L. Wakefield, Veronica Jones, Xueli Liu, Daniel Schmolze, Tijana Jovanović-Talisan

**2174-Pos BOARD B537**

3D ORBITAL TRACKING UNDER STED MICROSCOPY. **Alexander Vallmitjana Lees**, Enrico Gratton

**2175-Pos BOARD B538**

AN INEXPENSIVE MODULE FOR HIGH-CONTENT ISPIM. **Aaron Au**, Christopher M. Yip

**2176-Pos BOARD B539**

INVESTIGATING THE IMPACT OF PHENOTYPIC HETEROGENEITY ON ANTIBIOTIC RESPONSE VIA 1D MICROFLUIDIC CONFINEMENT OF SINGLE BACTERIA. **Shahla H. Nemati**, Andreas E. Vasdekis

**2177-Pos BOARD B540**

TAKING A CLOSER LOOK AT BACTERIAL:FUNGAL INTERACTIONS IN SOIL USING QUANTITATIVE MICROSCOPY. **Demosthenes P. Morales**, James H. Werner

**2178-Pos BOARD B541**

HYPERSPECTRAL IMAGING IN SCATTERING MEDIA USING TWO FILTERS. **Alexander Dvornikov**, Enrico Gratton

**2179-Pos BOARD B542**

A NEW FASTER FLIMBOX WITH HIGHER HARMONIC CONTENT AND MULTI DETECTOR INPUT. **Enrico Gratton**, Alessandro Rossetta, Hongtao Chen

**2180-Pos BOARD B543**

3D SUPER RESOLUTION IMAGING REVEALS THAT PLASMA MEMBRANE TOPOLOGY CAN BE MISINTERPRETED AS LATERAL HETEROGENEITY IN CELLS IMAGED UNDER TOTAL INTERNAL REFLECTION. **Ryan A. Bogucki**, Thomas Shaw, Sarah L. Veatch

**2181-Pos BOARD B544**

ADAPTIVE OPTICS IN STRONGLY SCATTERING SAMPLES. **Simon W. Leemans**, Enrico Gratton

**2182-Pos BOARD B545**

COPY NUMBER AND FUNCTION OF INDIVIDUAL DISORDERED PROTEINS IN THE NUCLEAR PORE COMPLEX REVEALED BY COMBINING AUXIN-INDUCIBLE DEGRON STRATEGY AND HIGH-SPEED SINGLE -MOLECULE MICROSCOPY. **Yichen Li**, Vasilisa Aksenova, Jingjie Yu, Ping Ma, Alexei Arnaoutov, Mary Dasso, Weidong Yang

**2183-Pos BOARD B546**

SIMULTANEOUS 25 PLANE 3D LIVE IMAGING SYSTEM FOR NEURAL CIRCUITS. **Eduardo Hirata Miyasaki**, Gustav Pettersson, Demis D. John, Brian Thibeault, Khant Zaw, Brandon J. Lynch, Juliana Hernandez, Sara Abrahamson

**2184-Pos BOARD B547**

SUPER-RESOLUTION GEOMETRIC BARCODING FOR MULTIPLEXED MIRNA PROFILING. Weidong Xu, Peng Yin, **Mingjie Dai**

**2185-Pos BOARD B548**

THE PHASOR FLIM ANALYSIS MONITORS METABOLIC CHANGES AT THE LEADING EDGE IN RESPONSE TO RAC PHOTO-ACTIVATION AND MITOCHONDRIAL TRANSPORT IN MDA MB231 CELLS. **Michelle A. Digman**, Austin Lefebvre, Freddie Adame, Emma Fong

**Biosensors II (Boards B549 - B563)****2186-Pos BOARD B549**

CELLULAR MICRORNA DETECTION USING DNA NANOSWITCHES. **Arun Richard Chandrasekaran**

**2187-Pos BOARD B550**

CONVERTING FRET SIGNAL INTO FORCE INFORMATION USING SHORT LOOPED DNA AS FORCE TRANSDUCER. **Golam Mustafa**, Cho-Ying Chuang, William A. Roy, Mohamed M. Farhath, Nilisha Pokhrel, Yue Ma, Kazuo Nagasawa, Edwin Antony, Matthew J. Comstock, Soumitra Basu, Hamza Balci

**2188-Pos BOARD B551**

MOLECULAR DYNAMICS SIMULATIONS OF APTAMER-BASED BIOSENSORS. Iman Jeddi, **Leonor Saiz**

**2189-Pos BOARD B552**

COMPUTATIONALLY GUIDED RATIONAL DESIGN OF LOO-GFP BIOSENSORS AND BIOSENSOR MATERIALS. Shounak Banerjee, Thomas B. Jordan, Keith Fraser, Justin Reimertz, Emily E. Crone, Adrienne L. Bunn, Joshua Mincer, Rebecca M. Booth, Donna E. Crone, Sarah E. Bondos, **Christopher Bystrhoff**

**2190-Pos BOARD B553**

RECEPTOR-MEDIATED REGULATION OF GLUCOKINASE BY S-NITROSYLATION IN HYPOTHALAMIC NEURONS. **Jennifer McFarland**, Mark A. Rizzo

**2191-Pos BOARD B554**

INTERFACING PHOTOSYSTEM I REACTION CENTERS WITH A POROUS ANTIMONY-DOPED TIN OXIDE ELECTRODE TO PERFORM LIGHT DRIVEN REDOX CHEMISTRY. **Akanksha Singh**, Sarthak Mandal, Anne-Marie Carey, Minghui Liu, Shaojiang Chen, Dong-Kyun Seo, Hao Yan, Neal Woodbury

**2192-Pos BOARD B555**

HIGHLY SENSITIVE DETECTION OF VIRAL NUCLEOPROTEIN USING VHH ANTIBODY AND SURFACE PLASMON RESONANCE. **Hiroto Yanagawa**, Kazuaki Nishio, Noriko Shimba, Emina Ikeuchi, Taturou Kawamura, Kouhei Tsumoto, Masahiko Shioi

**2193-Pos BOARD B556**

TRAVEL AWARDEE  
VALUATING PHOTOOXIDATION OF PHOSPHOLIPID MEMBRANES BY A NOVEL SWITCHABLE PHOTOLENSIZER. **Jonathan P. Hulse**, Florencia Monge, Crystal M. Vander Zanden, Eva Y. Chi, David G. Whitten

**2194-Pos BOARD B557**

LARGE-AREA, REPRODUCIBLE AG-FILM-FUNCTIONALIZED MIXED POLYSTYRENE SPHERES ON SILICON FOR SURFACE-ENHANCED RAMAN SPECTROSCOPY. **Xiaofeng Hu**

**2195-Pos BOARD B558**

NAVIGATIONAL BIOELECTRICITY: SEARCH FOR THE ELUSIVE SENSOR OF ELECTRIC FIELDS IN CHONDROCYTES. **Joshua Bush**, Michael W. Stacey

**2196-Pos BOARD B559**

GOLD NANORIBBONS AS SUPPORT MATERIAL FOR NANOSENSORS. **Joanna P. Patalas**, Marika Musielak, Augustyn Moliński, Zuzanna Pietralik, Agnieszka Boś-Liedke, Maciej Kozak

**2197-Pos BOARD B560**

GRAPHENE DEFLECTOMETRY FOR SINGLE BIOMOLECULES. **Maicol A. Ochoa**, Michael Zwolak

**2198-Pos BOARD B561**

IN-SITU AND QUICK DETECTION OF RNA VIRUS BY NANOBIOSENSOR. **May Thuzar Maung**, Samuel Opper, Kevin Taisma, Ewa S. Kirkor, Ali Senejani, Saion K. Sinha

**2199-Pos BOARD B562**  
NANOPORE-NANO-ELECTRODE FOR POTENTIAL SENSING OF SINGLE NANOPARTICLE COLLISION EVENTS. **Popular Pandey**, jin He

**2200-Pos BOARD B563**  
SURFACE MODIFICATION OF FLUORESCENT NANODIAMOND FOR BIOMEDICAL APPLICATIONS AS FLUORESCENT PROBE. **Haksung Jung**, Kyung-Jin Cho, Yeonee Seol, Yasuharu Takagi, Andrew Dittmore, Roche Paul, Keir C. Neuman

## Micro- and Nanotechnology II (Boards B564 - B578)

**2201-Pos BOARD B564**  
EVALUATION AND OPTIMIZATION OF NOVEL FORMULATIONS FOR DELIVERY OF HYDROPHILIC BIOLOGICAL DRUGS USING BIOCOMPATIBLE SURFACTANTS. **Hannah M. Work**, Joseph C. Iovine, Nakoia K. Webber, Taylor V. Douglas, Samuel L. Ricci, Ryan P. Calhoun, Gabriela V. Baker, Elizabeth A. Richards, Daniel D. Yang, Benjamin R. Carone, Nathaniel V. Nucci

**2202-Pos BOARD B565**  
KINETIC MODELING OF NANOPARTICLE-CELL ASSOCIATION. **Matthew Faria**, Ka Noi, Stuart Johnston, Yi Ju, Mattias Björnholm, Frank Caruso, Edmund J. Crampin

**2203-Pos BOARD B566**  
FRAMEWORK FOR NUCLEIC ACID CELLULAR DELIVERY USING CARBON NANOTUBES WITHOUT CHEMICAL FUNCTIONALIZATION. **Arupananda Sengupta**, Michael Blades, Daniel J. Hayes, Slava V. Rotkin

**2204-Pos BOARD B567**  
COMPARATIVE PHYSICO-CHEMICAL CHARACTERIZATION BETWEEN BRAND AND GENERIC INTRAVENOUS SODIUM FERRIC GLUCONATE COMPLEX IN SUCROSE INJECTION. **Joel Brandis**, Marc Taraban, Kyle Kihn, Heather Neu, Peter Langguth, Alex Confer, David Goldberg, James Polli, Sarah Michel

**2205-Pos BOARD B568**  
QUANTIFYING ASSOCIATIONS BETWEEN AN ENDOGENOUS PROTEIN MODEL AND MPEG-PCL MICELLAR NANOCARRIERS. **Donald P. Mallory**, Abegle Freeman, Adam W. Smith, Coleen Pugh

**2206-Pos BOARD B569 TRAVEL AWARDEE**  
INDEX-MATCHED MICROFLUIDIC CELL ARRAY FOR HIGH THROUGHPUT SINGLE CELL OPTICAL ANALYSIS. **Justin J. Griffin**, Edward R. Polanco, Thomas A. Zangle

**2207-Pos BOARD B570**  
MULTIPLEX IN SITU TAGGING TECHNOLOGY FOR HIGHLY MULTIPLEXED SINGLE-CELL ANALYSIS. **Jun Wang**

**2208-Pos BOARD B571**  
DESIGN OF ISLET-ON-A-CHIP DEVICES TO DYNAMICALLY MEASURE GLUCOSE-STIMULATED METABOLISM AND INSULIN SECRETION IN INDIVIDUAL PANCREATIC ISLETS. Romario Regeenes, Afifa Saleem, Huntley Chang, Hima Gohil, Michael B. Wheeler, **Jonathan V. Rocheleau**

**2209-Pos BOARD B572**  
LIGHT-RESPONSIVE POLYMER PARTICLES AS FORCE CLAMPS FOR THE MECHANICAL UNFOLDING OF TARGET MOLECULES. **Hanquan Su**, Zheng Liu, Yang Liu, Victor Pui-Yan Ma, Jing Zhao, Aaron Blanchard, Kornelia Galior, Brian Dyer, Khalid Salaita

**2210-Pos BOARD B573**  
METAL OXIDE COATING OF SILVER NANOPARTICLES TO IMPROVE THEIR PHYSICO-CHEMICAL AND OPTICAL PROPERTIES. **Soha Salah AbdelHamied Mohamed**, Heba M. Fahmy, Engy Maged Mohamed Shams-Eldin, Ayaat Mahmoud MoslehSelim

**2211-Pos BOARD B574**  
MAKING THE RAINBOW: A COST-EFFECTIVE, REPRODUCIBLE, AND SCALABLE METHOD FOR QUANTUM DOT FABRICATION. **Taylor V. Douglas**, Aubrie A. Weyhmler, Kayla A. Callaway, Nathaniel V. Nucci

**2212-Pos BOARD B575**  
SAXS AND SPECTROSCOPIC STUDIES OF SYNTHESIS PROCEDURES OF NANORODS. **Karolina Rucinska**, Joanna Maksim, Kosma Szutkowski, Augustyn Molinski, Zuzanna Pietralik, Maciej Kozak

**2213-Pos BOARD B576**  
MORPHOLOGY OF GOLD NANORODS OBTAINED IN THE PRESENCE OF OLIGOMERIC SURFACTANTS. **Joanna Maksim**, Karolina Rucinska, Augustyn Molinski, Zuzanna Pietralik, Maciej Kozak

**2214-Pos BOARD B577**  
SIMULATION OF THE MOTION OF ARBITRARILY SHAPED PROTEIN MOLECULES IN NANOPORES USING CLUSTERS OF RIGID SPHERICAL PARTICLES. **Shuran Xu**, Marco Lattuada, Michael Mayer

**2215-Pos BOARD B578 TRAVEL AWARDEE**  
THE ADSORPTION KINETICS OF BIOMOLECULES ON TO PEGYLATED GOLD NANOPARTICLES. **Yasiru R. Perera**, Alex Hughes, Nicholas C. Fitzkee

## Biophysics Education (Boards B579 - B592)

**2216-Pos BOARD B579**  
ESTABLISHING THE FRAMEWORK FOR A SUSTAINABLE SERVICE-LEARNING COURSE FOR ENGINEERING STUDENTS. **Patrick Link**

**2217-Pos BOARD B580 TRAVEL AWARDEE**  
ANALYSIS OF THE ACOUSTIC PROPAGATION PARAMETERS OF THE NATURAL SOUNDS OF DELPHINAPTERUS LEUCAS AND ODORRANA TORMOTA FUNDAMENTAL IN THE STARTLE OF THE FEMALE ANOPHELES GAMBIAE. **Philip A. Mang'are**, Ndiritu Francis Gichuki, Samwel Rotich, Jacqueline K. Makatiani

**2218-Pos BOARD B581**  
HANDS-ON MIXED REALITY SCIENCE LABS FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY INSTRUCTION. **Kambiz M. Hamadani**, Yuan Yuan Jiang, Xin Ye, Ali Ahmadinia

**2219-Pos BOARD B582**  
INTRODUCTION OF A CIGARETTE SMOKING CESSATION STRATEGY: 'SEMIRE UZUN GOCMEN MODEL' IN SMOKING QUITTING. **Semire Uzun Gocmen**

**2220-Pos BOARD B583**  
CELLULAR BIOPHYSICS AND MODELING: A REQUIRED COURSE IN THE NEUROSCIENCE PROGRAM AT WILLIAM AND MARY. **Greg Conradi Smith**

**2221-Pos BOARD B584**  
THE PROPORTIONAL HAZARD MODEL IN RANDOMIZED STUDIES - STATISTICAL INSIGHTS INTO THE WOMEN'S HEALTH INITIATIVE STUDIES (2002-2017) USING REGRESSION ANALYSIS OF MORTALITY. **Timothy Bilash**

**2222-Pos BOARD B585**  
DEVELOPING ORAL PRESENTATION SKILLS IN UNDERGRADUATE RESEARCHERS. **Julie Gunderson**, William Gunderson

**2223-Pos BOARD B586**  
CALL FOR AN EDUCATIONAL PARADIGM SHIFT. **Allen T. Ansevin**

**2224-Pos BOARD B587**  
TEACHING BIOPHYSICS IN AN UNDERGRADUATE CURRICULUM. **Christopher E. Bassey**

**2225-Pos BOARD B588**

INTEGRATING FUNDAMENTAL BIOPHYSICS RESEARCH IN EMPHASIS COURSES FOR ENGINEERING AND AGRICULTURAL SCIENCES STUDENTS. Katherine Vega, Samuel Ochoa, Jorge A. Herrera, Luis F. Patino, Jorge A. Gomez, **Jairo C. Quijano**

**2226-Pos BOARD B589**

ADAPTING A COURSE-BASED UNDERGRADUATE RESEARCH EXPERIENCE INTO INDEPENDENT STUDENT RESEARCH PROJECTS AT A SMALL LIBERAL ARTS COLLEGE. **Andrea A. Carter**, Paul A. Craig

**2227-Pos BOARD B590**

BIOPHYSICS FOR ALL: TOOLS TO INTRODUCE BASIC ELECTROPHYSIOLOGY AND OPTICS TO UNDERGRADUATES. **Elizabeth EL Lee**

**2228-Pos BOARD B591**

PREDICTING AND TESTING ENZYME FUNCTION IN THE UNDERGRADUATE LAB USING COMPUTATIONAL AND WET LAB TOOLS. **Julia R. Koeppe**, Webe C. Kadima, Rebecca Roberts, Matthew Gehm, Paul A. Craig

**2229-Pos BOARD B592**

COMPUTATIONAL MODELING: EXPLORING HOW MINI RESEARCH PROJECTS AND CLASSROOM ACTIVITIES IMPACT STUDENT LEARNING. **Shelby N. Kranc**, Donald E. Elmore, Martin Berryman, Mala L. Radhakrishnan

# Wednesday, March 6, 2019

## Daily Program Summary

All rooms are located in the *Baltimore Convention Center* unless noted otherwise.

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8:00 AM-11:00 AM	<b>New Council Meeting</b>	Room 331
8:00 AM-3:00 PM	<b>Poster Viewing</b>	Exhibit Hall
8:15 AM-10:15 AM	<b>Symposium: Mapping the Cell</b> <b>Chair:</b> <i>Raymond Stevens, University of Southern California</i>	Ballroom I
	CREATING AN IMAGE-BASED STEM CELL STATE SPACE. <i>Rick Horwitz</i> LINKING SYSTEMS WITH STRUCTURE: DERIVING MECHANISMS FROM LARGE-SCALE DATA SETS. <i>Nevan Krogan</i> SIMULTANEOUS CROSS-EVALUATION OF HETEROGENEOUS E. COLI DATASETS VIA MECHANISTIC SIMULATION. <i>Markus Covert</i> TOWARDS A MODEL OF THE HUMAN PANCREATIC BETA CELL. <i>Raymond C. Stevens</i>	
8:15 AM-10:15 AM	<b>Symposium: RNA</b> <b>Chair:</b> <i>Joseph D. Puglisi, Stanford University</i>	Ballroom II
	CO-TRANSLATIONAL PROTEIN FOLDING AND INSERTION INTO THE MEMBRANE. <i>Marina Rodnina</i> HIGH-RESOLUTION 3D STRUCTURE DETERMINATION OF LARGE AND DYNAMIC MACROMOLECULAR COMPLEXES. <i>Holger Stark</i> UNTANGLING MESSENGER RNA STRUCTURE WITH DEAD-BOX RNA HELICASES. <i>Elizabeth Tran</i> DYNAMICS OF EUKARYOTIC TRANSLATION INITIATION. <i>Joseph D. Puglisi</i>	
8:15 AM-10:15 AM	<b>Platform: TRP Channels</b>	Ballroom III
8:15 AM-10:15 AM	<b>Platform: Intrinsically Disordered Proteins (IDP) and Aggregates III</b>	Ballroom IV
8:15 AM-10:15 AM	<b>Platform: General Protein-Lipid Interactions</b>	Room 307/308
8:15 AM-10:15 AM	<b>Platform: Actin Structure, Dynamics &amp; Associated Proteins</b>	Room 309/310
8:15 AM-10:15 AM	<b>Platform: Protein Assemblies/Enzyme Function, Cofactors &amp; Post-translational Modifications II</b>	Room 314/315
8:15 AM-10:15 AM	<b>Platform: Mechanosensation</b>	Room 316/317
10:30 AM-12:30 PM	<b>Poster Presentations and Late Posters</b>	Exhibit Hall
1:00 PM-3:00 PM	<b>Symposium: Membrane Organization and Sculpting by Proteins</b> <b>Chair:</b> <i>Jenny Hinshaw, NIH</i>	Ballroom I
	REVERSE TOPOLOGY MEMBRANE SCISSION BY THE ESCRTS. <i>James H. Hurley</i> MEMBRANE CURVATURE AND THE ABC TRANSPORTER BmrA: A YIN & YANG STORY. <i>Patricia M. Bassereau</i> STRUCTURAL DYNAMICS OF POTASSIUM CHANNEL MONOMER IN A MEMBRANE ENVIRONMENT AND TETRAMERIC ASSEMBLY. <i>Benoit Roux</i> CAPTURING SEQUENTIAL STEPS OF DYNAMIN-MEDIATED FISSION BY CRYO-EM. <i>Jenny E. Hinshaw</i>	
1:00 PM-3:00 PM	<b>Symposium: Molecular and Transcriptional Regulation of Cardiac E-C Coupling</b> <b>Chair:</b> <i>Shi-Qiang Wang, Peking University, China</i>	Ballroom II
	ACUTE LOSS OF CMYBP-C INDUCES AUTO-OSCILLATORY CONTRACTIONS IN PERMEABILIZED CARDIOMYOCYTES: IMPLICATIONS FOR REVERSE E-C COUPLING? <i>Samantha P. Harris</i> CBIN1: FROM T-TUBULE FOLDS TO DYAD ORGANIZATION, TO MICROPARTICLES AND CLINICAL USE. <i>Robin Shaw</i> REGULATION OF THE RYR2 CALCIUM RELEASE CHANNEL BY SPEG. <i>Xander H.T. Wehrens</i> CONJUNCT UPREGULATION OF JUNCTOPHILIN-2 AND CAVEOLIN-3 TRANSCRIPTION ENHANCED EXCITATION-CONTRACTION COUPLING EFFICIENCY IN HIBERNATING GROUND SQUIRRELS. <i>Shi-Qiang Wang</i>	
1:00 PM-3:00 PM	<b>New and Notable</b> <b>Co-Chairs:</b> <i>Susan Marqusee, University of California, Berkeley</i> <i>Andrej Sali, University of California, San Francisco</i>	Ballroom III
	ADDING DIMENSIONS TO QUANTITATIVE INTRAVITAL IMAGING. <i>Scott Fraser</i> CRYO-EM STRUCTURE OF MICROBIAL NANOWIRES REVEALS STACKED HEMES THAT TRANSPORT ELECTRONS OVER MICRONS. <i>Edward Egelman</i> MOLECULAR MODELS OF BACTERIAL CELL ENVELOPES COME OF AGE: BOTH MEMBRANES AND THE CELL WALL ARE SIMULATED TO REVEAL NEW INSIGHTS. <i>Syma Khalid</i> MICROED: CONCEPTION, PRACTICE AND FUTURE OPPORTUNITIES. <i>Tamir Gonen</i>	

1:00 PM-3:00 PM	Platform: Protein Dynamics and Allostery II	Ballroom IV
1:00 PM-3:00 PM	Platform: Engineering and Detecting Cellular (dys) Function	Room 307/308
1:00 PM-3:00 PM	Platform: Cardiac Muscle Mechanics, Structure, and Regulation II	Room 309/310
1:00 PM-3:00 PM	Platform: Protein-Nucleic Acid Interactions/Chromatin and the Nucleoid II	Room 314/315
1:00 PM-3:00 PM	Platform: Member Organized Session: Integrative Structural Modeling Using Information from Spectroscopic Labels	Room 316/317



# Wednesday, March 6

## New Council Meeting

8:00 AM - 11:00 AM, ROOM 331

## Poster Viewing

8:00 AM - 3:00 PM, EXHIBIT HALL

## Symposium Mapping the Cell

8:15 AM - 10:15 AM, BALLROOM I

### Chair

*Raymond Stevens, University of Southern California*

**NO ABSTRACT 8:15 AM**

CREATING AN IMAGE-BASED STEM CELL STATE SPACE. **Rick Horwitz**

**NO ABSTRACT 8:45 AM**

LINKING SYSTEMS WITH STRUCTURE: DERIVING MECHANISMS FROM LARGE-SCALE DATA SETS. **Nevan Krogan**

**2230-SYMP 9:15 AM**

SIMULTANEOUS CROSS-EVALUATION OF HETEROGENEOUS E. COLI DATA-SETS VIA MECHANISTIC SIMULATION. **Markus Covert**

**2231-SYMP 9:45 AM**

TOWARDS A MODEL OF THE HUMAN PANCREATIC BETA CELL. **Raymond C. Stevens**

## Symposium RNA

8:15 AM - 10:15 AM, BALLROOM II

### Chair

*Joseph D. Puglisi, Stanford University*

**NO ABSTRACT 8:15 AM**

CO-TRANSLATIONAL PROTEIN FOLDING AND INSERTION INTO THE MEMBRANE. **Marina Rodnina**

**NO ABSTRACT 8:45 AM**

HIGH-RESOLUTION 3D STRUCTURE DETERMINATION OF LARGE AND DYNAMIC MACROMOLECULAR COMPLEXES. **Holger Stark**

**2232-SYMP 9:15 AM**

UNTANGLING MESSENGER RNA STRUCTURE WITH DEAD-BOX RNA HELICASES. **Elizabeth Tran**

**NO ABSTRACT 9:45 AM**

DYNAMICS OF EUKARYOTIC TRANSLATION INITIATION. **Joseph D. Puglisi**

## Platform TRP Channels

8:15 AM - 10:15 AM, BALLROOM III

### Co-Chairs

*Sebastian Brauchi, Universidad Austral de Chile*

*Eleonora Zakharian, University of Illinois College of Medicine*

**2233-PLAT 8:15 AM**

STRUCTURAL AND FUNCTIONAL ANALYSES OF TRPC3 REVEAL ALLOSTERIC GATING MODULATION BY THE CYTOPLASMIC DOMAIN. **Francisco J. Sierra Valdez, Caleb M. Azumaya, Luis O. Romero, Terunaga Nakagawa, Julio F. Cordero-Morales**

**2234-PLAT 8:30 AM**

STRUCTURAL INSIGHTS INTO LIGAND MODULATION OF THE TRPV2 CHANNEL. **Ruth Pumroy, Amrita Samanta, Yuhang Liu, Franklin Pozo, Taylor Hughes, George R. Dubyak, Seungil Han, David T. Lodowski, Vera Moiseenkova-Bell**

**2235-PLAT 8:45 AM**

MULTIMERIZATION OF HUMAN TRPA1 ION CHANNEL CYTOPLASMIC DOMAINS. **Gilbert Q. Martinez, Sharona E. Gordon**

**2236-PLAT 9:00 AM**

APPROACHING TO THE MOLECULAR MECHANISM OF THE FAST INACTIVATION OF CALCIUM SELECTIVE TRP CHANNELS. **Lisandra Flores Aldama, Kattina Zavala, Daniel Bustos, Wendy Gonzalez, Juan Opazo, Sebastian E. Brauchi**

**2237-PLAT 9:15 AM**

ANTAGONIST-INDUCED CLOCKWISE ROTATION IN THE TRPV1. **Shoko Fujimura, Kazuhiro Mio, Masahiro Kuramochi, Hiroshi Sekiguchi, Muneyo Mio, Tai Kubo, Yuji C. Sasaki**

**2238-PLAT 9:30 AM**

THE CONFORMATIONAL WAVE IN CAPSAICIN ACTIVATION OF TRANSIENT RECEPTOR POTENTIAL VANILLOID 1 ION CHANNEL. **Fan Yang, Xian Xiao, Bo Hyun Lee, Simon Vu, Wei Yang, Vladimir Yarov-Yarovoy, Jie Zheng**

**2239-PLAT 9:45 AM**

GAIN-OF-FUNCTION MUTATIONS IN TRPM4 ACTIVATION GATE CAUSE SKIN DISEASE PSEK. **Huijun Wang, Zhe Xu, Bo Hyun Lee, Simon Vu, Linghan Hu, Mingyang Lee, Dingfang Bu, Xu Cao, Samuel Hwang, Yong Yang, Jie Zheng, Zhimiao Lin**

**2240-PLAT 10:00 AM**

TRPM8 REGULATES SEXUAL REWARD AND SATIETY. **Yelena Nersesyan, Ekaterina Gribkova, Padmamalini Baskaran, Daniel Llano, Baskaran Thyagarajan, Eleonora Zakharian**

## Platform Intrinsically Disordered Proteins (IDP) and Aggregates III

8:15 AM - 10:15 AM, BALLROOM IV

### Co-Chairs

*Keren Lasker, Stanford University*

*Alessandro Borgia, University of Zurich, Switzerland*

**2241-PLAT 8:15 AM**

TARDIGRADE INTRINSICALLY DISORDERED PROTEINS PROTECT ENZYMES FROM DESICCATION-INDUCED INACTIVATION. **Samantha Piskiewicz, Kathryn H. Gunn, Shannon L. Speer, Owen Warmuth, Aakash Mehta, Francis J. Lauzier, Kenny H. Nguyen, Elizabeth Kuhlman, Saskia B. Neher, Gary J. Pielak**

**2242-PLAT 8:30 AM**

A NOVEL MOLECULAR LEGO APPROACH TO MEASURE THE MARGINAL FOLDING COOPERATIVITY OF INTRINSICALLY DISORDERED PROTEINS. **Suhani Nagpal, Tinh Luong, Mourad Sadqi, Victor Muñoz**

**2243-PLAT 8:45 AM**

HIGHLY DISORDERED 10:1 COMPLEX OF TWO ANTI-APOPTOTIC, CHROMATIN-REMODELLING INTRINSICALLY DISORDERED PROTEINS. **Alessandro Borgia, Madeleine B. Borgia, Alain Scaiola, Robert Best, Benjamin Schuler**

**2244-PLAT 9:00 AM**

A BACTERIAL BIOMOLECULAR CONDENSATE SEQUESTERS A SIGNALING PATHWAY THAT DRIVES SPATIAL REGULATION OF GENE EXPRESSION AND ASYMMETRIC CELL DIVISION. **Keren Lasker, Alex von Diezmann, W.E. Moerner, Lucy Shapiro**

**2245-PLAT 9:15 AM**

SEQUENCE DETERMINANTS OF PROTEIN PHASE SEPARATION OF THE INTRINSICALLY DISORDERED RGG DOMAIN FROM LAF-1. **Benjamin S. Schuster**, Gregory Dignon, Craig Jahnke, Matthew C. Good, Daniel A. Hammer, Jeetain Mittal

**2246-PLAT 9:30 AM**

THE INS AND OUTS OF PHASE SEPARATION IN NUCLEOLAR BIOLOGY. **Richard Kriwacki**, Diana Mitrea, Mylene Ferrolino, Eric Gibbs, Aaron H. Phillips, Michele Tolbert, Christopher B. Stanley, Amanda Nourse, Paulo L. Onuchic, Priya R. Banerjee, Ashok A. Deniz

**2247-PLAT 9:45 AM**

SEQUENCE DETERMINATION OF LIQUID-LIQUID PHASE-SEPARATED ASSEMBLIES OF ENGINEERED DISORDERED PROTEINS IN LIVING CELLS. **Ming-Tzo (Steven) Wei**, Clifford P. Brangwynne

**2248-PLAT 10:00 AM**

UNCOVERING THE ROLE OF SURFACE RESIDUES AND BUFFER COMPOSITION IN LIQUID-LIQUID PHASE SEPARATION OF EYE LENS CRYSTALLINS FROM AN ANTARCTIC TOOTHFISH. **Jan C. Bierma**, Kyle Roskamp, Aaron Ledray, Andor J. Kiss, C.-H. Christina Cheng, Rachel W. Martin

**Platform****General Protein-Lipid Interactions****8:15 AM - 10:15 AM, ROOM 307/308****Co-Chairs**

*Milica Utjesanovic, University of Missouri, Columbia*  
*Rajesh Ramachandran, Case Western Reserve University*

**2249-PLAT 8:15 AM**

UNDERSTANDING THE ORGANIZATION AND DYNAMICS OF KRAS4B ON A COMPLEX 8-LIPID RECONSTITUTED MODEL MEMBRANE USING MICROSCOPY AND SPECTROSCOPY METHODS. **Rebika Shrestha**, Thomas Turbyville

**2250-PLAT 8:30 AM**

STRUCTURAL AND MECHANISTIC BASES OF DRP1-CARDIOLIPIN INTERACTIONS IN MITOCHONDRIAL FISSION. Bin Lu, Mukesh Mahajan, Abhishek Mandal, Nikhil Bharambe, Rihua Wang, Patrick van der Wel, Matthias Buck, Xin Qi, **Rajesh Ramachandran**

**2251-PLAT 8:45 AM**

MULTIPLE STOCHASTIC PATHWAYS IN FORCED PEPTIDE-LIPID MEMBRANE DETACHMENT. **Milica Utjesanovic**, Tina R. Matin, Krishna P. Sigdel, Gavin M. King, Ioan Kosztin

**2252-PLAT 9:00 AM**

THE SMALL HEAT SHOCK PROTEINS, HSPB1 AND HSPB6, HAVE THE ABILITY TO GET INSERTED INTO LIPID MEMBRANES. **Antonio De Maio**, David M. Cauvi, Ricardo F. Capone, Nelson Arispe, Wilbert Boelens

**2253-PLAT 9:15 AM**

MOLECULAR SIMULATIONS REVEAL THE DYNAMICS OF THE BAND 3 ANION TRANSPORTER IN A MODEL NATIVE RED BLOOD CELL MEMBRANE. **Dario De Vecchis**, Reinhart A. Reithmeier, Antreas Kalli

**2254-PLAT 9:30 AM**

HUNTINGTIN AGGREGATION IS MODIFIED IN THE PRESENCE OF A VARIETY OF LIPID MEMBRANES. **Maryssa A. Beasley**, Sharon E. Groover, Justin A. Legleiter

**2255-PLAT 9:45 AM**

CHARACTERIZATION OF PHOSPHATIDYLINOSITOL PHOSPHATE BINDING IN LIPID BILAYERS BY SOLID-STATE NMR SPECTROSCOPY. Jacqueline R. Perodeau, Ashley D. Bernstein, Stefany M. Lazieh, Robert D. Palmere, **Andrew J. Nieuwkoop**

**2256-PLAT 10:00 AM**

SPATIAL ORGANIZATION OF THE BLOOD STAGE PARASITOPHOUS VACUOLE OF THE MALARIA PARASITE *PLASMODIUM FALCIPARUM*. **Matthias Garten**, Josh R. Beck, Robyn Roth, Christopher KE Bleck, John E. Heuser, Tatyana Tenkova-Heuser, Svetlana Glushakova, Joshua Zimmerberg, Daniel E. Goldberg

**Platform****Actin Structure, Dynamics & Associated Proteins****8:15 AM - 10:15 AM, ROOM 309/310****Co-Chairs**

*David Sept, University of Michigan*  
*Danielle Holz, Lehigh University*

**2257-PLAT 8:15 AM**

MOLECULAR DYNAMICS SIMULATIONS OF G- AND F-ACTIN EXPLAIN ASPECTS OF ACTIN POLYMERIZATION. **Lauren Jepsen**, David Sept

**2258-PLAT 8:30 AM**

INVESTIGATIONS INTO THE STRUCTURE AND INTERMOLECULAR INTERFACE OF HUMAN COFILIN-2 ASSEMBLED ON ACTIN FILAMENTS BY MAGIC ANGLE SPINNING NMR. **Jodi Kraus**, Jenna Yehl, Elena Kudryashova, Emil Reisler, Dmitri Kudryashov, Tatyana Polenova

**2259-PLAT 8:45 AM**

MECHANISMS FOR DENDRITIC ACTIN NETWORK FORMATION, DISTRIBUTED TURNOVER, AND STRUCTURAL REMODELING. **Danielle Holz**, Aaron Hall, Dimitrios Vavylonis

**2260-PLAT 9:00 AM**

DIFFERENT FACES (PHASES) OF ACTIN DEPOLYMERIZING FACTORS FROM *ENTAMOEBA HISTOLYTICA*. **Pragyan Parimita Rath**, Nitesh Kumar, Samudrala Gourinath

**2261-PLAT 9:15 AM**

RECONSTITUTION OF DYNAMIC ACTIN CABLES WITH TUNABLE LENGTHS. **Luther W. Pollard**, Salvatore L. Alioto, Mikeal V. Garabedian, Bruce L. Goode

**2262-PLAT 9:30 AM**

STRUCTURAL, KINETIC, AND THERMODYNAMIC RESPONSE OF WATER TO MECHANICAL UNFOLDING OF SPECTRIN REPEATS. Sarah J. Moe, Torvin Rajala, **Alessandro Cembran**

**2263-PLAT 9:45 AM**

ACETYLATION OF ACTIN K328 CONTRIBUTES TO A LOSS IN TROPOMYOSIN-MEDIATED INHIBITION OF MYOSIN BINDING. **William M. Schmidt**, D. Brian Foster, Anthony Cammarato

**2264-PLAT 10:00 AM**

LEIOMODIN AND TROPOMYOSIN, BINDING AT THE POINTED END OF THE THIN FILAMENTS. **Dmitri Tolkatchev**, Garry E. Smith, John R. Cort, Gregory L. Helms, Alla S. Kostyukova

**Platform****Protein Assemblies/Enzyme Function, Cofactors & Post-translational Modifications II****8:15 AM - 10:15 AM, ROOM 314/315****Co-Chairs**

*Erik Martin, St. Jude Children's Research Hospital*  
*Alvin Yu, University of Chicago*

**2265-PLAT 8:15 AM**

HYDROXYLATION OF TYPE I COLLAGEN: EFFECTS ON FIBRILLAR STRUCTURE AND MECHANICS. **Alekhyia A. Kandoor**, Michele Kirchner, Vered Wineman-Fisher, Yujia Xu, Sameer Varma

**2266-PLAT 8:30 AM**  
SUPERRESOLUTION IMAGING OF AMYLOID STRUCTURES OVER EXTENDED TIMES USING TRANSIENT BINDING OF SINGLE THIOFLAVIN T MOLECULES. Kevin Spehar, Tianben Ding, Yuanzi Sun, Niraja Kedia, Jin Lu, George R. Nahass, Matthew D. Lew, **Jan Bieschke**

**2267-PLAT 8:45 AM**  
IN VITRO STUDY OF THE EFFECT OF INSULIN ON AMYLOID B-PROTEIN ASSEMBLY AND TOXICITY. **Kaho Long**, Thomas L. Williams, Brigita Urbanc

**2268-PLAT 9:00 AM TRAVEL AWARDEE**  
MULTIMERIC PROTEINS REVERSIBLY FORM CONDENSATES UPON OSMOTIC COMPRESSION. **Ameya P. Jalihal**

**2269-PLAT 9:15 AM**  
PHOTONIC PLATFORM FOR DETAILED PHYSICAL CHARACTERIZATION OF LIQUID PROTEIN DROPLETS. **Gheorghe Cojoc**, Timon Beck, Saeed Ahmed, Titus Franzmann, Paul Müller, Mirjam Schürmann, Raimund Schlüßler, Kyoohyun Kim, Elisabeth Fischer-Friedrich, Simon Alberti, Jochen Guck

**2270-PLAT 9:30 AM TRAVEL AWARDEE**  
DISSECTION OF PROTEIN FUNCTION WITHIN A BACTERIAL BIOMOLECULAR CONDENSATE BY *IN VITRO* RECONSTITUTION. **Saumya Saurabh**, Lucy Shapiro

**2271-PLAT 9:45 AM**  
EFFECT OF RESULTANT DIPOLE MOMENT ON MECHANICAL STABILITY OF PROTEIN-PEPTIDE COMPLEXES. Maksim Kouza, Anirban Banerji, Andrzej Kolinski, Irina Buhimschi, **Andrzej Kloczkowski**

**2272-PLAT 10:00 AM**  
COARSE-GRAINED AND ATOMISTIC SIMULATIONS OF THE MATURE HIV CAPSID AND RELATED RESTRICTION FACTORS. **Alvin Yu**, Barbie K. Ganser-Pornillos, Owen Pornillos, Gregory A. Voth

### Platform Mechanosensation

**8:15 AM - 10:15 AM, ROOM 316/317**

#### Co-Chairs

*Jeffrey Holt, Harvard Medical School*  
*Amanda Buyan, Australian National University, Australia*

**2273-PLAT 8:15 AM TRAVEL AWARDEE**  
HIGH-RESOLUTION STRUCTURES OF MSCS IN A LIPID BILAYER: REINTERPRETING "FORCE FROM LIPIDS" ACTIVATION IN MECHANOSENSITIVE CHANNELS. **Bharat Reddy**, Allen Lu, Navid Bavi, Allen Hsu, Mario Borgnia, Eduardo Perozo

**2274-PLAT 8:30 AM**  
STRUCTURES AND SIMULATIONS OF MEMBRANE ADJACENT FRAGMENTS OF PROTOCADHERIN-15. Pedro De-la-Torre, **Yoshie Narui**, Deepanshu Choudhary, Raul Araya-Secchi, Marcos Sotomayor

**2275-PLAT 8:45 AM**  
UNDERSTANDING PIEZO1'S RELATIONSHIP WITH LIPIDS. **Amanda Buyan**, Charles D. Cox, Jonathan Barnoud, Boris Martinac, Siewert-Jan Marrink, Ben Corry

**2276-PLAT 9:00 AM**  
DIETARY FATTY ACIDS FINE-TUNE PIEZO1 ACTIVITY. **Luis O. Romero**, Alejandro Mata-Daboín, Andrew Massey, Francisco J. Sierra Valdez, Chauhan C. Subhash, Julio F. Cordero-Morales, Valeria Vasquez

**2277-PLAT 9:15 AM**  
ENANTIOMERIC AB PEPTIDES INHIBIT THE FLUID SHEAR STRESS RESPONSE OF PIEZO1. **Philip A. Gottlieb**, Mohammed M. Maneshi, Frederick Sachs, Susan Z. Hua

**2278-PLAT 9:30 AM**  
PIEZO1 MEDIATED  $Ca^{2+}$  SIGNALING CAUSES NUCLEAR SHRINKAGE UNDER FLUID SHEAR STRESS. Deekshitha Jetta, Philip A. Gottlieb, Frederick Sachs, **Susan Z. Hua**

**2279-PLAT 9:45 AM**  
STRUCTURAL RELATIONSHIP BETWEEN THE PUTATIVE HAIR CELL MECHANOTRANSDUCTION CHANNEL TMC1 AND TMEM16 PROTEINS. **Angela Ballesteros Morcillo**, Maria Cristina Fenollar-Ferrer, Kenton J. Swartz

**2280-PLAT 10:00 AM**  
CYSTEINE SUBSTITUTION REVEALS THE PORE-FORMING REGION OF TMC1 IN HAIR CELL SENSORY TRANSDUCTION CHANNELS. Bifeng Pan, Nurunisa Akyuz, Xiao-Ping Liu, Yukako Asai, Carl Nist-Lund, Kiyoto Kurima, Bruce Derfler, Bence György, Walrati Limapichat, Sanket Walujkar, Lahiru Wimalasena, Marcos Sotomayor, David Corey, **Jeffrey R. Holt**

### Poster Presentations and Late Posters

**10:30 AM - 12:30 PM, EXHIBIT HALL**

### Symposium Membrane Organization and Sculpting by Proteins

**1:00 PM - 3:00 PM, BALLROOM I**

#### Chair

*Jenny Hinshaw, NIH*

**2281-SYMP 1:00 PM**  
REVERSE TOPOLOGY MEMBRANE SCISSION BY THE ESCRTs.  
**James H. Hurley**

**2282-SYMP 1:30 PM**  
MEMBRANE CURVATURE AND THE ABC TRANSPORTER BMRA: A YIN & YANG STORY. **Patricia M. Bassereau**, Ajay K. Mahalka, Su-Jin Paik, Giovanni Manzi, Andrew Callan-Jones, Daniel Levy

**2283-SYMP 2:00 PM**  
STRUCTURAL DYNAMICS OF POTASSIUM CHANNEL MONOMER IN A MEMBRANE ENVIRONMENT AND TETRAMERIC ASSEMBLY. **Benoit Roux**, Kevin Song, Young Hoon Koh, Eduardo Perozo, Tobin R. Sosnick

**2284-SYMP 2:30 PM**  
CAPTURING SEQUENTIAL STEPS OF DYNAMIN-MEDIATED FISSION BY CRYO-EM. **Jenny E. Hinshaw**, Leopold Kong, Kem A. Sochacki, Huaibin Wang, Bertram J. Canagarajah, Andrew D. Kehr, William J. Rice, Marie-Paule Strub, Justin W. Taraska

### Symposium Molecular and Transcriptional Regulation of Cardiac E-C Coupling

**1:00 PM - 3:00 PM, BALLROOM II**

#### Chair

*Shi-Qiang Wang, Peking University, China*

**2285-SYMP 1:00 PM**  
ACUTE LOSS OF CMYBP-C INDUCES AUTO-OSCILLATORY CONTRACTIONS IN PERMEABILIZED CARDIOMYOCYTES: IMPLICATIONS FOR REVERSE E-C COUPLING? **Samantha P. Harris**

**2286-SYMP 1:30 PM**  
CBIN1: FROM T-TUBULE FOLDS TO DYAD ORGANIZATION, TO MICROPARTICLES AND CLINICAL USE. **Robin Shaw**

**2287-SYMP 2:00 PM**  
REGULATION OF THE RYR2 CALCIUM RELEASE CHANNEL BY SPEG.  
**Xander H.T. Wehrens**

**2288-SYMP 2:30 PM**  
CONJUNCT UPREGULATION OF JUNCTOPHILIN-2 AND CAVEOLIN-3  
TRANSCRIPTION ENHANCED EXCITATION-CONTRACTION COUPLING  
EFFICIENCY IN HIBERNATING GROUND SQUIRRELS. Rong-Chang Li, Lei  
Yang, Yi-Chen Li, Bin Xiang, Li-Peng Wang, Xiao-Ting Wang, Jing-Hui Liang,  
**Shi-Qiang Wang**

## Symposium New and Notable

**1:00 PM - 3:00 PM, BALLROOM III**

### Co-Chairs

*Susan Marqusee, University of California, Berkeley*  
*Andrej Sali, University of California, San Francisco*

**NO ABSTRACT 1:00 PM**  
ADDING DIMENSIONS TO QUANTITATIVE INTRAVITAL IMAGING.  
**Scott Fraser**

**NO ABSTRACT 1:30 PM**  
CRYO-EM STRUCTURE OF MICROBIAL NANOWIRES REVEALS STACKED  
HEMES THAT TRANSPORT ELECTRONS OVER MICRONS. **Edward Egelman**

**NO ABSTRACTS 2:00 PM**  
MOLECULAR MODELS OF BACTERIAL CELL ENVELOPES COME OF AGE:  
BOTH MEMBRANES AND THE CELL WALL ARE SIMULATED TO REVEAL  
NEW INSIGHTS. **Syma Khalid**

**NO ABSTRACT 2:30 PM**  
MICROED: CONCEPTION, PRACTICE AND FUTURE OPPORTUNITIES.  
**Tamir Gonen**

## Platform Protein Dynamics and Allostery II

**1:00 PM - 3:00 PM, BALLROOM IV**

### Co-Chairs

*Christos Kougentakis, Johns Hopkins University*  
*Liskin Swint-Kruse, University of Kansas Medical Center*

**2289-PLAT 1:00 PM**  
PH-DRIVEN CONFORMATIONAL REORGANIZATION OF PROTEINS: NMR  
SPECTROSCOPY STUDY WITH BURIED LYS RESIDUES. **Christos M.**  
**Kougentakis**, Ananya Majumdar, Jamie L. Schlessman, Bertrand Garcia-  
Moreno

**2290-PLAT 1:15 PM TRAVEL AWARDEE**  
RHODOPSIN HYDRATION DYNAMICS STUDIED BY SOLID-STATE DEUTE-  
RIUM NMR SPECTROSCOPY. **Nipuna Weerasinghe**, Suchitranga M.D.C.  
Perera, Trivikram R. Molugu, Andres M. Salinas, Michael F. Brown

**2291-PLAT 1:30 PM**  
USING HISTONE H1 DERIVED PEPTIDES TO INVESTIGATE BINDING AFFIN-  
ITY AND INTER-DOMAIN DYNAMICS IN HUMAN PIN1. Dinusha Jinas-  
ena, Jerrano Bowleg, Robert Simmons, Yue Zhang, Steven R. Gwaltney,  
**Nicholas C. Fitzkee**

**2292-PLAT 1:45 PM**  
THERMODYNAMIC COUPLING - FREE ENERGY CALCULATIONS OF COR-  
RELATED AMINO ACID MUTATIONS. **Martin Werner**, Bert L. de Groot

**2293-PLAT 2:00 PM**  
TOWARDS COMPREHENSIVE CONTROL AND DESIGN OF TARGETED  
SIGNALLING IN ALLOSTERIC REGULATION OF PROTEIN ACTIVITY. Enrico  
Guarnera, Wei-Ven Tee, Zhen Wah Tan, **Igor N. Berezovsky**

**2294-PLAT 2:15 PM**  
INTEGRATION OF AN ELECTROSTATIC NETWORK AND DISORDER-TO-  
ORDER TRANSITIONS IN PROTEIN ALLOSTERY. **Riya Samanta**, Jingheng  
Wang, Dorothy Beckett, Silvina Matysiak

**2295-PLAT 2:30 PM**  
GRAPH SPECTRAL PROPERTIES OF THE SIDECHEIN NETWORKS OF  
PROTEIN STRUCTURES: IMPLICATIONS TO ALLOSTERY AND STRUCTURE  
COMPARISON. **Saraswathi Vishveshwara**, Anasuya Dighe, Vasundhara  
Gadiyaram

**2296-PLAT 2:45 PM**  
ALLOSTERY IS HIGHLY TUNABLE BY AMINO ACID SUBSTITUTIONS AT  
LONG-RANGE RHEOSTAT POSITIONS. **Liskin Swint-Kruse**, Aron W. Fenton

## Platform Engineering and Detecting Cellular (dys) Faction

**1:00 PM - 3:00 PM, ROOM 307/308**

### Co-Chairs

*Paolo Arosio, ETH Zurich, Switzerland*  
*Abhigyan Sengupta, University of California, Merced*

**2297-PLAT 1:00 PM**  
HYDROGEL ENGINEERING WITH WIDEFIELD PATTERNED ILLUMINATION.  
**Aurelien Pasturel**, Pierre-Olivier Strale, Vincent Studer

**2298-PLAT 1:15 PM TRAVEL AWARDEE**  
UNDERSTANDING THE BIOPHYSICS OF PROTEIN-SURFACE INTERACTIONS.  
**Gabriel Ortega**, Martin Kurnik, Philippe Dauphin Ducharme, Hui Li, Netza-  
hualcoyotl Arroyo-Curras, Bishal Gautam, Kevin Plaxco

**2299-PLAT 1:30 PM**  
TIE UP CYTOSKELETON TO INHIBIT OVARIAN CANCER METASTASIS.  
**Ye Zhang**

**2300-PLAT 1:45 PM TRAVEL AWARDEE**  
IMPROVEMENT OF MATURATION STATE OF HUMAN INDUCED PLU-  
RIPOTENT STEM CELL-DERIVED 3D CARDIAC MICROTISSUES BY DEFINED  
CHEMICAL FACTORS. **Chen Yu Huang**, Rebeca Joca, Chin Siang Ong, Ijlala  
Wilson, Roald Teuben, Gordon F. Tomaselli, Daniel H. Reich

**2301-PLAT 2:00 PM**  
PROTEIN DETECTION IN BLOOD WITH SINGLE-MOLECULE IMAGING.  
**Shih-Chin Wang**, Chih-Ping Mao, Yu-Pin Su, TC Wu, Chien-Fu Hung, Jie  
Xiao

**2302-PLAT 2:15 PM**  
RECOMBINANT PROTEIN BASED CA<sup>2+</sup>ION SENSOR DESIGNING; AN *IN-*  
*VITRO*TEST OF FOLDING COUPLED TO BINDING HYPOTHESIS. **Abhigyan**  
**Sengupta**, Mourad Sadqi, Victor Muñoz

**2303-PLAT 2:30 PM**  
PH SENSITIVE PEPTIDE FUNCTIONALIZED HIGH STABILITY POLYMERIC  
NANOPARTICLES FOR MITOCHONDRIA TARGETED CANCER DRUG DE-  
LIVERY. **Palanikumar Loganathan**, Mona Kalmouni, Sumaya Al Hosani,  
Mazin M. Magzoub

**2304-PLAT 2:45 PM**  
PROTEIN PHASE TRANSITION: FROM BIOLOGY TOWARDS NEW PROTEIN  
MATERIALS. Miriam Linsenmeier, Andreas Küffner, Lenka Faltova, Maria  
Hondele, Karsten Weis, **Paolo Arosio**

## Platform Cardiac Muscle Mechanics, Structure, and Regulation II

1:00 PM - 3:00 PM, ROOM 309/310

### Co-Chairs

*Matthew Caporizzo, University of Pennsylvania*  
*Osha Roopnarine, University of Minnesota Medical School*

#### 2305-PLAT 1:00 PM

STRETCH-INDUCED ACTIVATION OF THE MYOSIN MOTORS ON THE THICK FILAMENT IN RAT CARDIAC TRABECULAE. So-Jin Park-Holohan, Elisabetta Brunello, Thomas Kampourakis, Martin Rees, Malcolm Irving, **Luca Fusi**

#### 2306-PLAT 1:15 PM

CARDIOMYOPATHY MUTATION AT END-END OVERLAP OF ALPHA-TROPOMYOSIN INFLUENCES COOPERATIVE ACTIVATION AND CALCIUM SENSITIVITY. **SaiLavanyaa Sundar**, Michael J. Rynkiewicz, William Lehman, Jeffrey R. Moore

#### 2307-PLAT 1:30 PM

ENHANCED CROSSBRIDGE BINDING WITH 2-DEOXY-ATP RESULTS FROM INCREASED ELECTROSTATIC INTERACTIONS BETWEEN MYOSIN AND ACTIN IN CARDIAC MUSCLE. **Chen-Ching Yuan**, Joseph D. Powers, Kimberly J. McCabe, Jason D. Murray, Morhan Saffie, Castillo Romi, Zuzek Carla, Weikang Ma, Andrew D. McCulloch, Thomas C. Irving, Michael Regnier

#### 2308-PLAT 1:45 PM

BASIC AMINO ACIDS WITHIN THE C-TERMINAL 16 RESIDUES OF TROPONIN T MODULATE CALCIUM SENSITIVITY AND THE DISTRIBUTION OF ACTIN STATES. **Dylan Johnson**, Li Zhu, Joseph M. Chalovich

#### 2309-PLAT 2:00 PM

ON THE FUNCTIONAL ASSESSMENT OF HYPERTROPHIC CARDIOMYOPATHY-CAUSING MUTATIONS IN HUMAN B-CARDIAC MYOSIN AND THE ROLE OF MYOSIN BINDING PROTEIN-C. **Darshan V. Trivedi**, Saswata S. Sarkar, Arjun S. Adhikari, Makenna M. Morck, Kristina B. Kooiker, Daniel Bernstein, Kathleen M. Ruppel, James A. Spudich

#### 2310-PLAT 2:15 PM

DEVELOPMENT OF AN IMAGING PIPELINE TO MODEL AND PREDICT THE INTEGRATED LOCALIZATION OF ORGANELLES IN HIPSC-DERIVED CARDIOMYOCYTES. **Melissa Hendershott**, Susanne Rafelski

#### 2311-PLAT 2:30 PM

DEFINING A UNIFYING MECHANISM FOR SELECT CARDIOMYOPATHY-LINKED VARIANTS OF DESMOPLAKIN. **Heather R. Manring**, Ronald Ng, Taylor Albertelli, Trevor Dew, Tyler L. Stevens, Ahmet Kilic, Paul M. L. Janssen, Nathan T. Wright, Stuart Campbell, Maegen A. Ackermann

#### 2312-PLAT 2:45 PM

DETERMINING THE IN VIVO ROLE OF MICROTUBULE DETYROSINATION IN HEALTHY AND DISEASED MYOCARDIUM. **Christina Yingxian Chen**, Matthew A. Caporizzo, Kenneth Bedi, Michael P. Morley, Kenneth B. Margulies, Benjamin L. Prosser

## Platform Protein-Nucleic Acid Interactions/Chromatin and the Nucleoid II

1:00 PM - 3:00 PM, ROOM 314/315

### Co-Chairs

*Roberto Galletto, Washington University School of Medicine*  
*Kelsey Bettridge, Johns Hopkins School of Medicine*

#### 2313-PLAT 1:00 PM

SHELTERIN COMPONENTS MODULATE THE PHASE-SEPARATION PROPENSITY OF TELOMERES. Andrea Soranno, Jeremias Incicco, Paolo De Bona, Eric Tomko, Eric Galburt, **Roberto Galletto**

#### 2314-PLAT 1:15 PM

RNA BINDING MODE REGULATES PKR ACTIVATION. Stephen J. Hesler, Bushra Husain, Matthew Angeliadis, **James L. Cole**

#### 2315-PLAT 1:30 PM

A SINGLE-MOLECULE INTERACTION SPECTRUM FOR NON-COVALENT INTERACTION INSIDE MEMBRANE PROTEIN CHANNEL. **Meng-Yin Li**, Yi-Lun Ying, Wei Tong, Yong-Jing Wan, Yi-Tao Long

#### 2316-PLAT 1:45 PM

DISORDERED RNA CHAPERONES ENHANCE NUCLEIC ACID FOLDING VIA LOCAL CHARGE SCREENING. **Erik D. Holmstrom**, Zhaowei Liu, Daniel Nettels, Robert B. Best, Benjamin Schuler

#### 2317-PLAT 2:00 PM

EUKARYOTIC TRANSCRIPTION FACTORS CAN TRACK AND CONTROL THEIR TARGET GENES USING DNA ANTENNAS. **Victor Munoz**

#### 2318-PLAT 2:15 PM

MULTIPLE INTERACTION MODES OF THE NUCLEOSOMAL HISTONE H3 N-TERMINAL TAIL REVEALED BY HIGH PRECISION SINGLE-MOLECULE FRET. **Kathrin Lehmann**, Suren Felekyan, Ralf Kühnemuth, Mykola Dimura, Katalin Tóth, Claus A. M. Seidel

#### 2319-PLAT 2:30 PM

YEAST PIONEERING TRANSCRIPTION FACTORS RELY ON SLOWED DISSOCIATION KINETICS TO EFFICIENTLY TARGET NUCLEOSOMAL SITES. **Benjamin T. Donovan**, Hengye Chen, Caroline Jipa, Chao Yan, Lu Bai, Michael G. Poirier

#### 2320-PLAT 2:45 PM

ROLE OF RNA-BINDING ACTIVITY OF HU IN CHROMOSOMAL ORGANIZATION. **Kelsey E. Bettridge**, Xiaoli Weng, Subhash Verma, Sankar Adhya, Jie Xiao

## Platform Member Organized Session: Integrative Structural Modeling Using Information from Spectroscopic Labels

1:00 PM - 3:00 PM, ROOM 316/317

### Co-Chairs

*Hugo Sanabria, Clemson University*  
*Claus Seidel, Heinrich Heine University, Germany*

#### 2321-PLAT 1:00 PM

SINGLE MOLECULE FRET - A MULTI-ENVIRONMENT RULER FOR DETERMINING STRUCTURE AND DYNAMICS. **Bjorn Hellenkamp**

#### 2322-PLAT 1:15 PM

PROBING STRUCTURAL STATES IN FAST EXCHANGING PROTEINS BY FRET AND COMPUTATIONAL METHODS. **Hugo Sanabria**

**2323-PLAT 1:30 PM**

INTEGRATIVE DYNAMIC STRUCTURAL BIOLOGY WITH FLUORESCENCE SPECTROSCOPY. **Claus A.M. Seidel**, Mykola Dimura, Hugo Sanabria, Katherina Hemmen, Thomas-Otavio Peulen, Dmitro Rodnin, Holger Gohlke

**2324-PLAT 1:45 PM**

PROTEINS' DYNAMICS, HYDRATION AND CONFORMATIONAL CHANGES STUDIED BY EPR. **Enrica Bordignon**

**2325-PLAT 2:00 PM**

AN INTEGRATED SPIN-LABELING/COMPUTATIONAL-MODELING APPROACH FOR MAPPING GLOBAL STRUCTURES OF NUCLEIC ACIDS. **Peter Z. Qin**

**2326-PLAT 2:15 PM**

DYNAMIC ENZYME: AN NMR STUDY OF USP7. **Irina Bezonova**, Gabrielle Valles, Dmitry M. Korzhnev

**2327-PLAT 2:30 PM**

SPECIFIC  $^{13}\text{C}_3$  LABELING AND NMR REVEAL THE ROLE OF STRUCTURAL DYNAMICS TO ENZYMATIC FUNCTION. **Mioara Larion**, Alexandar Hansen, Lei Bruschweiler-Li, Vitali Tugarinov, Rafael Brüschweiler, Brian Miller

**2328-PLAT 2:45 PM**

DECOMPOSING NMR ENSEMBLE WITH THE ASSISTANCE OF SINGLE MOLECULE FRET. **Chun Tang**

# WEDNESDAY POSTER SESSIONS

10:30 AM–12:30 PM, HALL C

*Below is the list of poster presentations for Wednesday of abstracts submitted by October 1. The list of late abstracts scheduled for Wednesday is available in the Program Addendum, and those posters can be viewed on boards beginning with LB.*

Posters should be mounted beginning between 7:00 AM and 8:00 AM on Wednesday and removed by 3:00 PM. Poster numbers shown refer to the program order of abstracts as they appear in the online Abstracts Issue. Board numbers indicate where boards are located in the Exhibit Hall.

**ODD-NUMBERED BOARDS 10:30 AM–11:30 AM | EVEN-NUMBERED BOARDS 11:30 AM–12:30 PM**

Board Numbers	Category
B1 - B35	Protein Structure and Conformation IV
B36 - B67	Protein-Small Molecule Interactions
B68 - B102	Protein Dynamics and Allostery II
B103 - B133	Intrinsically Disordered Proteins (IDP) and Aggregates III
B134 - B142	Membrane Protein Folding
B143 - B156	DNA Structure and Dynamics II
B157 - B181	Protein-Nucleic Acid Interactions II
B182 - B207	Membrane Physical Chemistry II
B208 - B229	Membrane Active Peptides and Toxins II
B230 - B251	Protein-Lipid Interactions: Structures
B252 - B266	Excitation-Contraction Coupling II
B267 - B294	Exocytosis and Endocytosis II
B295 - B315	Membrane Receptors and Signal Transduction II
B316 - B343	TRP Channels
B344 - B368	Voltage-gated K Channels II
B369 - B376	Bacterial Mechanics, Cytoskeleton, and Motility
B377 - B403	Cell Mechanics, Mechanosensing, and Motility III
B404 - B410	Actin Structure, Dynamics, and Associated Proteins
B411 - B438	Membrane Pumps, Transporters, and Exchangers II
B439 - B442	Computational Neuroscience
B443 - B467	Computational Methods and Bioinformatics II
B468 - B494	Optical Spectroscopy: CD, UV-VIS, Vibrational, Fluorescence
B495 - B512	Molecular Dynamics III
B513 - B535	Electron Microscopy
B536 - B539	Biosurfaces
B540 - B554	Bioengineering

It is the responsibility of the poster presenters to remove print materials from the board after their presentations. Please do not leave materials or belongings under poster boards or in the poster area. Posters will not be collected or stored for pick-up at a later time. The Biophysical Society is not responsible for any articles left in the poster area.

## Protein Structure and Conformation IV (Boards B1 - B35)

**2329-Pos BOARD B1**  
NEURONAL CALCIUM SENSOR DREAM INTERACTIONS WITH INSULINOTROPIC AGENT REPAGLINIDE. **Maria D. Santiago**, Maria Daniel Santiago, Jaroslava Miksovska

**2330-Pos BOARD B2**  
THE EFFECTS OF COMMON DISEASE-CAUSING VARIATIONS ON THE STRUCTURE AND STABILITY OF TREM2: AN *IN SILICO* EXAMINATION. **Hunter B. Dean**, Erik D. Roberson, Yuhua Song

**2331-Pos BOARD B3**  
MUTATION OF RESIDUES IN CD LOOP AND DISTAL POCKET IMPACT PROTEIN STABILITY OF HUMAN NEUROGLOBIN. **Ruipeng Lei**, David Butcher, Sophie Bernad, Valerie Derrien, Jaroslava Miksovska

**2332-Pos BOARD B4**  
UNDERSTANDING PROTEIN HD EXCHANGE DATA USING MOLECULAR DYNAMICS SIMULATIONS. **Dipak B. Sanap**, V. V. Hemanth Giri Rao, Juan R. Perilla, Shachi Gosavi

**2333-Pos BOARD B5**  
THE MICROPHTHALMIA-ASSOCIATED TRANSCRIPTION FACTOR ASSOCIATES WITH MULTIPLE DOMAINS OF CBP/P300, INCLUDING THE E1A BINDING FACE OF TAZ2. Kathleen Vergunst, Alexandra Brown, Makenzie Branch, **David N. Langelan**

**2334-Pos BOARD B6**  
EVOLUTION OF STABILITY/FLEXIBILITY RELATIONSHIPS IN BETA-LACTAMASE. **John Patterson**, Matthew C. B. Tsilimigras, Dennis R. Livesay, Donald J. Jacobs

**2335-Pos BOARD B7**  
DYNAMICS OF THE PROTEIN INTERFACES OF THE EBOLA VIRUS VP40 STRUCTURAL MATRIX FILAMENT. **Elumalai Pavadai**, Nisha Bhattarai, Prem P. Chapagain, Bernard S. Gerstman

**2336-Pos BOARD B8 TRAVEL AWARDEE**  
LINKING THE SEQUENCE, ANTI-TUMOR FUNCTION, AND SHARED STRUCTURAL FEATURES OF CLASS IB HYDROPHOBINS. **Calem Kenward**, David N. Langelan

**2337-Pos BOARD B9**  
MEASURING IONIC STRENGTH CHANGES USING FLUORESCENCE LIFETIME AND TIME-RESOLVED ANISOTROPY. Robert Miller, Cody Aplin, Anh Cong, Christin Libal, Rowan Simonet, Emma Kauffman, Margaret Gurumani, Ryan Leighton, Alexander Naughton, Jessica Marshik, Arnold J. Boersma, Ahmed A. Heikal, **Erin D. Sheets**

**2338-Pos BOARD B10**  
ADVANCES IN THE STRUCTURAL AND BIOCHEMICAL DETERMINATION OF SEVERAL DYNAMIN-LIKE GTPASES. **Andrew D. Kehr**, Shuxia Meng, Matthew F. Martin, David Chan, Jenny E. Hinshaw

**2339-Pos BOARD B11**  
EVOLUTION OF TRANSIENT HELICITY AND DISORDER IN LATE EMBRYOGENESIS ABUNDANT PROTEIN COR15A. **Oluwakemi Sowemimo**, Wade Borchers, Patrick Knox-Brown, Tobias Rindfleisch, Anja Thalhammer, Gary Daughdrill

**2340-Pos BOARD B12 TRAVEL AWARDEE**  
MOLECULAR DYNAMICS STUDIES OF DYNAMIN OLIGOMERS IN SOLUTION. **Dalia Hassan**, Frank X. Vazquez

**2341-Pos BOARD B13**  
THE DEVELOPMENT OF INTRINSICALLY FLUORESCENT UNNATURAL AMINO ACIDS FOR IN VIVO INCORPORATION INTO PROTEINS. **Chloe M. Jones**, Itthipol Sungwienwong, E. James Petersson

**2342-Pos BOARD B14**  
APPLYING HYDROGEN EXCHANGE MASS SPECTROMETRY COUPLED WITH NUMERICAL SIMULATIONS TO INVESTIGATE TOXIC MISFOLDING OF  $\beta$ 2-MICROGLOBULIN. **Angelika Hirsch**, John Strahan, Amy Wagaman, Sheila Jaswal

**2343-Pos BOARD B15**  
STUDYING MUTATIONS IN *GEOBACILLUS KAUSTOPHILUS* TILS TO PROBE CHANGES IN STRUCTURE AND MOBILITY USING MOLECULAR DYNAMIC (MD) SIMULATIONS. **Ferdiemar C. Guinto**, Rebecca W. Alexander

**2344-Pos BOARD B16 TRAVEL AWARDEE**  
DIFFERENTIATING STRUCTURAL CHANGES OF GLYCOPROTEINS IN SOLUTION USING SMALL ANGLE SCATTERING ANALYSIS. **Taylor N. Segally**, Luis A. Palacio, Jason Kim, Christopher B. Stanley, Soenke Seifert, Horia I. Petrache

**2345-Pos BOARD B17**  
STRUCTURAL INVESTIGATIONS INTO THE SERUM ENDONUCLEASE DNASE1L3, AS IT RELATES TO SYSTEMIC LUPUS ERYTHEMATOUS. **Jon J. McCord**, Faraz Harsini, Peter Keyel, Roger B. Sutton

**2346-Pos BOARD B18**  
INTERACTION OF THE CURLI ACCESSORY PROTEINS CSGE AND CSGF WITH THE HUMAN ISLET AMYLOID POLYPEPTIDE. Osmar Meza-Barajas, Isamar Aranda, Ashwag Binmahfooz, **Sajith A. Jayasinghe**

**2347-Pos BOARD B19**  
COMPARATIVE INVESTIGATION OF NATIVE-STATE DYNAMICS IN TRYPSIN FUNCTIONAL VARIANTS BY HYDROGEN EXCHANGE MASS SPECTROMETRY. **Kimberly Burnett**, Maxum Paul, Katie Ventre, Abel Samanez, Sheila Jaswal

**2348-Pos BOARD B20 TRAVEL AWARDEE**  
STRUCTURE AND FUNCTION OF HUMAN VITRONECTIN, A KEY MEDIATOR OF HOST-PATHOGEN INTERACTIONS. **Kyungsoo Shin**, L. Miya Fujimoto, Luz M. Meneghini, Chandan Singh, Yong Yao, Ye Tian, Francesca M. Marassi

**2349-Pos BOARD B21**  
SINGLE MOLECULE IMAGING OF DNA STRUCTURE: CLIC MICROSCOPY POWERS MECHANISTIC INSIGHTS FOR DRUG DEVELOPMENT. **Francis Stable**, Cynthia Shaheen, Shane Scott, Daniel Berard, David Levens, Craig Benham, Sabrina Leslie

**2350-Pos BOARD B22**  
TEMPERATURE DEPENDENCE OF THE PROTEIN-CHROMOPHORE HYDROGEN BOND DYNAMICS IN THE FAR-RED FLUORESCENT PROTEINS MNEPTUNE1, MNEPTUNE2.5 AND MCARDINAL2. **Chandra Dhakal**, Prem Chapagain, Xuewen Wang

**2351-Pos BOARD B23**  
INVESTIGATING RECOMBINANT ACINIFORM SILK NANOPARTICLES AS POTENTIAL DRUG CARRIERS AND AS INTERMEDIATES IN SILK FIBRILLOGENESIS. **Stefan A. Warkentin**, Jan K. Rainey

**2352-Pos BOARD B24**  
77SE-NMR PROBES THE PROTEIN ENVIRONMENT OF SELENOMETHIONINE. **Shiping Xu**, Maggie Chen, Mike Boeri, Sharon Rozovsky

**2353-Pos BOARD B25**  
INVESTIGATE THE EXISTENCE OF DOMAIN SWAPPED DIMER IN ILPB FAMILY. **Nona Ehyaei**, Zahra Assar-Nossoni, James H. Geiger, Babak Borhan



**2354-Pos BOARD B26**  
EXPLORING THE EFFECT OF PREORGANIZATION ON BINDING AFFINITY IN CYCLIZED PEPTIDOMIMETICS. **Allison Terry**, Vincent Voelz

**2355-Pos BOARD B27**  
EXPRESSION AND PURIFICATION OF COMPLEMENT PROTEINS FOR PROTEIN INTERACTION STUDIES. **Matthew Gehm**, Veronica Singh, Julia R. Koeppe

**2356-Pos BOARD B28**  
PH-DEPENDENT PROPERTIES OF IONIZABLE RESIDUES IN THE HYDROPHOBIC INTERIOR OF A PROTEIN. **Ankita Sarkar**, Adrian E. Roitberg

**2357-Pos BOARD B29**  
THIOAMIDE EFFECTS ON PROTEIN STRUCTURE. **Kristen E. Fiore**, D. Miklos Szantai-Kis, E. James Petersson

**2358-Pos BOARD B30**  
EXPLORING THE SPACE OF ANTIMICROBIAL PEPTIDES GUIDED BY A DEEP LEARNING MODEL. **Manpriya Dua**, Amarda Shehu

**2359-Pos BOARD B31**  
SIMULATING THE FOLDING STATES OF LATTICE PROTEINS WITHIN AN OSCILLATORY ENVIRONMENT. **Austin H. Cheng**, Cory J. Kim, Amy Y. Wang, Xuanye Zhu, Qizhang Jia, Kateri H. DuBay

**2360-Pos BOARD B32**  
STUDYING COMPLEX BIOMOLECULAR DYNAMICS BY SINGLE-MOLECULE THREE-COLOR FRET. **Anders Barth**, Claus A. M. Seidel, Don C. Lamb

**2361-Pos BOARD B33**  
STRUCTURAL STUDIES OF THE F<sub>c</sub> REGION OF MURINE IMMUNOGLOBULIN G ANTIBODIES USING SINGLE MOLECULE FRET. **Cathrine A. Southern**, Jenna Henning, Kirsten Kochan

**2362-Pos BOARD B34**  
BINDING FREE ENERGY ANALYSIS OF PROGRAMMED CELL DEATH PROTEIN PD1 TO ITS LIGAND PD-L1. Peter C. Pan, **Alireza Tafazzol**, Xianwei Zhang, Yong Duan

**2363-Pos BOARD B35**  
DETERMINING NATIVE-STATE DYNAMICS OF MITONEET USING HYDROGEN EXCHANGE MASS SPECTROMETRY. **Namita Khajanchi**, Rebeca Mena, Mary Konkle, Sheila Jaswal

## Protein-Small Molecule Interactions (Boards B36 - B67)

**2364-Pos BOARD B36**  
THE EFFECTS OF LIGAND STRUCTURE ON PROTEIN-MULTIMODAL LIGAND INTERACTIONS. **Camille Bildeau**, Edmond Y. Lau, Steve Cramer, Shekhar Garde

**2365-Pos BOARD B37**  
PEPTIDE ASSISTED SUPRAMOLECULAR POLYMERIZATION OF THE ANIONIC PORPHYRIN MESO-TETRA(4-SULFONATOPHENYL)PORPHINE. **Eric Kohn**, David Shirly, Christopher H. Fry, Gregory A. Caputo

**2366-Pos BOARD B38**  
OPTIMIZATION OF THE SITE-IDENTIFICATION BY LIGAND COMPETITIVE SATURATION (SILCS) AS AN ACCURATE AND RELIABLE TECHNIQUE IN LEAD OPTIMIZATION. **Vincent D. Ustach**, Sirish Kauhik Lakkaraju, Sunhwan Jo, Wenbo Yu, Fang-Yu Lin, Wenjuan Jiang, Alexander D. MacKerell

**2367-Pos BOARD B39**  
THE WEAK ENZYMIC ACTIVITY OF TRUNCATED LECITHIN RETINOL ACYLTRANSFERASE (LRAT) MUTANTS CANNOT BE EXPLAINED BY THEIR AFFINITY FOR ALL-TRANS RETINOL. **Sarah Roy**, Ana Coutinho, Line Cantin, Marie-Eve Gauthier, Manuel Prieto, Stephane M. Gagne, Christian Salesses

**2368-Pos BOARD B40**  
INTEGRATION OF TEXT MINING AND BINARY QSAR MODELS FOR NOVEL ANTI-HYPERTENSIVE ANTAGONIST SCAFFOLDS. **Serdar Durdagi**, Ismail Erol, Berna Dogan, Taha Berkay Sen

**2369-Pos BOARD B41**  
THE TWO FACES OF BITTER SUGARS: INSIGHTS FROM MULTISCALE SIMULATIONS. Fabrizio Fierro, Alejandro Giorgetti, Paolo Carloni, Wolfgang Meyerhof, **Mercedes Alfonso Prieto**

**2370-Pos BOARD B42**  
STRUCTURAL BASES FOR CHEMICAL AND MECHANICAL GATING IN THE PIEZO1 CHANNEL. Wesley M. Botello-Smith, Han Zhang, Alper D. Ozkan, Wenjuan Jiang, Christine N. Pham, Yun Luo, **Jerome J. Lacroix**

**2371-Pos BOARD B43**  
MOLECULAR INSIGHT INTO THE AGONIST PROPERTIES OF THE MULTIMODAL ANTIDEPRESSANT VORTIOXETINE IN HUMAN 5-HT<sub>3A</sub> RECEPTORS. **Lucy Kate Ladefoged**, Lachlan Munro, Anders S. Kristensen, Birgit Schjøtt

**2372-Pos BOARD B44**  
ENERGETICS OF NUCLEOTIDES TRANSLOCATION THROUGH HIV-1 CA HEXAMER. **Chaoyi Xu**, Robert A. Dick, Marc C. Johnson, Volker M. Vogt, Juan R. Perilla

**2373-Pos BOARD B45**  
STRUCTURE DYNAMICS GUIDES THE ENHANCEMENT OF LIGAND AFFINITY FOR MDMX. **Zhengding Su**, Yongqi Huang, Xiyao Cheng

**2374-Pos BOARD B46**  
CHARACTERIZING THE DIRECT INFLUENCE OF A SMALL MOLECULE ON A RAS-RELATED PROTEIN INTERACTION. Djamali Muhoza, Alix Montoya-Beltrand, Emilio Duverna, **Paul D. Adams**

**2375-Pos BOARD B47**  
INHIBITION OF ZINC-MEDIATED AMYLOID BETA AGGREGATION AND CYTOTOXICITY BY ALPHA HELIX MIMETICS. **Maria C. Vogel**, Sunil Kumar, Debabrata Maity, Mazin M. Magzoub, Andrew D. Hamilton

**2376-Pos BOARD B48**  
MODIFYING ZINC FINGERS: TARGETING THE INFLAMMATORY ZINC FINGER PROTEIN, TRISTETRAPROLIN, WITH EXOGENOUS GOLD COMPLEXES AND DETERMINING A ROLE FOR H<sub>2</sub>S IN MODIFYING TRISTETRAPOLIN ENDOGENOUSLY. **Kiwon Ok**, Wenjing Li, Geoffrey D. Shimberg, Sharon Batelu, Mike Lange, Ivana Ivanovic-Burmazovic, Dr. Timothy Stemmler, Maureen A. Kane, Milos R. Filipovic, Sarah L. Michel

**2377-Pos BOARD B49**  
BREADTH OF HUMAN MONOCLONAL ANTIBODIES ISOLATED FROM RTS,S/AS01 VACCINEES BINDING TO *PLASMODIUM FALCIPARUM* CIRCUMSPOROZOITE PROTEIN ANTIGENS. **S. Moses Dennison**, Milite Abraha, Richard H.C. Huntwork, Kan Li, Dustin L. Mauldin, S. Munir Alam, Georgia D. Tomaras

**2378-Pos BOARD B50**  
SYSTEMATIC BIOPHYSICAL INSIGHTS INTO THE INTERACTION OF ANTI-MERS-COV DRUG RIBAVIRIN WITH MAJOR TRANSPORT PROTEIN IN HUMAN SERUM: IN-VITRO STUDIES AND IMPLICATIONS IN DIABETES AND UREMIA. **Fahad Almutairi**, Mohammad Rehan Ajmal

**2379-Pos BOARD B51**  
PERTURBING LIPOPOLYSACCHARIDE BIOSYNTHESIS THROUGH INHIBITION OF HEPTOSYLTRANSFERASE I. **Jozafina Milicaj**

**2380-Pos BOARD B52 TRAVEL AWARDEE**  
CONTROL OF PROTEIN SELF-ASSEMBLY WITH WATER-SOLUBLE PORPHYRINS. **Tyler J. Brittain**, Samuel D. Fontaine, Coleman Swaim, Daniel R. Marzolf, Oleksandr Kokhan

**2381-Pos BOARD B53**  
BIOPHYSICAL CHARACTERIZATION OF BINDING INTERACTIONS OF PPAR WITH THC. **Iulia Bodnariuc**, Margaret Renaud-Young, Justin L. MacCallum

**2382-Pos BOARD B54**  
IDENTIFICATION OF NOVEL CYCLIN A2 BINDING SITE AND NANOMOLAR INHIBITORS. **Stephanie Kim**, Michele Alves, Patrick Gygli, Jose Otero, Steffen Lindert

**2383-Pos BOARD B55**  
EXPLORING THE TOXICITY OF SMALL MOLECULE METABOLITE 3-HYDROXY-3-METHYLGLUTARYL-COENZYME A (HMG-COA) IN THE PATHOGENIC BACTERIUM ENTEROCOCCUS FAECALIS. **Gillian M. Barth**

**2384-Pos BOARD B56**  
MAPPING THE BINDING TRAJECTORY OF A SUICIDE INHIBITOR IN HUMAN INDOLEAMINE 2,3 DIOXYGENASE 1. **Khoa N. Pham**, Syun-Ru Yeh

**2385-Pos BOARD B57**  
STRUCTURE-GUIDED DEVELOPMENT OF DUAL INHIBITORS OF EGFR AND JNK TO TREAT GBM AND NSCLC. **Haikui Yang**, Ying Jiang, Ruohong Yan, Tingting Zhang, Jiajie Zhang

**2386-Pos BOARD B58 TRAVEL AWARDEE**  
TIGHT BINDING OF NATURAL POLYPHENOLS TO THE INTRINSICALLY DISORDERED MAMMALIAN HIGH MOBILITY GROUP PROTEIN AT-HOOK 2. **Linjia Su**, Jeremy Chambers, Fenfei Leng

**2387-Pos BOARD B59**  
IMPROVED MODELING OF HALOGENATED LIGAND-PROTEIN INTERACTIONS USING THE DRUDE POLARIZABLE FORCE FIELD AND ADDITIVE CHARMM36/CHARMM GENERAL FORCE FIELD (CGENFF). **Fang-Yu Lin**

**2388-Pos BOARD B60**  
MOLECULAR RECOGNITION OF NAPHTHOQUINONE-CONTAINING COMPOUNDS AGAINST HUMAN DNA TOPOISOMERASE II ATPASE DOMAIN: A MOLECULAR MODELING STUDY. **Panupong Mahalapbutr**

**2389-Pos BOARD B61**  
DEVELOPMENT OF SMALL MOLECULE INHIBITORS TARGETING CLOSTRIDIUM DIFFICILE BINARY TOXIN USING THE SITE-IDENTIFICATION BY LIGAND COMPETITIVE SATURATION (SILCS) METHOD. **Wenbo Yu**, Edwin Pozharskiy, Kristen Varney, David J. Weber, Alexander D. MacKerell

**2390-Pos BOARD B62**  
DIFFUSION-INFLUENCED REVERSIBLE LIGAND BINDING TO TWO EQUIVALENT SITES. **Irina V. Gopich**, Attila Szabo

**2391-Pos BOARD B63**  
EDEMA FACTOR OF *BACILLUS ANTHRACIS* INTERACTING WITH ITS INHIBITORS. **Irène Pitard**, Catherine Simenel, Damien Monet, Christophe Thomas, Peggy Suzanne, Arnaud Blondel, Jacques Bellalou, Patrick Dallemagne, Inaki Guijarro, Daniel Ladant, Pierre Goossens, Therese E. Malliavin

**2392-Pos BOARD B64**  
STUDY ON THE MECHANISM OF ANTI C-MET ACTIVITY OF BOC-PROTECTED AMINO GROUPS OF BITHIAZOLOPHANES BY USING SILCS. **Tatsuya Takimoto**, Ozge Yoluk, Sunhwan Jo, Alexander D. MacKerell, Jr., Hideaki Sasaki

**2393-Pos BOARD B65 TRAVEL AWARDEE**  
UNVEILING THE ROLE OF SURFACTANTS ON AMYLOID-LIKE PROTEIN SELF-ASSEMBLING. **Gustavo Scanavachi**, Yanis Ricardo Espinosa, Juan Ruso, Rosangela Itri

**2394-Pos BOARD B66**  
NUCLEAR MAGNETIC RESONANCE AT THE INTERFACE: IDENTIFYING PREFERRED BINDING REGIONS IN MULTIMODAL CATION EXCHANGE CHROMATOGRAPHY USING FUNCTIONALIZED NANOPARTICLES. **Ronak B. Gudhka**, Camille L. Bilodeau, Scott A. McCallum, Mark A. McCoy, David J. Roush, Steven M. Cramer

**2395-Pos BOARD B67**  
HOW DOES GLYCOSYLATION AFFECT DRUG BINDING ON INFLUENZA? THE ROLES OF ELECTROSTATICS AND STERIC EXAMINED THROUGH BROWNIAN DYNAMICS SIMULATIONS. **Christian Seitz**, Lorenzo Casalino, Gary Huber, Robert Konecny, Yu-Ming Huang, Rommie Amaro, J. Andrew McCammon

## Protein Dynamics and Allostery II (Boards B68 - B102)

**2396-Pos BOARD B68**  
MECHANISM OF HSP104 FUNCTION POTENTIATION STUDIED BY HYDROGEN-DEUTERIUM EXCHANGE DETECTED BY MASS SPECTROMETRY (HX-MS). **Xiang Ye**, Jiabei Lin, Leland C. Mayne, James Shorter, S. Walter Englander

**2397-Pos BOARD B69**  
BINDING INTERFACE OF GAPDH TO THE AU RICH ELEMENTS FROM TNF-ALPHA MRNA REVEALED BY HYDROGEN DEUTERIUM EXCHANGE COUPLED WITH MASS SPECTROMETRY. **Daniel J. Deredge**, Michael White, Anh Tran, Patrick Wintrode, Elsa Garcin

**2398-Pos BOARD B70**  
EFFECT OF PLASMIN CLEAVAGE ON THE DYNAMICS OF THE PROTEASE DOMAIN OF THE UROKINASE-TYPE PLASMINOGEN ACTIVATOR (UPA). **Constanza Torres-Paris**, Yueyi Chen, Elizabeth A. Komives

**2399-Pos BOARD B71**  
KINETIC AND STRUCTURAL COMPARISON OF HINT ENZYMES: THE ROLE OF DISTANT DYNAMICS ON CATALYSIS. **Alex Strom**

**2400-Pos BOARD B72 TRAVEL AWARDEE**  
CHARACTERIZING HP1-DRIVEN CHROMATIN COMPACTION USING NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY. **Bryce E. Ackermann**, Galia T. Debelouchina

**2401-Pos BOARD B73**  
DYNAMICS MEDIATE SUBSTRATE RECOGNITION AND REMOTE COMMUNICATION IN A PEPTIDE-BOND FORMING NRPS CYCLIZATION DOMAIN. Subrata H. Mishra, **Aswani K. Kancherla**, Santrupti Nerli, Nikolaos Sgourakis, Daniel Dowling, Dominique P. Frueh

**2402-Pos BOARD B74**  
MOLECULAR RESPONSES OF MUTAGENESIS IN NONRIBOSOMAL PEPTIDE SYNTHETASE CYCLIZATION DOMAINS. **Kenneth Marincin**, Aswani Kancherla, Subrata H. Mishra, Daniel Dowling, Dominique P. Frueh

**2403-Pos BOARD B75**  
AN ALLOSTERIC SIGNALING GOVERNS THE CRISPR-CAS9 FUNCTION. **Giulia Palermo**, Clarisse Gravina Ricci, Ivan Rivalta, Victor S. Batista, James A. McCammon

**2404-Pos BOARD B76**  
POSITIVE AND NEGATIVE SUBSTRATE INTERFERENCE SUPPORTED BY COINCIDING ENZYME RESIDUES. **Magnus Wolf-Watz**, Per Rogne, Elisabet Sauer-Eriksson, Uwe Sauer, Christian Hedberg

**2405-Pos BOARD B77**  
THE PLACEMENT OF VIBRATIONAL PROBE LABELED SUBSTRATES TO THE PHOSPHOPANTHEINE ARM OF THE E.COLI ACYL CARRIER PROTEIN FOR SITE SPECIFIC VIBRATIONAL SPECTROSCOPY. **Joie Ling**, Eliana V. von Krusenstiern, Bashkim Kokona, Louise Charkoudian, Casey H. Londergan

**2406-Pos BOARD B78**  
HIGH-SPEED ATOMIC FORCE MICROSCOPY SHOWS CONFORMATIONAL DYNAMICS OF CA<sup>2+</sup>/CALMODULIN-DEPENDENT PROTEIN KINASE II. **Mikihiro Shibata**, Hideji Murakoshi

**2407-Pos BOARD B79**  
PROCESSIVE CHITINASE IS BURNT-BRIDGE BROWNIAN MOTOR OPERATED BY FAST CATALYSIS AFTER PEELING RAIL FROM CRYSTALLINE CHITIN. Aki-hiko Nakamura, Kei-ichi Okazaki, Tadaomi Furuta, Minoru Sakurai, **Ryota Iino**

**2408-Pos BOARD B80**  
OBSERVING HISTONE H2A.Z EXCHANGE AT THE SINGLE-MOLECULE LEVEL. **Matthew F. Poyton**, Ashlee Feng, Anand Ranjan, Qin Lei, Sheng Liu, Carl Wu, Taekjip Ha

**2409-Pos BOARD B81**  
BASIS OF SPECIFICITY IN ETS-1 DNA BINDING DOMAIN TO VARIABLE DNA SEQUENCES. **Kenneth Huang**, Suela Xhani, Amanda V. Albrecht, Gregory M. K. Poon

**2410-Pos BOARD B82**  
ANOMALOUS NON-GAUSSIAN VISCOELASTIC AND AGE-DEPENDENT DYNAMICS OF HISTONE-LIKE H-NS PROTEINS IN LIVE ESCHERICHIA COLI. Asmaa Sadoon, **Yong Wang**

**2411-Pos BOARD B83**  
INVESTIGATION OF CONFORMATIONAL DYNAMICS INVOLVED IN GENOME EDITING EVENTS BY CRISPR-CPF1. **Chun Chan**, Xiaolin Cheng

**2412-Pos BOARD B84 TRAVEL AWARDEE**  
DETERMINING THE INTERNAL ALLOSTERIC ARCHITECTURE OF DHFR WITH TOTAL SATURATION MUTAGENESIS. **James W. McCormick**, Samuel Thompson, Kimberly A. Reynolds

**2413-Pos BOARD B85**  
UTILIZING EMPIRICAL DATA AND STRUCTURAL DYNAMICS PREDICTION TO OPTIMIZE RATIONAL DESIGN OF THERAPEUTIC PHOSPHOLAMBAN MUTATIONS TO TUNE SERCA FUNCTION. **Kim N. Ha**, Hannah M. Johnson, Ariana Schneiderhan, Daniel Weber, Joseph Roith, Gianluigi Veglia

**2414-Pos BOARD B86**  
SUBSTRATE DRIVEN ALLOSTERY IN A MITOCHONDRIAL CYTOCHROME P450 ENZYME. **Amit Kumar**, D. Estrada Fernando

**2415-Pos BOARD B87 TRAVEL AWARDEE**  
SALT BRIDGES IN UBIQUITIN DETERMINE THE PROTEIN CONFORMATIONAL FLEXIBILITY. **Shrabasti Bhattacharya**, Nidhi Acharya, Sri Rama Koti Ainavarapu

**2416-Pos BOARD B88**  
A-CATENIN STRUCTURE AND NANOSCALE DYNAMICS IN SOLUTION AND IN COMPLEX WITH F-ACTIN. Iain Nicholl, David Callaway, **Zimei Bu**

**2417-Pos BOARD B89**  
DEUTERATION AND INHIBITOR BINDING DEPENDENCE OF PROTEIN COLLECTIVE VIBRATIONS. **Yanting Deng**, Jeffrey Mckinney, Andrea Markelz

**2418-Pos BOARD B90**  
DYNAMIC AND STRUCTURAL ALLOSTERIC EVENTS BETWEEN THE D/E LINKER AND N-DOMAIN OF CARDIAC TROPONIN C REVEAL A NOVEL MECHANISM FOR CARDIAC MUSCLE REGULATION. **Mayra A. Marques**, Guilherme A. P. de Oliveira, Adolfo H. Moraes, Maicom Landim-Vieira, Karissa D. Jones, Elio A. Cino, P. Bryant Chase, Jerson L. Silva, José R. Pinto

**2419-Pos BOARD B91**  
DYNAMICAL COMPARISON BETWEEN MYOGLOBIN AND HEMOGLOBIN REVEALS THE EFFECT OF THE QUATERNARY STRUCTURE OF HEMOGLOBIN ON ITS SUBUNITS' DYNAMICS. Rotem Aharoni, **Dror Tobi**

**2420-Pos BOARD B92**  
MICRO-SECOND X-RAY SINGLE MOLECULE DYNAMICS OF ALLOSTERIC TWISTING MOTIONS IN HEMOGLOBIN. **Yuji C. Sasaki**, Masahiro Kuramochi, Yuu Okamura, Hiroshi Sekiguchi, Naoki Yamamoto, Naoya Shibayama

**2421-Pos BOARD B93**  
DIFFRACTED X-RAY BLINKING FROM NANOCRYSTAL ON PROTEIN USED AS INTERNAL MOTION PROBE. **Hiroshi Sekiguchi**, Masahiro Kuramochi, Yuji C. Sasaki

**2422-Pos BOARD B94**  
THE EFFECT OF CRYSTAL CONTACT FORCES ON THE PROTEIN GLOBAL MOTIONS. **Jeffrey A. McKinney**, Yanting Deng, Deepu George, Andrea Markelz

**2423-Pos BOARD B95**  
A LIGAND-BINDING SITE IN THE GLUA3 AMPA RECEPTOR N-TERMINAL DOMAIN OBSERVED IN DRUGGABILITY SIMULATIONS AND X-RAY CRYSTALLOGRAPHY. **Ji Young Lee**, James Krieger, Beatriz Herguedas, Javier García-Nafria, Anindita Dutta, Saher A. Shaikh, Ingo H. Greger, Ivet Bahar

**2424-Pos BOARD B96 TRAVEL AWARDEE**  
MOLECULAR ANALYSIS OF DENGUE NS3 HELICASE FUNCTION. **Kelly E. Du Pont**, Russell B. Davidson, Brian J. Geiss, Martin McCullagh

**2425-Pos BOARD B97**  
INVESTIGATING THE ROLE OF THE AUXILIARY NUCLEOTIDE BINDING SITES IN THE RECBCD DNA HELICASE. **Sivasubramanyan Mangapuram Venkata**, Rani Zananiri, Vera Gaydar, Oded Kleinfeld, Ariel Kaplan, Arnon Henn

**2426-Pos BOARD B98**  
ALLOSTERY & DYNAMICS IN NUCLEAR HORMONE RECEPTOR TRANSACTIVATION. **David Lohry**, Taylor Stevens, Mark Remec Pavlin, Balananda DK Putcha, Tongye Shen, Elias J. Fernandez

**2427-Pos BOARD B99**  
BINDING-COUPLED-FOLDING OF INTRINSICALLY DISORDERED PROTEIN EXHIBITS A HIERARCHICAL ENERGY LANDSCAPE. **Xiakun Chu**, Jin Wang

**2428-Pos BOARD B100**  
LONG-RANGE INTERACTIONS MEDIATED BY THE DISORDERED NFKB TRANSCRIPTION ACTIVATION DOMAIN. **Dominic Narang**, Wei Chen, Allen Po, Elizabeth A. Komives

**2429-Pos BOARD B101**  
CONTROL OF CELLULAR NETWORKS BY STRUCTURAL DISORDER. **Nikolay V. Dokholyan**, Onur Dagliyan, Klaus M. Hahn

**2430-Pos BOARD B102**  
STRUCTURE AND DYNAMICS OF INTRINSICALLY DISORDERED AND UNFOLDED PROTEINS: INVESTIGATIONS USING SMALL-ANGLE SCATTERING AND NEUTRON SPIN-ECHO SPECTROSCOPY. Felix Ameseder, Laura R. Stingaciu, Aurel Radulescu, Olaf Holderer, Peter Falus, Michael Monkenbusch, Ralf Biehl, Dieter Richter, **Andreas M. Stadler**

## Intrinsically Disordered Proteins (IDP) and Aggregates III (Boards B103 - B133)

- 2431-Pos BOARD B103**  
UNDERSTANDING THE KINETIC ROLES OF 14-3-3ZETADURING TAU FILAMENT FORMATION. **Junwen Xiong**, Meng Gao, Yongqi Huang
- 2432-Pos BOARD B104**  
MEMBRANE INTERACTIONS OF IAPP. **Mikkel H. Christensen**, Birgit Schiøtt
- 2433-Pos BOARD B105**  
INHIBITION OF A-SYNUCLEIN AMYLOID FIBRIL ELONGATION BY BLOCKING FIBRIL ENDS. **Volodymyr V. Shvadchak**, Kseniia Afitska, Anna Fucikova, Dmytro A. Yushchenko
- 2434-Pos BOARD B106**  
COMPARING EARLY STAGES OF AMYLOID-BETA AGGREGATION IN DIFFERENT MEMBRANOUS ENVIRONMENTS. **Abhilash Sahoo**, Hongcheng Xu, Silvina Matysiak
- 2435-Pos BOARD B107**  
UNDERSTANDING AND PREVENTING AGGREGATION IN ALPHA-SYNUCLEIN. **Lisa J. Lapidus**
- 2436-Pos BOARD B108 TRAVEL AWARDEE**  
TERMINAL CAPPING OF AMYLOIDOGENIC TAU FRAGMENTS MODULATES THEIR FIBRILLATION PROPENSITY. **Shruti Arya**, Pritam Ganguly, Sarah L. Claud, Andrea Arsiccio, Kristi Lazar Cantrell, Joan Emma Shea, Michael T. Bowers
- 2437-Pos BOARD B109**  
OBSERVATION OF STRUCTURAL GROWTH OF FIBRILS OF AMYLIN PROTEIN. **Suparna Khatun**, Shikha Kumari, Agneyo Ganguly, Nisha Pawar, Amar Nath Gupta
- 2438-Pos BOARD B110 TRAVEL AWARDEE**  
STRUCTURAL OPTIMIZATION OF A-SYNUCLEIN FIBRIL GROWTH INHIBITORS. **Kseniia Afitska**, Volodymyr V. Shvadchak, Dmytro A. Yushchenko
- 2439-Pos BOARD B111**  
OLIGOMER CROSS-PROPAGATION BETWEEN WILD-TYPE AND MUTANT AMYLOID-B IMPLICATE CONFORMATIONAL STRAINS IN AD PHENOTYPES. **Morgan Malone**, Dexter N. Dean, Vijay Rangachari
- 2440-Pos BOARD B112**  
SUMOYLATION OF THE NT17 DOMAIN OF HUNTINGTIN INFLUENCES AGGREGATION AND BINDING TO LIPID MEMBRANES. **Faezeh Sedighi**, Justin A. Legleiter
- 2441-Pos BOARD B113**  
THE PRESENCE OF MITOCHONDRIA INFLUENCES HUNTINGTIN AGGREGATION. **Adewale Adegbiyiro**, Justin A. Legleiter
- 2442-Pos BOARD B114**  
POST TRANSLATIONAL MODIFICATION OF AB INFLUENCES AGGREGATION IN THE PRESENCE AND ABSENCE OF LIPIDS. **Albert W. Pilkington**, Justin A. Legleiter
- 2443-Pos BOARD B115**  
IMPACT OF N-TERMINAL ACETYLATION ON ALPHA-SYNUCLEIN AMYLOID FORMATION. **Matthew D. Watson**, Jennifer C. Lee
- 2444-Pos BOARD B116**  
INVESTIGATION OF THE VARIOUS STRUCTURES OF ALPHA-SYNUCLEIN AND THEIR INTERACTIONS WITH SMALL MOLECULES. **John Ferrie**, Sam G. Giannakoulis, E. James Petersson
- 2445-Pos BOARD B117**  
INVESTIGATING C99 IN AMYLOID FORMATION USING MOLECULAR DYNAMICS: FROM SIMPLE TO COMPLEX NEURONAL MODELS. **Jenny Pin-Chia Hsu**, Birgit Schiøtt
- 2446-Pos BOARD B118**  
INTERPLAY BETWEEN TWO ISOFORMS OF THE FUNCTIONAL AMYLOID PMEL17 REPEAT DOMAIN. **Dexter N. Dean**, Jennifer C. Lee
- 2447-Pos BOARD B119 TRAVEL AWARDEE**  
STRUCTURAL EVALUATION OF AROMATIC RESIDUES IN A-SYN AND THEIR ROLE IN GLYCAN BINDING AND CELLULAR UPTAKE. **Jonathan M. Musila**, Elizabeth Rhoades
- 2448-Pos BOARD B120**  
B-SYNUCLEIN AMELIORATES A-SYNUCLEIN TOXICITY BY MODULATING FIBRIL SHEDDING AND SEEDING PROCESSES. **Xue Yang**, Jonathan K. Williams, Jean Baum
- 2449-Pos BOARD B121**  
ALPHA-SYNUCLEIN MODULATES STIMULATED EXOCYTOSIS AND BINDS TO MITOCHONDRIA. **Meraj Ramezani**, Marcus Wilkes, Tapojyoti Das, David Holowka, David Eliezer, Barbara Baird
- 2450-Pos BOARD B122**  
ALPHA-SYNUCLEIN DISRUPTS INTER-MEMBRANE INTERACTIONS. **Peter J. Chung**, Qingteng Zhang, Hyeondo Luke Hwang, Alessandra Leong, Eric Dufresne, Suresh Narayan, Erin J. Adams, Ka Yee C. Lee
- 2451-Pos BOARD B123**  
ALPHA SYNUCLEIN INCREASES MEMBRANE BINDING WITH RISING LATERAL TENSION. **Jaclyn Ann Robustelli**, Zheng Shi, Tobias Baumgart
- 2452-Pos BOARD B124**  
THE EFFECT OF AMYLOID PRECURSOR PROTEIN DIMERIZATION ON ITS CONFORMATION AND CLEAVAGE. **Jacob B. Usadi**, Karl Freed, Esmael Haddadian
- 2453-Pos BOARD B125**  
A-SYNUCLEIN BINDS EXTRACELLULAR COMPLEX N-LINKED GLYCANS. **Melissa Birol**, Slawomir P. Wojcik, Andrew D. Miranker, Elizabeth Rhoades
- 2454-Pos BOARD B126**  
TARGETING SOLUBLE AMYLOID OLIGOMERS IN ALZHEIMER'S DISEASE THROUGH DISORDERED PRION PEPTIDES. **Zachary A. Levine**
- 2455-Pos BOARD B127 TRAVEL AWARDEE**  
TAU AMYLOID AGGREGATES: THE CHOICE OF PATHWAYS MAKES THE DIFFERENCE. **Yann Fichou**, Songi Han
- 2456-Pos BOARD B128 TRAVEL AWARDEE**  
MULTISCALE INVESTIGATION OF MONOMERIC ALPHA-SYNUCLEIN STRUCTURE AND AGGREGATION. **Daisy Alvarado**, Frank X. Vazquez
- 2457-Pos BOARD B129**  
BIOPHYSICAL INSIGHTS INTO HOW LIPID MEMBRANES MODULATE HUNTINGTIN AGGREGATION ASSOCIATED WITH HUNTINGTON'S DISEASE. **Justin Legleiter**
- 2458-Pos BOARD B130**  
INVESTIGATING THE EFFECTS OF MODEL SURFACES ON SYNTHETIC PRION PEPTIDE AGGREGATION. **Elizabeth A. Yates**, Catherine M. Yip
- 2459-Pos BOARD B131**  
METAL-PROMOTED ALPHA-SYNUCLEIN MODIFICATIONS STEER THE AGGREGATE CONFORMATION. **Heather R. Lucas**, Dinendra L. Abeyawardhane, Ricardo D. Fernández, Denver R. Heitger, Ashley K. Forney, Cody J. Murgas, Alyson Curry

**2460-Pos BOARD B132**  
CHARACTERIZATION OF THE EARLY STAGES OF TAU AGGREGATION IN THE PRESENCE OF POLYPHOSPHATES. **Sanjula P. Wickramasinghe**, Hope E. Merens, Justine Lempart, Ursula Jakob, Elizabeth Rhoades

**2461-Pos BOARD B133**  
NEUROTOXIC HIV-TAT AUTOCLEAVES AND FORMS NOVEL AMYLOID-LIKE FIBRILLAR STRUCTURES. **Alina L. Popescu Hategan**, Edward L. Mertz, Joseph Steiner, Elena Karnaukhova, Lisa Henderson, Jeff Kowalak, Emiliós K. Dimitriadis, Avindra Nath

## Membrane Protein Folding (Boards B134 - B142)

**2462-Pos BOARD B134**  
BILAYER DEPTH DEPENDENCE OF HYDROPHOBIC AMINO ACID TRANSFER FREE ENERGIES. **Dagan C. Marx**, Karen G. Fleming

**2463-Pos BOARD B135**  
PROBING BAMA'S ROLE IN THE ASSEMBLY OF TRIMERIC AUTOTRANS-PORTER ADHESINS. **David Ryoo**, Karl Lundquist, James C. Gumbart

**2464-Pos BOARD B136**  
DEVELOPING A SINGLE-MOLECULE PLATFORM TO UNDERSTAND OUTER MEMBRANE PROTEIN BIOGENESIS. **Megan Mitchell**, Marcelo Sousa

**2465-Pos BOARD B137**  
DIMERIC FKPA ACTS AS AN ANTI-AGGREGASE ON A NATIVE UNFOLDED MEMBRANE PROTEIN CLIENT. **Michaela A. Roskopf**, Dagan C. Marx, Ashlee M. Plummer, Quenton R. Bubb, Karen G. Fleming

**2466-Pos BOARD B138**  
VARIABLE CONSEQUENCES OF MEMBRANE TARGETING MOTIFS FOR GENETICALLY ENCODED VOLTAGE INDICATORS. **Sungmoo Lee**, Bok Eum Kang, Minyoo Kim, Yoon-Kyu Song, Bradley J. Baker

**2467-Pos BOARD B139**  
FREE AND CHAPERONE BOUND UNFOLDED STATES OF OUTER MEMBRANE PROTEINS. **Neharika Chamachi**, Georg Krainer, Andreas Hartmann, Michael Schlierf

**2468-Pos BOARD B140**  
LIPID MODULATION OF THE ACTIVATOR-INDEPENDENT MEMBRANE INSERTION AND REFOLDING OF THE APOPTOTIC INHIBITOR BCL-XL. **Victor Vasquez Montes**, Alexey S. Ladokhin

**2469-Pos BOARD B141**  
ROLE OF DYNAMIC HYDROGEN-BOND NETWORKS IN PROTEIN ALLOSTERY. Konstantina Karathanou, Michalis Lazaratos, Malte Siemers, **Ana-Nicoleta Bondar**

**2470-Pos BOARD B142**  
TUNING THE STABILITY OF MEMBRANE PROTEIN DIMERIZATION BY CHANGING THE LIPID SOLVENT. Rahul Chadda, Alejandro Gil Ley, Kacie Griffith, Lauren E. Hughes, Ana Castro, Kacey Mersch, Venkatramanan Krishnamani, Elizabeth G. Kelley, Susana Marujo-Teixeira, José Faraldo-Gómez, **Janice L. Robertson**

## DNA Structure and Dynamics II (Boards B143 - B156)

**2471-Pos BOARD B143**  
EVIDENCE FOR CONFORMATIONAL CAPTURE MECHANISM FOR DAMAGE RECOGNITION BY DNA REPAIRPROTEIN RAD4. Sagnik Chakraborty, **Saroj Baral**, Debamita Paul\*, Peter J. Steinbach, Phoebe A. Rice, Jung-Hyun Min\*, Anjum Ansari

**2472-Pos BOARD B144**  
KINETICS OF DNA STRAND DISPLACEMENT. **Alexander W. Cook**, Bo Broadwater, Harold Kim

**2473-Pos BOARD B145**  
INVESTIGATING STRUCTURE AND TOPOLOGY OF PROTEIN-MEDIATED DNA LOOPS VIA COMPUTATIONAL MODELING OF ELASTIC ENERGY. **Pamela J. Perez**, Wilma K. Olson

**2474-Pos BOARD B146**  
BINDING OF CTAB TO SINGLE STRANDED DNA. **Pamela St. John**, Tetsuya Kawakita

**2475-Pos BOARD B147**  
LABEL-FREE CHROMATIN-DNA IMAGING BY CIRCULAR POLARIZED LIGHT SCATTERING SCANNING MICROSCOPY. Aymeric Le Gratiet, **Riccardo Marongiu**, Luca Pesce, Michele Oneto, Paolo Bianchini, Giulia Zanini, Alberto Diaspro

**2476-Pos BOARD B148**  
TO KINK OR NOT TO KINK: SEQUENCE-DEPENDENT DNA FLEXIBILITY UNVEILED IN COMPLEX WITH DNA-BENDING PROTEIN IHF. **Mitchell Connolly**, Aline Arra, Viktoriya Zvoda, Peter J. Steinbach, Phoebe Rice, Anjum Ansari

**2477-Pos BOARD B149**  
MOLECULAR TRANSPORT THROUGH SELF-ASSEMBLED DNA NANOFLOW- IDIC CHANNELS. **Yi Li**, Rebecca Schulman

**2478-Pos BOARD B150**  
DNA CONFORMATIONAL CHANGES PLAY A FORCE-GENERATING ROLE DURING BACTERIOPHAGE GENOME PACKAGING. Kim A. Sharp, Xiang-Jun Lu, Gino Cingolani, **Stephen C. Harvey**

**2479-Pos BOARD B151**  
MEASUREMENT OF THE LENGTH DEPENDENCE OF DNA CYCLIZATION USING NEXT GENERATION SEQUENCING. **Jason D. Kahn**, Jason M. Hustedt

**2480-Pos BOARD B152**  
DYNAMICS OF SUPERCOILED KNOTTED DNA: LARGE SCALE REARRANGEMENTS AND PERSISTENT MULTI STRAND INTERLOCKING. **Lucia Coronel**, Antonio Suma, Cristian Micheletti

**2481-Pos BOARD B153**  
LONG-RANGE SLIPPERY HAIRPIN RECONFIGURATION AND ITS MECHANISM IN TRINUCLEOTIDE REPEATS REVEALED BY SINGLE-MOLECULE SPECTROSCOPY. **I-Ren Lee**, Cheng-Wei Ni, Yu-Jie Wei, Yang-I Shen, Chien Chen

**2482-Pos BOARD B154**  
ENHANCEMENT OF DISSOCIATION KINETICS OF BIOMOLECULES THROUGH THE USE OF ALTERNATING ELECTRIC FIELDS. **Sebastian Sensale**, Zhangli Peng, H.C. Chang

**2483-Pos BOARD B155**  
AN ALGORITHM FOR RECONSTRUCTING THE DYNAMICS OF SUPERCOILED DNA. **Todd D. Lillian**, Saeed Babamohammadi

**2484-Pos BOARD B156**  
CPG METHYLATION OF THE C9ORF72 NUCLEOTIDE REPEAT EXPANSION ALTERS G-QUADRUPLEX TOPOLOGICAL DISTRIBUTION. **Kadir Ozcan**, Aaron Haeusler

## Protein-Nucleic Acid Interactions II (Boards B157 - B181)

**2485-Pos BOARD B157**  
CELLULAR DISTRIBUTION AND DIFFUSIVITY OF HFQ WITH INTERACTING RNAs. **Seongjin Park**, Karine Prévost, Matt Reyer, Emily Heideman, Wei Liu, Eric Massé, Jingyi Fei

**2486-Pos BOARD B158**  
STRUCTURAL CHARACTERIZATION OF A PEPTIDE DERIVED FROM A LAB-EVOLVED PROTEIN THAT TARGETS HIV-1 TAR RNA. **Sai Shashank Chavali**, Ivan Belashov, Jermaine Jenkins, Joseph Wedekind

**2487-Pos BOARD B159**  
NUCLEOTIDE-DEPENDENT STABILITY OF NUCLEOSOME-CHD1 COMPLEXES. **Samaneh Ghassabi Kondalaji**, Ren Ren, Ilana M. Nodelman, Gregory D. Bowman

**2488-Pos BOARD B160**  
A HIGH-THROUGHPUT PLATFORM FOR PROBING MECHANISMS OF TRANSCRIPTION FACTOR-DNA BINDING. **Arjun Aditham**, Polly M. Fordyce

**2489-Pos BOARD B161**  
*CAENORHABDITIS ELEGANS* MORC-1 TOPOLOGICALLY TRAPS AND COMPACTS DNA. **HyeongJun Kim**, Linda Yen, Somsakul Wongpalee, Joseph Loparo, Steve Jacobsen

**2490-Pos BOARD B162**  
AN EFFECTIVE SCORING FUNCTION WITH ATOMIC AND COARSE-GRAINED HYBRID REPRESENTATION FOR PROTEIN-RNA INTERACTIONS. Jiahua He, **Shengyou Huang**

**2491-Pos BOARD B163**  
INVESTIGATING THE DNA BINDING ACTIVITY OF THE POLYBROMO-1 BROMODOMAINS. **Saumya M. De Silva**, Yangtian Shangguan, Tyler M. Weaver, Brianna E. Lupo, Catherine A. Musselman

**2492-Pos BOARD B164**  
DETERMINATION OF THE MECHANISM OF RNA REGULATION BY CPSF30 UTILIZING BOTH BIOPHYSICAL AND STRUCTURAL APPROACHES. **Jordan D. Pritts**, Abdulafeez A. Oluyadi, Daniel Deredge, Patrick L. Wintrobe, Sarah L. J. Michel

**2493-Pos BOARD B165**  
RNA G-QUADRUPLEX IS RESOLVED BY REPETITIVE AND ATP DEPENDENT MECHANISM OF DHX36. **Ramreddy Tippana**, Michael C. Chen, Natalia A. Demeshkina, Adrian R. Ferré-D'Amaré, SuA Myong

**2494-Pos BOARD B166**  
DEEP LEARNING MODELS EXPLORE THE STRUCTURAL EFFECTS OF TRANSCRIPTION FACTOR-DNA COMPLEXES ON BINDING SPECIFICITY. **Tyler C. Shimko**, Polly M. Fordyce

**2495-Pos BOARD B167**  
RRM2 OF CELF1 PROTEIN FROM *PLASMODIUM FALCIPARUM* PREFERENTIALLY BINDS TO UG REPEATS RNA. **Garima Verma**, Neel Sarovar Bhavesh

**2496-Pos BOARD B168**  
SINGLE-STRANDED DNA BINDING AND CROSSLINKING ACTIVITIES OF THE VIRAL RESTRICTION FACTOR APOBEC3G CHARACTERIZED BY FORCE SPECTROSCOPY. **Ioulia F. Rouzina**, Michael Morse, Nabuan Naufer, Yuqing Feng, Linda Chelico, Mark C. Williams

**2497-Pos BOARD B169**  
NMR STUDIES OF CONFORMATIONAL SELECTION OF HNRNP H ON RNA RECOGNITION AND ITS INTERACTION WITH THE HIV EXONIC SPLICING SILENCER ESS2P RNA. **Liang-Yuan Chiu**, Srinivas Penumutchu, Niyati Jain, Andrew Sugarman, Blanton S. Tolbert

**2498-Pos BOARD B170**  
USING SINGLE MOLECULE METHODS TO STUDY MECHANISMS OF SITE SPECIFIC DNA CLEAVAGE. **Allen C. Price**, Stephen D. Parziale, Karissa Mehrtens, Anna D. Ware, Emily K. Matozel, Nathaniel Dale

**2499-Pos BOARD B171**  
THE ROLE OF INTERFACIAL HYDRATION IN THE TRANSCRIPTION FACTOR PU.1/DNA COMPLEX. **Amanda V. Albrecht**, Hye Mi Kim, Gregory M. K. Poon

**2500-Pos BOARD B172**  
CRYO-EM STRUCTURE OF THE P-ELEMENT TRANSPOSASE STRAND-TRANSFER COMPLEX. **Elizabeth H. Kellogg**, George Ghanim, Eva Nogales, Donald C. Rio

**2501-Pos BOARD B173**  
FUNCTIONAL IMPLICATIONS OF THE RECQ HELICASE - TOPOISOMERASE III - SSB COMPLEX: INSIGHTS FROM SINGLE MOLECULE MEASUREMENTS. **K. Maria Mills**, Yeonee Seol, Keir C. Neuman

**2502-Pos BOARD B174**  
ESTABLISHING A SINGLE-MOLECULE FRET SYSTEM FOR STUDYING DNA-PROTEIN INTERACTIONS. **Dacheng Zhao**, Ishita Mukerji, Candice Etson

**2503-Pos BOARD B175**  
COHESIN SA2 AND EWSR1 IN R-LOOP REGULATION. **Hong Wang**, Ashwin Ghadiyaram, Hai Pan, Yanlin Fan, Parminder Kaur, Aparna Gorthi, Robert Riehn, Alexander J.R. Bishop, Yizhi Jane Tao

**2504-Pos BOARD B176**  
CHARACTERIZATION OF THE INTERACTIONS OF FRAGILE-X MENTAL RETARDATION PROTEIN WITH C9ORF72 REPEAT EXPANDED RNA. **Kendy A. Pellegrine**, Mihaela Rita Mihailescu, Jeffrey D. Evanseck

**2505-Pos BOARD B177**  
SINGLE-MOLECULE STUDY OF TRF2 MEDIATED DNA COMPACTION USING PHYSIOLOGICALLY RELEVANT LONG TELOMERIC DNA. **Parminder Kaur**, Ryan Barnes, Hai Pan, Patricia Opresko, Robert Riehn, Hong Wang

**2506-Pos BOARD B178**  
STRUCTURAL REARRANGEMENT OF DNA FOR CRISPR-CAS9 NUCLEASE SPECIFICITY REGULATED BY THE REC2 DOMAIN. **Keewon Sung**, Jinho Park, Younggyu Kim, Nam Ki Lee, Seong Keun Kim

**2507-Pos BOARD B179**  
ALPHA-SYNUCLEIN BINDS TO DNA AND MODULATES ITS PHYSICAL PROPERTIES. **Kai Jiang**, Sandra Rocha, Alvina Westling, Sriram KK, Kevin D. Dorfman, Pernilla Wittung-Stafshede, Fredrik Westerlund

**2508-Pos BOARD B180**  
SIMULATION OF H2A.B CONTAINING HISTONE VARIANT NUCLEOSOME. **Havva Kohestani**, Jeffery M. Wereszczynski

**2509-Pos BOARD B181**  
QUANTIFYING ANTICANCER DRUG DOXORUBICIN BINDING TO DNA USING OPTICAL TWEEZERS. **Zachary Ells**, Brian Dolle, Thayaparan Paramanathan

## Membrane Physical Chemistry II (Boards B182 - B207)

**2510-Pos BOARD B182**  
INTRINSIC CURVATURES FROM GLOBAL X-RAY SCATTERING DATA ANALYSIS OF INVERTED HEXAGONAL PHASES. **Moritz P.K. Frewein**, Johannes Kremser, Primoz Zihlerl, Georg Pabst

**2511-Pos BOARD B183**  
STATISTICAL ANALYSIS OF ACYL CHAIN CONFINEMENT IN LIPID MEMBRANES. **Abhinav Ramkumar**, Xiaoling Leng, Horia I. Petrache

**2512-Pos BOARD B184**  
PARAMETERIZATION OF THE CHARMM FORCE FIELD FOR ETHER LIPIDS AND MODEL LINEAR ETHERS. **Alison Leonard**, Richard W. Pastor, Jeffery B. Klauda

**2513-Pos BOARD B185**  
PROTONATION STATES AND CONFORMATIONS OF INOSITOL AND PHOSPHOINOSITOL PHOSPHATES FROM MOLECULAR SIMULATIONS. **Brian Radak**

**2514-Pos BOARD B186**  
LIPID NANOMATERIALS FOR PACLITAXEL DELIVERY IN CANCER THERAPEUTICS: EFFECT OF PEGYLATION AND CHARGE ON THE MORPHOLOGY AND EFFICACY. **Victoria Steffes**, Zhening Zhang, John Crowe, Scott MacDonald, Kai K. Ewert, Bridget Carragher, Clinton S. Potter, Cyrus R. Safinya

**2515-Pos BOARD B187**  
MODELING *PSEUDOMONAS AERUGINOSA* INNER PLASMA MEMBRANE IN PLANKTONIC AND BIOFILM MODES. **Yalun Yu**, Jeffery B. Klauda

**2516-Pos BOARD B188**  
LIPID CHARGE INCREASES THE BENDING RIGIDITY OF BILAYER MEMBRANES. **Hammad Ali Faizi**, Jan Steinkühler, Shelli L. Frey, Rumiana Dimova, Petia M. Vlahovska

**2517-Pos BOARD B189**  
CHARGE MELTING OF LIPOSOME COLLOIDAL CRYSTALS. **Joel Cohen**, Andrew Ford

**2518-Pos BOARD B190 TRAVEL AWARDEE**  
MEASUREMENTS OF LIPID VESICLE CHARGE IN SOLUTIONS OF ZWITTERIONS. **Azam Shafieenezhad**, Rania Ousman, Ryan Z. Lybarger, Bruce D. Ray, Horia I. Petrache

**2519-Pos BOARD B191**  
MEMBRANE DEFORMATION UNDER ISOTROPIC EXTERNAL STRESS. K. J. Mallikarjunaiah, Jacob J. Kinnun, **Horia I. Petrache**, Michael F. Brown

**2520-Pos BOARD B192**  
FLUORESCENCE STUDIES OF LIPID DISTRIBUTION IN BILAYERS UNDER OXIDATIVE STRESS. **Md Khorshed Alam**, Ivo Vinklárek, Gerhard Gröbner, Lennart B-Å Johansson, Radek Sachl

**2521-Pos BOARD B193**  
MITOCHONDRIAL MEMBRANE ORGANIZATION UNDER OXIDATIVE STRESS: INSIGHT BY SOLID-STATE NMR AND NEUTRON REFLECTOMETRY. Artur P. Dingeldein, Tobias Sparrman, Jörgen Åden, Hanna P. Wacklin, Luke A. Clifton, **Gerhard Grobner**

**2522-Pos BOARD B194**  
THE ROLE OF HYDRODYNAMIC FORCES IN NUCLEAR PORES ASSEMBLY. **Vasily V. Kuvichkin**

**2523-Pos BOARD B195**  
MICROSCOPIC INSIGHTS INTO BIOLOGICAL RELEVANCE OF MEMBRANE CHANNELS IN GAS TRANSPORT ACROSS LIPID MEMBRANES. **Paween Mahinthichaichan**, Emad Tajkhorshid

**2524-Pos BOARD B196**  
UNDERSTANDING HOW ALPHA-SYNUCLEIN MODIFIES STERIC INTERACTIONS OF SILICA SUPPORTED LIPID BILAYERS IN CROWDED ENVIRONMENTS. **Hyeondo (Luke) Hwang**, Peter J. Chung, Alessandra Leong, Ka Yee C. Lee

**2525-Pos BOARD B197**  
PARTITIONING OF VIBRIO CHOLERAE AUTOINDUCER CAI1 AND ITS PRECURSORS INTO LIPID MEMBRANES SUGGESTS THE DIRECT RELEASE MECHANISM. **Hannah Cetuk**

**2526-Pos BOARD B198**  
BINDING OF HUMAN BETA DEFENSIN TYPE 3 WITH NEGATIVELY CHARGED LIPID MEMBRANES. **Liquan Zhang**

**2527-Pos BOARD B199**  
AMINO ACIDS BIND TO AND INFLUENCE THE STRUCTURE OF FATTY ACID VESICLES. **Zachary R. Cohen**, Andrew Ramsay, Caitlin E. Cornell, Roy A. Black, Sarah L. Keller

**2528-Pos BOARD B200**  
DOPAMINE INTERACTION WITH MEMBRANE SURFACES. **Adhitya Ramkumar**, Samuel Canner, Bruce D. Ray, Horia I. Petrache

**2529-Pos BOARD B201**  
BINDING AND COMPETITION OF  $Be^{2+}$  AND  $Ca^{2+}$  WITH MODEL PHOSPHOLIPID MEMBRANES. **Sergei Sukharev**, Curtis W. Meuse

**2530-Pos BOARD B202 TRAVEL AWARDEE**  
BUDDING AND FISSION OF VESICLES INDUCED BY SMALL SOLUTE MOLECULES. **Rikhia Ghosh**, Andrea Grafmueller, Reinhard Lipowsky

**2531-Pos BOARD B203**  
INTERFACIAL AND HYDROPHOBICITY SCALES FOR SMALL DRUG-LIKE MOLECULES FROM ATOMISTIC FREE ENERGY CALCULATIONS. **W.F. Drew Bennett**, Stewart He, Helgi Ingólfsson

**2532-Pos BOARD B204**  
NMR STUDY OF PARTITION AND PERMEATION PROPERTIES OF GA(III) CHELATES. **Maria Rangel**, Silvia Vinhas, Galya Ivanova, Silvia Lopes, Sofia Ferreira

**2533-Pos BOARD B205**  
MEMBRANE LIPIDS ALTER UNCOUPLING EFFECT OF 2,4 DINITROPHENOL. **Olga Jovanovic**, Lars Gille, Mario Vazdar, Elena E. Pohl

**2534-Pos BOARD B206 TRAVEL AWARDEE**  
COMPUTATIONAL MECHANICAL STUDIES OF *E. COLI* TYPE-1 PILI ADHESION WITH HOMOGENEOUS SURFACES. **Jeremy M. G. Leung**, Eileen M. Spain

**2535-Pos BOARD B207**  
MECHANISMS OF ADHESION OF A BACTERIAL PREDATOR TO SURFACE WITH QUANTITATIVE FORCE MEASUREMENTS. **Yuyu Chen**, Eileen M. Spain

## Membrane Active Peptides and Toxins II (Boards B208 - B229)

**2536-Pos BOARD B208**  
MEMBRANES MATTER: PREDICTING DRUG TOXICITY. **R Lea Sanford**, Jeanne Chiaravalli-Giganti, Wesley Chao, Anotnio Luz, J. Fraser Glickman, Olaf S. Andersen

**2537-Pos BOARD B209**  
BIOPHYSICAL APPROACHES TOWARD UNDERSTANDING THE MOLECULAR MECHANISM OF ACTION OF THE MITOCHONDRIAL THERAPEUTIC SS-31 (ELAMIPRETIDE). **Nathan N. Alder**, Wayne Mitchell, Emily Ng, Kevin Boyd, Jeffrey Tamucci, Eric May, Nicholas Eddy, Hazel Szeto

**2538-Pos BOARD B210**

KINK IN HELICAL PEPTIDES AFFECTS MEMBRANE PORE FORMATION. Alzbeta Turkova, Ivo Kabelka, Tereza Kralova, Lukas Sukenik, Sarka Pokorna, Martin Hof, **Robert Vacha**

**2539-Pos BOARD B211**

SPHINGOMYELIN PLAYS A CRITICAL ROLE IN MEMBRANE-RELATED EFFECTS INDUCED BY THE STEROID SAPONIN GINSENOSEIDE RH2. **Sandrine L. Verstraeten**, Maria Janikowska-Sagan, Emily J.S. Claereboudt, Laurence Lins, Magali Deleu, Donatienne Tyteca, Marie-Paule Mingeot-Leclercq

**2540-Pos BOARD B212**

NOVEL F13,F15 GRAMICIDIN SUBUNITS PREDICTED TO CROSS BILAYER MEMBRANES AND FORM ION CHANNELS. **Matthew Brownd**, Matthew J. McKay, Denise V. Greathouse, Olaf S. Andersen, Roger E. Koeppe

**2541-Pos BOARD B213**

CONFORMATIONAL SAMPLING OF THE PH LOW INSERTION PEPTIDE IS TUNED BY PH. **Nicolas C. Frazee**, Blake Mertz

**2542-Pos BOARD B214**

USING PH SENSITIVE PEPTIDES FOR THE ENDOSOMAL RELEASE OF ANTIBODIES. **Eric Wu**, Sarah Y. Kim, Kalina Hristova, William C. Wimley

**2543-Pos BOARD B215**

THE PH SENSITIVE ATRAM PEPTIDE HITCHHIKES ON HUMAN SERUM ALBUMIN EN ROUTE TO TARGET DISEASED ACIDIC TISSUES. **Vanessa P. Nguyen**, Stephen J. Kennel, Jonathan S. Wall, Francisco N. Barrera

**2544-Pos BOARD B216**

THE PH-SPECIFIC THERMODYNAMIC INTERMEDIATES OF PHLIP MEMBRANE INSERTION. Sarah A. Otieno, Lukas M. Klees, Anqi Zhang, Heather M. Giza, Samuel Z. Hanz, Bianca Chakravorty, Lan Yao, **Ming An**, Wei Qiang

**2545-Pos BOARD B217**

PEPTIDE-ENHANCED CARGO TRANSPORT ACROSS 2D AND 3D EPITHELIAL BARRIERS: A STRUCTURE-FUNCTION INVESTIGATION. **Alexander Komin**, Max I. Bogorad, Ran Lin, Honggang Cui, Peter C. Searson, Kalina Hristova

**2546-Pos BOARD B218**

TRANSLOCATION OF CPP-CARGO PROTEIN FUSIONS INTO *CANDIDA ALBICANS* CELLS AND DESIGNING FOR ENHANCED TRANSLOCATION WITH SIMULATIONS. **Sayanee Adhikari**, Mahdi Ghorbani, Katherine Dura, Jeffery B. Klauda, Amy J. Karlsson

**2547-Pos BOARD B219**

ENERGETICS AND KINETICS OF MEMBRANE PROTEIN-DETERGENT INTERACTIONS. Aaron Wolfe, **Liviu Movileanu**

**2548-Pos BOARD B220**

DETERMINING THE ESSENTIAL UNFOLDING STEP IN PROTEIN TRANSLOCATION USING ANTHRAX TOXIN. **Koyel J. Ghosal**, Bryan A. Krantz

**2549-Pos BOARD B221**

DETERMINING THE HIGH-RESOLUTION STRUCTURES OF THE ANTHRAX TOXIN PROTECTIVE ANTIGEN PORE BOUND TO ITS LETHAL AND EDEMA FACTORS. **Nathan J. Hardenbrook**, Shiheng Liu, Kang Zhou, Jiansen Jang, Z. Hong Zhou, Bryan Krantz

**2550-Pos BOARD B222**

ELUCIDATING THE EFFECT OF LISTERIOLYSIN O STRUCTURAL INTERMEDIATES ON LIPID DIFFUSIVITY. **Ilanila Ilangumaran Ponnalar**, Ganapathy Ayappa, Jaydeep Kumar Basu

**2551-Pos BOARD B223**

RECOMBINANT EXPRESSION AND REFOLDING OF A POTASSIUM CHANNEL-ACTIVATING THREE-FINGER TOXIN. **Jamye Moya**, Adel K. Hussein, Sebastien F. Poget

**2552-Pos BOARD B224**

EBOLA VIRUS DELTA-PEPTIDE ACTS AS AN ENTEROTOXIC VIROPORIN *IN VIVO*. **Shantanu Guha**, Lilia Melnik, Robert F. Garry, William C. Wimley

**2553-Pos BOARD B225 TRAVEL AWARDEE**  
MECHANISM OF CATECHIN-MEDIATED INHIBITION OF RTX TOXIN ACTIVITY. En Hyung Chang, **Angela C. Brown**

**2554-Pos BOARD B226**

CHARACTERIZATION OF COMBINED CHOLESTEROL AND INTEGRIN INTERACTIONS FOR RTX TOXIN ACTIVITY. **Eric Krueger**, Angela C. Brown

**2555-Pos BOARD B227**

A BILAYER-BASED IN VITRO ASSAY FOR BOTULINUM HOLOTOXIN POTENCY ASSESSMENTS. **Runzhi Lai**, Eric N. Ervin

**2556-Pos BOARD B228**

ARTIFICIAL MEMBRANE ATTACK COMPLEX THROUGH DNA-GUIDED SELF-ASSEMBLY OF PORE-FORMING PEPTIDES: BIOLOGICAL NANOPORES WITH PROGRAMMABLE DIAMETER. **Aziz Fennouri**, Jonathan List, Julie Ducrey, Laura Pascual, Frederick Bertani, Sandra Rodriguez Gonzalo, Simon F. Mayer, Jerry Yang, Michael Mayer

**2557-Pos BOARD B229**

DISTINCT ROLES OF SNARE-MIMICKING LIPOPEPTIDES DURING INITIAL STEPS OF MEMBRANE FUSION. **Alexander Kros**

## Protein-Lipid Interactions: Structures (Boards B230 - B251)

**2558-Pos BOARD B230**

LIVE ACTION OF ESCRT III MACHINERIES IN MEMBRANE REMODELLING: MEMBRANE DEFORMATION & MEMBRANE SCISSION. **Sourav Maity**, Christophe Caillat, Nicola De Franceschi, Maryam Alqabandi, Nolwenn Miguet, Patricia M. Bassereau, Winfried Weissenhorn, Wouter H. Roos

**2559-Pos BOARD B231**

DRIVING FORCES STABILIZING CELLULAR PRION PROTEIN (PRP<sup>C</sup>) MONOMERS AND DIMERS ON THE CELL SURFACE. **Frances Tiffany Morden**, India Claffin, Patricia Soto

**2560-Pos BOARD B232**

INFLUENCE OF CHARGED LIPIDS ON GLUTAMIC ACID CONTAINING TRANSMEMBRANE HELICES. **Brooke E. Nunn**, Matthew J. McKay, Denise V. Greathouse, Roger E. Koeppe

**2561-Pos BOARD B233**

POSITION DEPENDENT ORIENTATION DIFFERENCE OF TRANSMEMBRANE PEPTIDES FLANKED BY SINGLE OR MULTIPLE HISTIDINE RESIDUES. **Fahmida Afrose**, Denise V. Greathouse, Roger E. Koeppe

**2562-Pos BOARD B234**

HELIX FRAYING AND ORIENTATION OF A TRANSMEMBRANE PEPTIDE HAVING A LONG HYDROPHOBIC CORE AND ANCHORED BY INTERFACIAL ARGININE RESIDUES. **Sara J. Sustich**, Fahmida Afrose, Denise V. Greathouse, Roger E. Koeppe

**2563-Pos BOARD B235**

INVESTIGATING THE CONFORMATIONAL DYNAMICS OF THE MEMBRANE ENZYME LSPA. **Tracy A. Caldwell**, Linda Columbus

**2564-Pos BOARD B236**

CHARACTERIZING THE STRUCTURE OF STYRENE-MALEIC ACID COPOLYMER-LIPID NANOPARTICLES (SMALPS) USING RAFT POLYMERIZATION FOR MEMBRANE PROTEIN SPECTROSCOPIC STUDIES. **Benjamin D. Harding**, Gunjan Dixit, Kevin M. Burrige, Indra D. Sahu, Carole Dabney-Smith, Richard Edelmann, Dominik Konkolewicz, Gary A. Lorigan



**2565-Pos BOARD B237**  
CHARACTERIZATION OF ALPHA-HELIX DISTORTIONS AT A MEMBRANE SURFACE AND A PARTIAL 3(10)-HELIX BY SOLID-STATE NMR. **Matthew J. McKay**, Denise V. Greathouse, Roger E. Koeppe

**2566-Pos BOARD B238**  
LIPID OPTIMIZATION TO IMPROVE THE SOLID-STATE NMR SPECTRA FROM MEMBRANE-SPANNING HELICES WITH GLUTAMIC ACID. **Kelsey A. Marr**, Matthew J. McKay, Denise V. Greathouse, Roger E. Koeppe

**2567-Pos BOARD B239 TRAVEL AWARDEE**  
LIPID MEMBRANE INFLUENCES INTERACTION BETWEEN THE C1 DOMAIN OF MUNC13-1 AND THE ACTIVATOR. **Youngki You**, Binhan Yu, Tatyana Igumenova, Joydip Das

**2568-Pos BOARD B240**  
PROTEIN-LIPID INTERACTIONS REGULATE ATG3 ACTIVITY IN AUTOPHAGY. **Erin R. Tyndall**, Yansheng Ye, Zhenyuan Tang, Hong-Gang Wang, Fang Tian

**2569-Pos BOARD B241**  
STICHOLYSINS, SPHINGOMYELIN AND CHOLESTEROL: A CLOSER LOOK INTO A TRIPARTITE INTERACTION. **Juan Palacios Ortega**, Sara García-Linares, Esperanza Rivera-de-Torre, Jose G. Gavilanes, Álvaro Martínez-del-Pozo, J Peter Slotte

**2570-Pos BOARD B242**  
A<sub>2A</sub> ADENOSINE RECEPTOR ACTIVATION STUDIED BY ALL-ATOM SIMULATION. **Long Chen**, Edward R. Lyman

**2571-Pos BOARD B243**  
MEMBRANE BINDING BY SYNAPTOTAGMIN-LIKE PROTEIN 4: SITE DIRECTED MUTAGENESIS OF THE LIPID INTERACTION SURFACE. **Aml A.A Alnaas**, Julianna Oviedo, Abena Siriboe, Sherleen Tran, Mikias Negussie, Hai Lin, Jefferson Knight

**2572-Pos BOARD B244**  
LIPID-LIPID AND LIPID-PROTEIN INTERACTIONS OF THE MATRIX DOMAIN OF HIV-GAG AT THE VIRAL ASSEMBLY SITE. **Viviana Monje-Galvan**, Gregory A. Voth

**2573-Pos BOARD B245**  
A CARTOGRAPHIC VIEW OF MEMBRANE TARGETING AND ASSOCIATION OF THE C2 DOMAIN FROM PROTEIN KINASE C. **Muyun Lihan**, Emad Tajkhorshid

**2574-Pos BOARD B246**  
ANNEXIN V IS A SENSOR OF NEGATIVE PLASMA MEMBRANE CURVATURE. **Christoffer Dam Florentsen**, Guillermo S. Moreno Pescador, Alexander K. Sonne, Jesper Nylandsted, Poul Martin Bendix

**2575-Pos BOARD B247**  
SUBSTRATE INDUCED CONFORMATIONAL CHANGES OF LIPOSOME-BOUND CYTOCHROME C. **Raghd Kurbaj**, Bridget Milorey, Reinhard Schweitzer-Stenner

**2576-Pos BOARD B248**  
MEMBRANE-BOUND STRUCTURES AND ASSOCIATED ELECTRON TRANSPORT FUNCTIONS OF CYTOCHROME C. **Minh D. Phan**, Keel Yong Lee, Hanyu Wang, James F. Browning, Sushil K. Satija, John F. Ankner

**2577-Pos BOARD B249**  
PS MEMBRANE ASYMMETRY INFLUENCES THE FOLDING AND INSERTION OF A TRANSMEMBRANE HELIX. **Haden L. Scott**, Frederick A. Heberle, John Katsaras, Francisco N. Barrera

**2578-Pos BOARD B250**  
CAPTURING DYNAMIC TRANSPORTER-LIPID INTERACTIONS. **Argyris Politis**

**2579-Pos BOARD B251**  
STRUCTURAL BASIS FOR THE LIPID-MEDIATED INTERACTION OF TUBULIN WITH VDAC REVEALED BY NEUTRON REFLECTOMETRY. **David P. Hoogerheide**, Sergei Y. Noskov, Philip A. Gurnev, Tatiana K. Rostovtseva, Sergey M. Bezrukov

## Excitation-Contraction Coupling II (Boards B252 - B266)

**2580-Pos BOARD B252**  
IDENTIFICATION OF NOVEL RYR1 INHIBITORS BY HIGH-THROUGHPUT SCREENING USING ER CA<sup>2+</sup> MEASUREMENT. **Hiroyuki Matsukawa**, Takashi Murayama, Takuya Kobayashi, Nagomi Kurebayashi, Mari Ishigami-Yuasa, Shuichi Mori, Hiroyuki Kagechika, Takashi Sakurai

**2581-Pos BOARD B253**  
DETERMINATION OF HEAT PRODUCTION IN HUMAN SKELETAL MUSCLE FROM MEASUREMENTS OF BASAL CA<sup>2+</sup> MOVEMENTS. Christopher J. Barclay, **Bradley S. Launikonis**

**2582-Pos BOARD B254**  
ENHANCEMENT OF SARCOLEMMA CALCIUM INFLUX IN A NOVEL MOUSE MODEL OF MALIGNANT HYPERTHERMIA. **Vikas Kaura**, José R López, Marie-Anne Shaw, Paul D. Allen, Philip M. Hopkins

**2583-Pos BOARD B255**  
MUTATION ANALYSIS OF THE CALCIUM BINDING SITE OF SKELETAL MUSCLE RYANODINE RECEPTOR CALCIUM RELEASE CHANNEL. Venkat R. Chirasani, Le Xu, Jordan S. Carter, Hannah G. Addis, Daniel A. Pasek, Nikolay V. Dokholyan, Gerhard Meissner, **Naohiro Yamaguchi**

**2584-Pos BOARD B256**  
MOLECULAR DYNAMICS SIMULATION OF RYANODINE RECEPTOR IN THE PRESENCE AND ABSENCE OF CA<sup>2+</sup> BINDING. **Han Wen**, Wenjun Zheng

**2585-Pos BOARD B257**  
EFFECTS OF NOVEL RYR2 INHIBITORS ON DISEASED HEARTS. **Nagomi Kurebayashi**, Takashi Murayama, Mai Tamura, Shuichi Mori, Mari Yuasa-Ishigami, Hiroyuki Kagechika, Junji Suzuki, Kazunori Kanemaru, Masamitsu Iino, Sachio Morimoto, Takashi Sakurai

**2586-Pos BOARD B258 TRAVEL AWARDEE**  
COOPERATIVE GATING AMONG ION-CHANNEL SPECIES IN JUNCTIONAL SARCOPLASMIC RETICULUM. **Elisa Venturi**, Fiona O'Brien, David Eberhardt, Katja Witschas, Sam El-Ajouz, Tsunaki Iida, Miyuki Takeshima, Hiroshi Takeshima, Rebecca Sitsapesan

**2587-Pos BOARD B259**  
STRUCTURE DEVELOPMENT OF OXOLINIC ACID, A NOVEL INHIBITOR OF TYPE 1 RYANODINE RECEPTOR (RYR1) CA<sup>2+</sup> RELEASE CHANNEL. **Yoshiaki Nishijima**, Takashi Murayama, Shuichi Mori, Hiroto Iinuma, Noriaki Manaka, Nagomi Kurebayashi, Mari Ishigami-Yuasa, Hiroyuki Kagechika, Takashi Sakurai

**2588-Pos BOARD B260**  
INVESTIGATION OF MUTANT RYANODINE RECEPTOR CHANNEL ACTIVITY USING FUNCTIONAL ANALYSIS AND MOLECULAR DYNAMICS. **Toshiko Yamazawa**, Haruo Ogawa, Maki Yamaguchi, Takashi Murayama, Hideto Oyamada, Junji Suzuki, Nagomi Kurebayashi, Kazunori Kanemaru, Takashi Sakurai, Iino Masamitsu

**2589-Pos BOARD B261**  
CHARACTERIZATION OF AN ANIMAL MODEL FOR CONGENITAL MYOPATHIES LINKED TO RECESSIVE RYR1 MUTATIONS. Moran Elbaz, Alexis Ruiz, Jan Eckhardt, Susan Treves, **Francesco Zorzato**

**2590-Pos BOARD B262**  
ROLE OF DYSFERLIN'S C2A DOMAIN IN VOLTAGE-INDUCED CALCIUM RELEASE AFTER OSMOTIC SHOCK IN MURINE SKELETAL MYOFIBERS. **Valeriy I. Lukyanenko**, Joaquin Muriel, Robert J. Bloch

**2591-Pos BOARD B263**  
MEASUREMENTS OF TRIADIC CALCIUM IN DIFFERENTIATED MUSCLE FIBERS USING A GCAMP PROBE TARGETED TO THE JUNCTIONAL SR MEMBRANE. **Colline Sanchez**, Christine Berthier, Bruno Allard, Vincent Jacquemond

**2592-Pos BOARD B264**  
MATHEMATICAL MODEL TO SIMULATE SR CALCIUM RELEASE IN MAMMALIAN SKELETAL MUSCLE WITH IMPAIRED T-TUBULAR STRUCTURE. Vincent Jacquemond, Peter Szentesi, Candice Kutchukian, Beatrix Dienes, **Laszlo Csernoch**

**2593-Pos BOARD B265**  
POST-DEVELOPMENTAL KNOCKOUT OF ORAI1-MEDIATED STORE-OPERATED CALCIUM ENTRY IMPROVES MUSCLE PATHOLOGY IN A MOUSE MODEL OF MUSCULAR DYSTROPHY. **Maricela García-Castañeda**, Antonio Michelucci, Robert T. Dirksen

**2594-Pos BOARD B266**  
MULTIPLE SITES OF INTERACTION MAY BE INVOLVED IN THE REGULATION OF CA<sub>v</sub>1.1 BY STAC3. **Alexander Polster**, Philip M. Hopkins, Kurt G. Beam

## Exocytosis and Endocytosis II (Boards B267 - B294)

**2595-Pos BOARD B267**  
TO PINPOINT THE LOCATION AND THE ORIENTATION OF PROTEINS ASSOCIATED WITH DENSE-CORE VESICLES (DCVS) USING CLEM. **Bijeta Prasai**, Gideon Haber, Kem A. Sochacki, John A. Ciemniecki, Justin W. Taraska

**2596-Pos BOARD B268**  
RELATION BETWEEN RELEASE OF CATECHOLAMINES AND FFN511 STUDIED WITH ELECTROCHEMICAL DETECTOR ARRAYS. **Shailendra Singh Rathore**, Meng Huang, Manfred Lindau

**2597-Pos BOARD B269**  
NS510, A HIGH AFFINITY FLUORESCENT CATECHOLAMINE SENSOR FOR MONITORING NOREPINEPHRINE EXOCYTOSIS. **Xin A. Liu**, Le Zhang, Timothy Glass, Kevin D. Gillis

**2598-Pos BOARD B270**  
CONDITIONAL KNOCKOUT OF THE SEROTONIN TRANSPORTER (SERT) DEMONSTRATES ITS ROLE IN ACCUMULATING AND MAINTAINING 5-HT HOMEOSTASIS IN THE SYMPATHOADRENAL SYSTEM. **Rebecca L. Brindley**, Mary Beth Bauer, L. Anne Walker, Meagan A. Quinlan, Ana MD Carneiro, Ji-Ying Sze, Randy D. Blakely, Kevin PM Currie

**2599-Pos BOARD B271**  
THE SEROTONIN TRANSPORTER MODULATES THE QUANTAL SIZE OF VESICULAR RELEASE EVENTS IN ADRENAL CHROMAFFIN CELLS. Rebecca L. Brindley, **Kevin P. Currie**

**2600-Pos BOARD B272**  
HIGH THROUGHPUT DRUG TESTING OF TRANSMITTER RELEASE EVENTS IN CHROMAFFIN CELLS WITH SURFACE MODIFIED CMOS IC. **Meng Huang**, Shailendra Rathore, Manfred Lindau

**2601-Pos BOARD B273**  
CHROMOGRANIN A, THE MAJOR LUMENAL PROTEIN IN CHROMAFFIN GRANULES, CONTROLS FUSION PORE EXPANSION. **Prabhodh S. Abbineni**, Mary A. Bittner, Daniel Axelrod, Ronald W. Holz

**2602-Pos BOARD B274**  
ALPHA TO BETA CELLS: A PATHWAY TOWARDS A DIABETES CURE. **Michael R. DiGruccio**, Dave W. Piston

**2603-Pos BOARD B275**  
DETECTING EARLY RISK OF TYPE 2 DIABETES DURING AN ORAL GLUCOSE TOLERANCE TEST. **Joon Ha**, Arthur Sherman

**2604-Pos BOARD B276 TRAVEL AWARDEE**  
EXTRACELLULAR ZINC CONTRIBUTES TO THE SLOW POLYSPERMY BLOCK. **Katherine L. Wozniak**, Wesley A. Phelps, Miller T. Lee, Anne E. Carlson

**2605-Pos BOARD B277**  
THE MOLECULAR MECHANISM AND STRUCTURAL ANALYSIS OF MEMBRANE INTERACTION VIA FERA AND C2 DOMAINS IN FERLINS ASSOCIATED WITH MUSCULAR DYSTROPHY AND CANCER. **Faraz M. Harsini**, Anthony A. Bui, Michael Latham, Anne M. Rice, Mark A. White, Mazdak Bradberry, Edwin R. Chapman, Sukanya Lakshmi, Andrei Turtoi, Isaac L. Scott, Matthew Dominguez, Elahe Masoumzadeh, Jon J. McCord, Jacob Gendelman, Roger Bryan Sutton<sup>10</sup>

**2606-Pos BOARD B278**  
CALCIUM DEPENDENCE, KINETICS, AND PORE DYNAMICS OF PHYSIOLOGICAL VESICLE FUSION WITH PLANAR SUPPORTED BILAYERS. **Alex J.B. Kreutzberger**, Volker Kiesling, Binyong Liang, Patrick Seelheim, Arun Anantharam, J. David Castle, Lukas K. Tamm

**2607-Pos BOARD B279**  
SYNAPTOTAGMIN-7 ENDOWS A SUBPOPULATION OF CHROMAFFIN GRANULES WITH DISTINCT CALCIUM SENSING AND FUSION PROPERTIES. **Mounir Bendahmane**, Alina Chapman-Morales, Noah A. Schenk, Zhang Shuang, Paul M. Jenkins, David R. Giovannucci, Arun Anantharam

**2608-Pos BOARD B280 TRAVEL AWARDEE**  
PIP2 DRIVES CALCIUM-INDEPENDENT ACTIVATION OF TANDEM C2-DOMAIN CALCIUM SENSORS. **Mazdak M. Bradberry**, Huan Bao, Xiaochu Lou, Edwin R. Chapman

**2609-Pos BOARD B281**  
FUSION PORE DILATION BY SYNAPTOTAGMIN-1. Zhenyong Wu, Nativ Dharan, Sathish Thiyagarajan, Ben O'Shaughnessy, **Erdem Karatekin**

**2610-Pos BOARD B282**  
DOMAIN STABILITY AND FUNCTIONAL ANALYSIS AT THE AD3 LOCUS OF SYNAPTOTAGMIN 1 C2 DOMAINS. **Anthony A. Bui**, Faraz M. Harsini, Anne M. Rice, Souvic Karmakar, Kerry Fuson, R. Bryan Sutton

**2611-Pos BOARD B283**  
HOW CA<sup>2+</sup> AND SYNAPTOTAGMIN TRIGGER SNARE-MEDIATED MEMBRANE FUSION. **Volker Kiessling**, Alex J.B. Kreutzberger, Binyong Liang, Sarah B. Nyenhuis, Patrick Seelheim, J. David Castle, David S. Cafiso, Lukas K. Tamm

**2612-Pos BOARD B284**  
STRUCTURAL CHARACTERIZATION OF FULL-LENGTH SYNAPTOTAGMIN-1 TO CIS OR TRANS MEMBRANES. **Sarah B. Nyenhuis**, David S. Cafiso

**2613-Pos BOARD B285**  
SYNAPTIC VESICLE FUSION AND DOCKING DURING THE FIRST 14 MILLISECONDS AFTER AN ACTION POTENTIAL. **Grant F. Kusick**, Shigeki Watanabe

**2614-Pos BOARD B286**  
SYNAPSIN: A NOVEL INSIGHT FOR PKA PHOSPHO-DOMAINS IN INHIBITING RELEASE PROBABILITY. Agustin Gonzalez-Ruiz, Jose Guzman-Gutierrez, Pedro Feliciano-Ramos, **Ramon A. Jorquera**

**2615-Pos BOARD B287**  
SEQUENTIAL LINK OF KISS-AND-RUN MECHANISM AND CLASSICAL EXOCYTOSIS AT HIPPOCAMPAL SYNAPSES. **Andreas W. Henkel**

**2616-Pos BOARD B288**  
CALCIUM CHANNELS GATE CALCIUM-INDEPENDENT BUT VOLTAGE-DEPENDENT SECRETION IN MAMMALIAN CELLS. **Zhuan Zhou**, Rong Huang, Yuan Wang, Jie Li, Xiaohan Jiang, Yinglin Li, Feipeng Zhu, Changhe Wang, Zuying Chai

**2617-Pos BOARD B289**  
SEC1/MUNC18-FAMILY PROTEINS CATALYZE DIRECTIONAL SNARE ASSEMBLY BY TEMPLATING SNARE FOLDING AND ASSOCIATION. Junyi Jiao, Mengze He, Sarah Port, Baker Richard, Yonggang Xu, Hong Qu, Yujian Xiong, Yukun Wang, Huaizhou Jin, Travis Eisemann, Frederick M. Hughson, **Yongli Zhang**

**2618-Pos BOARD B290**  
A MECHANISM FOR EXOCYTOTIC ARREST BY THE COMPLEXIN C-TERMINUS. **Mazen Makke**

**2619-Pos BOARD B291**  
NSF-MEDIATED DISASSEMBLY OF ON- AND OFF PATHWAY SNARE COMPLEXES AND INHIBITION BY COMPLEXIN. **Ucheor B. Choi**, Minglei Zhao, K. Ian White, Axel Brunger

**2620-Pos BOARD B292**  
THE NUMBER OF SNARE COMPLEXES CHANGING CONFORMATION DURING VESICLE FUSION. **Ying Zhao**, Qinghua Fang, Satyan Sharma, Shrutee Jakhanwal, Reinhard Jahn, Manfred Lindau

**2621-Pos BOARD B293**  
FUSION PORE DYNAMICS AND SNARE COMPLEX MOBILITY. **Satyan Sharma**, Manfred Lindau

**2622-Pos BOARD B294**  
THREE STAGES OF NEUROTRANSMITTER RELEASE: CA-TRIGGERED UNCLAMPING, SNARE RING ASSEMBLY AND SNARE-MEDIATED MEMBRANE FUSION. **Zachary A. McDargh**, Anirban Polley, Ben O'Shaughnessy

## Membrane Receptors and Signal Transduction II (Boards B295 - B315)

**2623-Pos BOARD B295**  
MONOMERS OF AMPA-TYPE GLUTAMATE RECEPTOR SUBUNITS DIFFUSE IN AND OUT OF SPINES; UNRAVELING BY SINGLE-MOLECULE TRACKING. **Jyoji Morise**, Kenichi G.N. Suzuki, Ayaka Kitagawa, Yoshihiko Wakazono, Kogo Takamiya, Taka A. Tsunoyama, Hiromu Takematsu, Akihiro Kusumi, Shogo Oka

**2624-Pos BOARD B296**  
BINDING FREE ENERGY CALCULATIONS OF NMDA GLUTAMATE RECEPTORS. **Adithya Polasa**, Dylan S. Ogden, Mahmoud Moradi

**2625-Pos BOARD B297**  
STRUCTURAL CORRELATES OF AGONIST BINDING TO NEUROTRANSMITTER BINDING SITES. Sushree Tripathy, **Stephen M. Muehleman**, Wenjun Zheng, Anthony Auerbach

**2626-Pos BOARD B298**  
ROLE OF B-GLUCAN STRUCTURE IN DECTIN-1 SIGNALING AND MULTIMERIZATION IN INNATE FUNGAL IMMUNITY. **Eduardo U. Anaya**, Aaron K. Neumann

**2627-Pos BOARD B299**  
IMPORTANCE OF ORDERED ENVIRONMENT IN THE EARLY STAGE OF MAST CELL SIGNALING STUDIED BY IMAGING FLUORESCENCE CORRELATION SPECTROSCOPY. **Nirmalya Bag**, David A. Holowka, Barbara A. Baird

**2628-Pos BOARD B300**  
NANOSCALE ORGANIZATION AND MOBILITY OF LIGANDS DIRECT T CELL ACTIVATION. Joschka Hellmeier, Viktoria Motsch, Rene Platzer, Andreas Karner, Johannes Preiner, Gerhard J. Schuetz, Johannes B. Huppa, **Eva Sevcsik**

**2629-Pos BOARD B301**  
LIVE AND SIMULTANEOUS READOUT OF NFAT AND ERK ACTIVATION IN T CELLS REVEALS MULTIPLE DIMENSIONS OF TCR SIGNALING. **Jenny J. Y. Lin**, Shalini T. Low-Nam, Steven A. Alvarez, Jay T. Groves

**2630-Pos BOARD B302**  
BEYOND THE TCR, ANTIGEN DISCRIMINATION IN T CELLS CONTINUES IN THE LAT:GRB2:SOS PROTEIN CONDENSATE. **Shalini T. Low-Nam**, Jenny JY Lin, Darren B. McAfee, Steven A. Alvarez, Scott D. Hansen, Kole T. Roybal, Jay T. Groves

**2631-Pos BOARD B303 TRAVEL AWARDEE**  
A MEMBRANE-ACTIVATED, UNIVERSAL T-CELL RECEPTOR AGONIST. **Kiera B. Wilhelm**, Michael P. Coyle, Geoffrey P. O'Donoghue, Jenny JY Lin, Shalini T. Low-Nam, Jay T. Groves

**2632-Pos BOARD B304**  
SINGLE PMHC:TCR BINDING EVENTS PRECIPITATE LAT ASSEMBLIES CAPABLE OF SPATIALLY DECOUPLING FROM THE ORIGINATING LIGAND. **Darren B. McAfee**, Shalini T. Low-Nam, Jenny JY Lin, Steven A. Alvarez, Scott D. Hansen, Jay T. Groves

**2633-Pos BOARD B305**  
MECHANICAL RESPONSES OF CANCER CELLS TO DIFFERENT MATRICES MEASURED BY AFM AND FRET. **Fang Tian**, Tsung-Cheng Lin, Liang Wang, Sidong Chen, Jun Chu, Ching-Hwa Kiang, Hyokeun Park

**2634-Pos BOARD B306**  
COMPUTATIONAL MODEL OF RGD-CONTAINING COMPUTATIONAL MODEL OF RGD-CONTAINING PEPTIDES AND THEIR EFFECTS ON INTEGRIN BINDING. Tamara C. Bidone, Aravind Rammohan, **Matt McKenzie**, Gregory A. Voth

**2635-Pos BOARD B307**  
TOTAL RECONSTITUTION OF RECEPTOR-MEDIATED RAS ACTIVATION BY SOS IN VITRO REVEALS KINETIC AND CONFORMATIONAL LAYERS OF REGULATION IN MAPK SIGNALING. **Steven Alvarez**, William Y. C. Huang, Hiu Yue Monatrice Lam, Shalini T. Low-Nam, Young Kwang Lee, Jean K. Chung, Scott D. Hansen, Yasushi Kondo, Kabir H. Biswas, John Kuriyan, Jay T. Groves

**2636-Pos BOARD B308**  
CANCER CELL HAS LOWERED THRESHOLD OF SIGNALING TRANSDUCTION EXCITABLE NETWORK CONTROLLED BY PIP-RAS INTERACTION. **David Huiwang Zhan**

**2637-Pos BOARD B309**  
DYNAMIC PARTITIONING AND CONVECTION: A NEW MECHANISM FOR THE SELF-ORGANIZATION PATTERN OF THE EXCITABLE CORTICAL WAVES? **Tatsat Banerjee**, Yuchuan Miao, Debojyoti Biswas, Pablo A. Iglesias, Peter N. Devreotes

**2638-Pos BOARD B310**  
QUANTIFICATION OF G1-CYCLIN DYNAMICS IN YEAST BY SCANNING NUMBER AND BRIGHTNESS. Savanna Dorsey, **Pooja Goswami**, Jing Cheng, Yogitha Thattikota, Sylvain Tollis, Catherine A. Royer, Mike Tyers

**2639-Pos BOARD B311**  
RHOA MEDIATED JUXTACRINE REGULATION OF GLUCAGON SECRETION. **Yong Hee Chung**, David W. Piston

**2640-Pos BOARD B312**  
PROTEIN KINASE A DYNAMICS ARE ALTERED AT THE OUTER MITOCHONDRIAL MEMBRANE IN CARDIAC SYMPATHETIC NEURONS FROM PREHYPERTENSIVE RATS. **Dan Li**, Adib Tarafdar, Kun Liu, David J. Paterson

**2641-Pos BOARD B313**  
ROLE OF STORE OPERATED CALCIUM CHANNEL COMPLEX IN THE INFLAMMATORY SIGNALING IN PERIPHERAL SENSORY NEURONS. Alexandra S. Hoge, Shihab Shah, **Nikita Gamper**

**2642-Pos BOARD B314**  
MECHANISTIC CHARACTERIZATION OF THE E102Q MUTATION IN THE SIGMA 1 RECEPTOR. **Hideaki Yano**, Ara M. Abramyan, Sett Naing, Leanne Liu, Lei Shi

**2643-Pos BOARD B315**  
ELUCIDATION OF SIGNALING MECHANISM OF ANP RECEPTOR BY X-RAY CRYSTALLOGRAPHY. **Haruo Ogawa**, Masami Kodama

## TRP Channels (Boards B316 - B343)

**2644-Pos BOARD B316**  
MOLECULAR MECHANISM OF LIGAND-INDUCED TRPV2 CHANNEL ACTIVATION. **Shasha Feng**, Huisun Lee, Ruth Anne Pumroy, Amrita Samanta, Vera Moiseenkova-Bell, Wonpil Im

**2645-Pos BOARD B317**  
SHORT- AND LONG-DISTANCE ALLOSTERIC COUPLING IN CAPSAICIN-INDUCED TRPV1 ACTIVATION. **Simon Vu**, Bo Hyun Lee, Xian Xiao, Fan Yang, Jie Zheng

**2646-Pos BOARD B318**  
STRUCTURAL INSIGHTS ON TRPV5 GATING BY ENDOGENOUS MODULATORS. **Taylor Hughes**, Ruth Pumroy, Aysenur Yazici, Marina Kasimova, Edwin Carl Fluck, Kevin Huynh, Amrita Samanta, sudheer kumar molugu, Hong Zhou, Vincenzo Carnevale, Tibor Rohacs, Vera Moiseenkova-Bell

**2647-Pos BOARD B319**  
THE ROLE OF CALMODULIN IN REGULATING CALCIUM-PERMEABLE PKD2L1 CHANNEL ACTIVITY. **Eunice Y. Park**, Misun Kwak, Youngjoo Baik, Insuk So

**2648-Pos BOARD B320**  
REGULATION OF PKD2L1 BY CALCIUM EFFECTORS. **Amitabha Mukhopadhyay**, Leo Ng, Thuy Vien, Paul DeCaen

**2649-Pos BOARD B321**  
CAMKII REGULATES TRPC6 MEDIATED STRESS STIMULATED CONTRACTILITY IN MUSCULAR DYSTROPHY. **Brian L. Lin**, Sumita Mishra, Grace E. Kim, Suraj Kanann, Jinying Yang, Chulan Kwon, Mark Anderson, Steven S. Pullen, David A. Kass

**2650-Pos BOARD B322**  
UNDERSTANDING PROTEIN-LIPID INTERACTIONS OF TRP CHANNELS OF THE POLYCYSTIN FAMILY, THROUGH MD SIMULATIONS AND STRUCTURAL STUDIES. **Qinrui Wang**, George Hedger, Prafulla Aryal, Mariana Grieben, Ashley C. W. Pike, Jiye Shi, Elisabeth P. Carpenter, Mark S. P. Sansom

**2651-Pos BOARD B323**  
ESSENTIAL RESIDUES REQUIRED FOR THE OPENING OF A POLYCYSTIN TRP CHANNEL. **Leo CT Ng**, Thuy N. Vien, Amitabha Mukhopadhyay, Paul G. DeCaen

**2652-Pos BOARD B324**  
FORCE TRANSDUCTION IN THE NOMPC MECHANOSENSITIVE CHANNEL. **Sara Capponi**, David Argudo, Neville Bethel, Michael Grabe

**2653-Pos BOARD B325**  
MECHANISM OF PROTON INHIBITION OF TRPV3. **Haiyuan Wang**, Qiaochu Wang, Jinbin Tian, Michael X. Zhu

**2654-Pos BOARD B326**  
CONSERVED ALLOSTERIC PATHWAYS FOR ACTIVATION OF TRPV3 REVEALED THROUGH ENGINEERING VANILLOID-SENSITIVITY. Feng Zhang, Kenton Swartz, **Andres Jara-Oseguera**

**2655-Pos BOARD B327 TRAVEL AWARDEE**  
SELECTIVITY AND CHARACTERIZATION OF THE PERMEANT ION EFFECT IN THE RAPID TRANSITIONS ON THE PORE OF TRPV1 CHANNEL. **Miriam Garcia Avila**, Javier Tello Marmolejo, Gisela E. Rangel-Yescas, Leon D. Islas

**2656-Pos BOARD B328**  
AGONIST-DEPENDENT PLASTICITY IN THE TRPC3 SELECTIVITY FILTER. Oleksandra Tiapko, Sanja Curcic, Gema Guedes de la Cruz, Toma Glasnov, **Klaus Groschner**

**2657-Pos BOARD B329**  
TEMPERATURE-DEPENDENT HEAT CAPACITY ( $\Delta C_p(T)$ ) MODIFICATION OF THE THERMODYNAMIC FRAMEWORK FOR THERMOTRP CHANNELS ELIMINATES PREDICTED DUAL THERMOSENSITIVITY. **Frank Yeh**, Richard Aldrich

**2658-Pos BOARD B330 TRAVEL AWARDEE**  
ACTIVATION OF TRPV1 BY LIPIDS: CAN LIPID TAILS BRIDGE THE GAP BETWEEN THE VANILLOID BINDING SITE AND THE PERIPHERAL CAVITIES? **Eleonora Gianti**, Michael L. Klein, Tibor Rohacs, Vincenzo Carnevale

**2659-Pos BOARD B331 TRAVEL AWARDEE**  
CONFORMATIONAL ENSEMBLE OF THE HUMAN TRPV3 ION CHANNEL. **Lejla Zubcevic**, Mark A. Herzik Jr., Mengyu Wu, William F. Borschel, Marscha Hirschi, Albert Song, Gabriel C. Lander, Seok-Yong Lee

**2660-Pos BOARD B332**  
PHOSPHATIDYLINOSITOL INHIBITS TRPV1 VIA ITS VANILLOID BINDING SITE. **Aysenur Torun Yazici**, Eleonora Gianti, Marina A. Kasimova, Vincenzo Carnevale, Tibor Rohacs

**2661-Pos BOARD B333**  
AN ANCIENT TRPM2 ORTHOLOG IS A TRUE CHANNEL-ENZYME, BUT ITS CATALYTIC ACTIVITY IS UNCOUPLED FROM PORE GATING. **Balazs Toth**, Iordan Iordanov, Laszlo Csanady

**2662-Pos BOARD B334**  
MINING THE DROSOPHILA GUSTATORY RECEPTOR FAMILY FOR NEW THERMOSENSITIVE PROTEINS. **Marzie Amirshenava**, Benton R. Berigan, Aditi Mishra, Benjamin C. Zars, Taylor G. Hallman, Troy Zars, Lorin S. Milesco, Mirela Milesco

**2663-Pos BOARD B335**  
DIFFERENTIAL EFFECTS OF CELL-TO-CELL CONTACT ON TRPC4 CHANNEL ACTIVATION BY ENGLERIN A AND  $G_{\gamma 0}$ -COUPLED RECEPTOR AGONIST. **Lin Gao**, Qiaochu Wang, Michael X. Zhu

**2664-Pos BOARD B336**  
RECEPTOR MEDIATED ACTIVATION OF TRPC3 CHANNEL WHEN AT ER PM JUNCTIONS. **Haiping Liu**

**2665-Pos BOARD B337**  
INVESTIGATION OF TRPM4 IN PROSTATE CANCER CELLS WITH NOVEL SMALL MOLECULE INHIBITORS. **Anna Borgström**, Barbara Hauer, Sven Kappel, Clémence Delalande, Jean-Louis Reymond, Christine Peinelt

**2666-Pos BOARD B338**  
TRPC4 CHANNELS ARE A KEY PLAYER IN HIPPOCAMPAL NEURONAL DEVELOPMENT. **Jaepyo Jeon**, Michael Xi Zhu

**2667-Pos BOARD B339**  
TRPV2 IS CRUCIAL FOR THE DEVELOPMENT OF INTERCALATED DISCS IN MOUSE HEARTS. **Yuki Katanosaka**, Makoto Shibuya, Yoshihiro Ujihara, Satoshi Mohri, Keiji Naruse

**2668-Pos BOARD B340 TRAVEL AWARDEE**  
BIOPHYSICAL PROPERTIES OF THE ELECTROPERMEABILIZATION-INDUCED MEMBRANE CONDUCTANCE IN PATCH CLAMPED ADRENAL CHROMAFFIN CELLS. **Lisha Yang**, Sophia Pierce, Gale L. Craviso, Normand Leblanc

**2669-Pos BOARD B341**  
PHB REGULATES TRAFFICKING OF TRPM8 TO THE PLASMA MEMBRANE. **Lusine Demirkhanyan**, David Goa, Eleonora Zakharian

**2670-Pos BOARD B342**  
SPECTROSCOPIC STUDIES OF PURIFIED RAT TRPV1. Gilbert Q. Martinez, **Marium M. Raza**, Sharona E. Gordon

**2671-Pos BOARD B343**  
CANNABIDIOL DIRECTLY ACTIVATES TRPV2. **Aaron Gochman**, Andres Jara-Oseguera, Kenton Swartz

## Voltage-gated K Channels II (Boards B344 - B368)

**2672-Pos BOARD B344**  
DETERMINING FUNCTIONAL KCNQ1/KCNE1 SUBUNIT INTERACTIONS IN THE KCNQ1/KCNE1 CHANNEL. **Xiaolan Wu**, Marta E. Perez, Kevin J. Sampson, Robert S. Kass, Peter H. Larsson

**2673-Pos BOARD B345**  
CONFORMATIONAL DYNAMICS OF THE INTRINSIC LIGAND IN THE CNBHD OF THE VOLTAGE-GATED POTASSIUM CHANNEL HERG. **Sara J. Coddling**

**2674-Pos BOARD B346**  
DIFFERENTIAL SENSITIVITY OF CARDIAC ION CHANNELS TO POLYUNSATURATED FATTY ACID ANALOGUES. **Briana Bohannon**, Sara I. Liin, Peter Larsson

**2675-Pos BOARD B347**  
RE-EDUCATION OF TUMOR ASSOCIATED MACROPHAGES BY TRABECTEDIN. **Diego A. Peraza**, Ana B. Garcia-Redondo, Adrian Povo-Retana, Sara Arias, Ana M. Briones, Lisardo Boscá, Carlos M. Galmarini, Carmen Valenzuela

**2676-Pos BOARD B348**  
TWO-PRONGED AROMATIC ARGININE-MIMICS AS HV1 PROTON CHANNEL INHIBITORS. **Chang Zhao**, Liang Hong, Jason D. Galpin, Christopher A. Ahern, Francesco Tombola

**2677-Pos BOARD B349**  
PHARMACOLOGICAL MODULATION OF KV3 POTASSIUM CURRENTS. **Nadia Pilati**, Michele Speggorin, Giuseppe Alvaro, Charles H. Large

**2678-Pos BOARD B350**  
EPR SPECTROSCOPIC STUDIES OF THE VOLTAGE SENSOR DOMAIN (Q1-VSD) OF HUMAN KCNQ1 POTASSIUM ION CHANNEL IN LIPID BILAYERS. **Gunjan Dixit**

**2679-Pos BOARD B351**  
EFFECT OF LIPOPHILIC MOLECULES ON EPILEPSY-CAUSING MUTATIONS OF NEURONAL KCNQ CHANNELS. Ludwig Andersson, Marta E. Perez, Sara I. Liin, Fredrik Elinder, Peter H. Larsson, **Rene Barro-Soria**

**2680-Pos BOARD B352**  
PKC ACTIVATION DECREASES KV1.5 PROTEIN EXPRESSION THROUGH ACCELERATING ENDOCYTIC CHANNEL DEGRADATION. **Tingzhong Wang**, Yuan Du, Jun Guo, Wentao Li, Tonghua Yang, Shetuan Zhang

**2681-Pos BOARD B353**  
IDENTIFYING COMMON STRUCTURAL FEATURES FOR ELECTROMECHANICAL COUPLING BETWEEN DOMAIN-SWAPPED AND NON-DOMAIN SWAPPED POTASSIUM CHANNELS. **Ana I. Fernández-Mariño**, Kenton J. Swartz

**2682-Pos BOARD B354**  
CAVEOLAR KV1.3 TARGETING PARTICIPATES IN THE ADIPOCYTE PHYSIOLOGY. Mireia Perez-Verdaguer, Jesusa CCapera Aragones, Maria Ortego-Dominguez, Joanna Bielanska, Núria Comes, Rafael J. Montoro, Marta Camps, **Antonio Felipe**

**2683-Pos BOARD B355**  
DEVELOPMENT OF BK CHANNEL AGONISTS AND ANTAGONISTS THAT TARGET A COMMON RECOGNITION AREA IN THE ACCESSORY BETA1 SUBUNIT. Anna N. Bukiya, Guruprasad Kuntamallappanavar, Abby L. Parrill, **Alex M. Dopico**

**2684-Pos BOARD B356**  
PROTEOMICS ANALYSIS POINTS AT NOVEL CELLULAR PARTNERS FOR THE *KCNMB1* PROTEIN PRODUCT. Kelsey North, David Kakhniashvili, Alex M. Dopico, **Anna N. Bukiya**

**2685-Pos BOARD B357**  
USING CLICK CHEMISTRY AND VOLTAGE CLAMP FLUORIMETRY TO STUDY STRUCTURAL DYNAMICS OF MEMBRANE PROTEINS. **Kanchan Gupta**, Gilman E. S. Toombes, Kenton J. Swartz

**2686-Pos BOARD B358**  
STRUCTURE OF THE INTERMEDIATE STATE OF THE HUMAN KCNQ1 CHANNEL VOLTAGE-SENSOR DOMAIN. Keenan C. Taylor, **Po wei Kang**, Panpan Hou, Nien-Du Yang, Georg Kuenze, Jingyi Shi, Jarrod A. Smith, Kelli McFarland White, Hui Huang, Dungeng Peng, Alfred L. George Jr., Jens Meiler, Robert L. McFeeters, Jianmin Cui, Charles R. Sanders

**2687-Pos BOARD B359**  
DYNAMICS OF THE PAS DOMAIN AND CYCLIC NUCLEOTIDE-BINDING HOMOMOLOGY DOMAIN INTERACTION PROBED WITH A FLUORESCENT NONCANONICAL AMINO ACID (L-ANAP) IN HERG POTASSIUM CHANNELS. **Ashley A. Johnson**, Matt C. Trudeau

**2688-Pos BOARD B360**  
CP1 IS A POTENT  $I_{Ks}$  CHANNEL ACTIVATOR WHICH ACTS BY SUBSTITUTING PHOSPHATIDYLINOSITOL 4,5 BISPHTHOSPHATE. **Yongfeng Liu**, Xianjin Xu, Moawiah M. Naffaa, Hongwu Liang, Guohui Zhang, Panpan Hou, Hongzhan Wang, Junyuan Gao, Jingyi Shi, Ira Cohen, Xiaoqin Zou, Jianmin Cui

**2689-Pos BOARD B361**  
SINGLE CHANNEL STUDIES OF THE CATION PERMEATION PATHWAY OF THE SHAKER KV ISOLATED VOLTAGE-SENSING DOMAIN (IVSD). **Juan Zhao**, Rikard Blunck

**2690-Pos BOARD B362**  
DECOUPLING BETWEEN VOLTAGE SENSOR MOVEMENT AND PORE OPENING OF KV2.1 CHANNELS. **Matthew J. Marquis**, Rebecka J. Sepela, Jon T. Sack

**2691-Pos BOARD B363**  
MECHANISM OF BK CHANNEL INHIBITION BY THE OPIOID AGONIST LOPERAMIDE. **Alexandre G. Vouga**, Michael E. Rockman, Marlene A. Jacobson, Brad S. Rothberg

**2692-Pos BOARD B364**  
MODULATION OF KV1.3 BY THE GUT PEPTIDE GLUCAGON-LIKE PEPTIDE 1. **Daniel R. Landi Conde**, Genevieve A. Bell, Debra A. Fadool

**2693-Pos BOARD B365**  
CONSERVED RESIDUES AT THE INTERFACE BETWEEN THE S4 AND S5 SEGMENTS ARE CRITICAL FOR NORMAL GATING OF HCN CHANNELS. **Rosamary Ramentol**, Marta E. Perez, H. Peter Larsson

**2694-Pos BOARD B366**  
ENDOCANNABINOIDS FACILITATE THE OPENING OF THE M-CHANNEL. **Johan E. Larsson**, Liin Sara

**2695-Pos BOARD B367**  
A STRUCTURAL MODEL OF FAST INACTIVATION IN SHAKER  $K_v$  CHANNELS. **Miguel Holmgren**, Ariela Vergara-Jaque, Horacio Poblete, Francisco Palma, Adam S. Lowet, Angel de la Cruz Ladrau, Alexander Sukharev, Jeffrey Comer

**2696-Pos BOARD B368**  
ELECTROPHYSIOLOGICAL AND PHARMACOLOGICAL CHARACTERIZATION OF A NOVEL AND POTENT NEURONAL KV7 OPENER SCR2682 FOR ANTI-EPILEPSY. **Yani Liu**, Fan Zhang, Bo Liang, Huangming Chen, Hailin Zhang, KeWei Wang

## Bacterial Mechanics, Cytoskeleton, and Motility (Boards B369 - B376)

**2697-Pos**      **BOARD B369**

A COMPREHENSIVE VIEW OF TYPE IV PILUS RETRACTION FORCES ACROSS THE BACTERIAL DOMAIN. **Nicolas Biais**

**2698-Pos**      **BOARD B370**

MECHANICAL FORCES ARE A REACTIVITY SWITCH FOR AN ADHESIN THIOESTER BOND. **Daniel J. Echelman**, Alvaro Alonso, Shubhasis Haldar, Rafael Tapia-Rojo, Edward C. Eckels, Julio M. Fernandez

**2699-Pos**      **BOARD B371**

CONSTRUCTIVE FORCE AS THE KEY SYMMETRY-BREAKING FACTOR FOR BACTERIAL CELL DIVISION. **Lam T. Nguyen**

**2700-Pos**      **BOARD B372**

TRACKING THE MOVEMENT OF A SINGLE PROKARYOTIC CELL IN EXTREME ENVIRONMENTAL CONDITIONS. **Masayoshi Nishiyama**, Yoshiyuki Arai

**2701-Pos**      **BOARD B373**

INSIGHTS INTO THE MECHANISM OF ARCHAELLAR MOTOR ROTATION FROM OBSERVATION OF UNEXPECTEDLY HIGH TORQUE. **Takayuki Nishizaka**

**2702-Pos**      **BOARD B374**

RAPID LIGHT-TRIGGERED SPATIAL REORGANIZATION OF PROTEINS IN LIVING BACTERIA CELLS. **Ryan J. McQuillen**, Jie Xiao

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DYNAMIC CROSSLINKING OF THE ACTIN CYTOSKELETON GOVERNS INTRACELLULAR MECHANICS. **Loïc Chaubet**, Hossein K. Heris, Allen J. Ehrlicher, Adam G. Hendricks

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ROTATIONAL AND TRANSLATIONAL DIFFUSION IN CONCENTRATED FICOLL SOLUTIONS. Elton Jhamba, **Hacene Boukari**

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AUTOMATION OF A LASER TWEEZERS RAMAN SPECTROSCOPY APPARATUS FOR BIOLOGICAL INVESTIGATIONS. **Nathaniel W. Scott**, Scott Hancock, Brooke C. Hester, Jennifer L. Burris

**2811-Pos BOARD B483**

DIAMOND B23 BEAMLINE FOR SYNCHROTRON RADIATION CIRCULAR DICHROISM (SRCD): HIGH THROUGHPUT CD (HTCD) AND CD IMAGING (CDI) APPLICATIONS. **Rohanah Hussain**, Tamas Javorfi, Charlotte Hughes, Giuliano Siligardi

**2812-Pos BOARD B484**

WIDEFIELD MULTI-FREQUENCY FLUORESCENCE LIFETIME IMAGING USING A TWO-TAP CMOS CAMERA WITH LATERAL ELECTRIC FIELD CHARGE MODULATORS. **Hongtao Chen**, Ning Ma, Keiichiro Kagawa, Shoji Kawahito, Michelle Digman, Enrico Gratton

**2813-Pos BOARD B485**

SENSITIVE TIME-CORRELATED SINGLE PHOTON COUNTING SYSTEMS FOR LUMINESCENCE SPECTROSCOPY OF SMALL MOLECULES AND BUILDING BLOCKS. **Christian Oelsner**, Eugeny Ermilov, Frank Birke, Felix Koberling, Matthias Patting, Marcus Sackrow, Nick Bertone, Michael Wahl, Rainer Erdmann

**2814-Pos BOARD B486**

FRET AT THE SINGLE MOLECULE LEVEL USING MOLECULAR BRIGHTNESS AND FLUORESCENCE CORRELATION SPECTROSCOPY. **Robert C. Miller**, Rowan Simonet, Christin Libal, Cody Aplin, Anh Cong, Margaret Gurumani, Emma Kauffman, Hong Bok Lee, Arnold J. Boersma, Erin D. Sheets, Ahmed A. Heikal

**2815-Pos BOARD B487**

THE FLUORESCENCE STUDY OF THE COMPLEXATION OF NANOEMULSION AND PROTOPORPHYRINE IX. **Maurice O. Iwunze**

**2816-Pos BOARD B488**

SPECTRAL PHASOR ANALYSIS ON NANOSECOND-GATED AUTOFLUORESCENCE REVEALS REAL TIME INFORMATION ON CELLULAR NAD(P)H CONFORMATION DURING CHEMICALLY-INDUCED METABOLIC RESPONSE. **Paul K. Urayama**, Audrey Short, Martin HeideIman, Max Kreider, Andrew I. Rodriguez, Chong Kai Wong, Nazar Al Aayed, Zhifan Cai

**2817-Pos BOARD B489**

INFRARED SPECTROSCOPY OFFERS TREMENDOUS POTENTIAL IN CANCER DIAGNOSIS. **Feride Severcan**, Sherif Abbas, Dilek Yonar, Salih Emri

**2818-Pos BOARD B490**

EARLY WARNING DETECTION OF CARCINOGENS AND OTHER CONTAMINANTS FOR SURFACE WATER TREATMENT PLANTS USING SIMULTANEOUS ABSORBANCE-TRANSMITTANCE AND FLUORESCENCE EXCITATION-EMISSION SPECTROSCOPY. **Adam M. Gilmore**, Linxi Chen

**2819-Pos BOARD B491**

SERS AS AN EFFECTIVE PROBE TO ADSORPTION AND CONFORMATION OF BIOMOLECULES ON THE METAL SURFACES. **Qing Huang**

**2820-Pos BOARD B492**

STRUCTURAL AND SPECTROSCOPIC STUDY OF THE TYROSINE KINASE INHIBITOR PD-153035. **Muhammad Khattab**, Daryll Knowles, Feng Wang, Andrew Clayton

**2821-Pos BOARD B493**

FLUOROPHORE-INDUCED PLASMONIC CURRENT. **Josh Moskowitz**, Christopher D. Geddes

**2822-Pos BOARD B494**

BEATING NYQUIST LIMITS FOR THE MEASUREMENT OF FLUOROPHORE BLINKING RATES USING IMAGE CORRELATION AND CAMERA DETECTION. **Simon Shehayek**, Yasser Gidi, Viktorija Glembockyte, Hugo Bradao, Paul Wiseman, Gonzalo Cosa

## Molecular Dynamics III (Boards B495 - B512)

**2823-Pos BOARD B495**

ESTIMATION OF TIME-VARYING SINGLE PARTICLE TRACKING MODELS USING LOCAL LIKELIHOOD. **Boris I. Godoy**, Nicholas A. Vickers, Sean B. Andersson

**2824-Pos BOARD B496**

COMBINING GOAL-ORIENTED ENHANCED SAMPLING AND BAYESIAN ENSEMBLE MODELLING OF SAXS AND NMR DATA TO MODEL THE SOLUTION ENSEMBLE OF STAPHYLOCOCCUS AUREUS ISDH. **Joseph A. Clayton**, Jeffery M. Wereszczynski

**2825-Pos BOARD B497**

COMBINING CRYO-EM AND SIMULATION TO UNDERSTAND LIGAND BINDING IN PENTAMERIC LIGAND GATED ION CHANNELS. **E. Joseph Jordan**, Christian Blau, Erik R. Lindahl

**2826-Pos BOARD B498**

GPU ACCELERATED COMPUTATION OF ISOTROPIC CHEMICAL SHIFTS OFFERS NEW DIMENSION OF STRUCTURE REFINEMENT IN LARGESCALE MOLECULAR DYNAMICS SIMULATION. **Alexander J. Bryer**, Eric F. Wright, Mauricio Ferrato, Thomas Huber, Edwin Ortiz, Robert Searles, Sunita Chandrasekaran, Juan R. Perilla

**2827-Pos BOARD B499**

SELF-ASSEMBLY OF 2D VIRAL CAPSIDS WITH OSCILLATORY INTERACTIONS. **Jacob R. Swartley**, Jessica Niblo, Zhongmin Zhang, Kateri H. DuBay

**2828-Pos BOARD B500**

IN SEARCH OF A STRUCTURAL PATTERN IN CRAZY SUGARS IDENTIFICATION OF CONFORMATION CLUSTERS OF THE OLIGOSACCHARIDES WITHIN GLYCOPROTEINS WITH LEUS. **Aysegul Turupcu**, Chris Oostenbrink

**2829-Pos BOARD B501**

IMPACT OF BRANCHING ON THE CONFORMATIONAL HETEROGENEITY OF THE LIPOPOLYSACCHARIDE FROM KLEBSIELLA PNEUMONIA: IMPLICATIONS FOR VACCINE DESIGN. **Asaminew H. Aytenfis**, Raphael Simon, Alexander D. MacKerell

**2830-Pos BOARD B502**

INFLUENCE OF CHOLESTEROL ON PI(4,5)P<sub>2</sub> CLUSTERING IN MODEL MEMBRANES. **Kyungreem Han**, Anne-Marie Byrant, Richard M. Venable, Arne Gericke, Richard W. Pastor

**2831-Pos BOARD B503**

MOLECULAR SIMULATION STUDIES OF E. COLI O171, O175, AND O181 LPS AND V. CHOLERA O1 LPS SYMMETRIC BILAYERS. **Emanuel Luna**, Seonghoon Kim, Wonpil Im

**2832-Pos BOARD B504**

INTERACTION OF FREE DOCOSAHEXAENOIC ACID WITH LIPID BILAYER: A MOLECULAR DYNAMICS STUDY. Olivia White, **Mohammad Alwarawrah**

**2833-Pos BOARD B505**  
MOLECULAR STRUCTURE OF THE LONG PERIODICITY PHASE IN THE STRATUM CORNEUM. **Eric Wang**, Jeffery B. Klauda

**2834-Pos BOARD B506**  
MICROSECOND KINETICS OF ION TRANSPORT AND MEMBRANE INTERFACE BINDING IN ELECTRICALLY STRESSED LIPID BILAYERS. **Federica Castellani**, Esin B. Sozer, P. Thomas Vernier

**2835-Pos BOARD B507**  
DISCONTINUOUS WRAPPING TRANSITION OF NANOPARTICLE BY TENSIONLESS LIPID MEMBRANES. **Eric J. Spangler**, Mohamed Laradji

**2836-Pos BOARD B508**  
A NEW LIPID FORCE FIELD (FUJI) FOR LENNARD-JONES PME. **Hideaki Fujitani**

**2837-Pos BOARD B509 TRAVEL AWARDEE**  
EXTENDING THE AMBER LIPID FRAMEWORK FOR ATOMISTIC MODELING OF ORGANIC-LIPID CONJUGATES. Rachel J. Dotson, Gary Angles, Sally C. Pias

**2838-Pos BOARD B510**  
CHARMM-GUI SYNTHETIC POLYMER MODELER FOR MODELING AND SIMULATION OF SYNTHETIC POLYMERS. **Yeol Kyo Choi**, Tibo Duran, Wonpil Im

**2839-Pos BOARD B511**  
COMPUTATIONAL STUDY OF CALCIUM PHOSPHATE MINERALIZATION IN EXTRACELLULAR VESICLES. **Rudramani Pokhrel**, Bernard S. Gerstman, Joshua D. Hutcheson, Prem P. Chapagain

**2840-Pos BOARD B512**  
THE KEY ROLE OF TEMPERATURE AND LIPID COMPOSITION IN MODULATING THE INTAKE OF GOLD NANOPARTICLES INTO THE PLASMA MEMBRANE. **Fabio Lolicato**, Loic Joly, Hector Martinez-Seara Monne, Giovanna Fragneto, Jaakko Akola, Marco Maccarini, Ilpo Vattulainen

## Electron Microscopy (Boards B513 - B535)

**2841-Pos BOARD B513**  
LEGION'S EXTENDED IMAGE SHIFT MODE INCREASES THE THROUGHPUT FOR SINGLE PARTICLE DATA COLLECTION. **Edward T. Eng**, Anchi Cheng, William J. Rice, Mykhailo Kopylov, Laura Y. Kim, Ashleigh M. Raczkowski, Daija Bobe, Kelsey Jordan, Kotaro Kelley, Clinton S. Potter, Bridget Carragher

**2842-Pos BOARD B514**  
3D-STRUCTURAL MODELING OF DIFFERENTIATION AND DEVELOPMENTAL PROCESS USING ADVANCED ELECTRON MICROSCOPY AND LIGHT MICROSCOPY. Takako Ichinose, Takeshi Itabashi, Hikari Mori, Junpei Kuroda, Masaki Imayasu, Sei Saitoh, Shigeru Kondo, **Atsuko H. Iwane**

**2843-Pos BOARD B515**  
SINGLE PARTICLE CRYO-EM WORKFLOW: STRUCTURES OF APOFERRITIN AND ALDOLASE. **Daija Bobe**, William J. Rice, Edward T. Eng, Laura Y. Kim, Mykhailo Kopylov, Ashleigh M. Raczkowski, Bridget Carragher, Clinton S. Potter

**2844-Pos BOARD B516**  
EASING EXHAUSTIVE RIGID-BODY AND FLEXIBLE FITTING IN UCSF CHIMERA. Pablo Solar, **Pablo Chacon**, Jose Ramon Lopez-Blanco

**2845-Pos BOARD B517**  
STRUCTURAL ANALYSIS OF MOUSE PLATELETS USING SERIAL BLOCK-FACE SCANNING ELECTRON MICROSCOPY. **Kenny Ling**, Yajnesb Vedanaparti, Michael P. Tobin, Rohan P. Desai, Guofeng Zhang, Irina D. Pokrovskaya, Brian Storrie, Maria A. Aronova, Richard D. Leapman

**2846-Pos BOARD B518**  
STRUCTURAL STUDIES OF THE T- AND RP4-PILI USING CRYO-EM. **Mark A. Kreutzberger**, Spencer Hughes, Vincent Conticello, Edward H. Egelman

**2847-Pos BOARD B519**  
TOWARDS A SOLUTION OF THE A-B-Z QUESTION USING Z-DISKS ISOLATED FROM THE FLIGHT MUSCLE OF LETHOCERUS INDICUS. **Fatemeh A. Abbasi Yeganeh**, Corinne Summerill, Kenneth A. Taylor, Hamidreza Rahmani, Dianne Taylor, Zhongjun Hu

**2848-Pos BOARD B520**  
INVESTIGATING THE STRUCTURAL MECHANISM OF THE STALLED BACTERIAL RIBOSOME BOUND TO A DRUG THAT TARGETS TRANS-TRANSLATION. **Atousa Mehrani**, Eric D. Hoffer, Tyler D. P. Goralski, Kenneth C. Keiler, Christine M. Dunham, Scott Stag

**2849-Pos BOARD B521**  
CHARACTERIZATION OF THE DE64 DIRECT ELECTRON DETECTOR. **Joshua H. Mendez**, Scott M. Stag

**2850-Pos BOARD B522**  
HYBRID ANALYSIS OF MAB FLEXIBILITY BY ELECTRON MICROSCOPY AND SCATTERING. **Thomas E. Cleveland**, Travis Gallagher, Jianfang Liu, Gang Ren, John Marino

**2851-Pos BOARD B523**  
HIGH RESOLUTION CRYO-ELECTRON MICROSCOPY OF CLATHRIN CAGE NETWORKS. **Sarah M. Smith**, Kyle L. Morris, Mary Halebian, Corinne J. Smith

**2852-Pos BOARD B524**  
HUNTING FOR THE ADHESION MOLECULE, RETINOSCHISIN, IN RETINA USING CEMOVIS. **Bernard Heymann**, Christopher K E Bleck, Robert N. Fariss, Alexandr Smirnov, Dennis C. Winkler, Camasamudram Vijayasathy, Rick Huang, Altaira D. Dearborn, Paul A. Sieving, Alasdair C. Steven

**2853-Pos BOARD B525**  
THE STRUCTURAL BASIS FOR RELEASE FACTOR ACTIVATION DURING TRANSLATION TERMINATION REVEALED BY TIME-RESOLVED CRYOGENIC ELECTRON MICROSCOPY. **Ziao Fu**, Gabriele Indrisiunaite, Sandip Kaledhonkar, Binita Shah, Ming Sun, Bo Chen, Robert A. Grassucci, Mans Ehrenberg, Joachim Frank

**2854-Pos BOARD B526**  
CRYO-ELECTRON TOMOGRAPHY, FASTER: DEVELOPMENT OF A FAST-INCREMENTAL TILTING SCHEME FOR RAPID TOMOGRAM ACQUISITION. Georges Chreifi, Songye Chen, **Lauren Ann Metskas**, David Mastronarde, Grant J. Jensen

**2855-Pos BOARD B527**  
IMPROVED VISUALIZATION OF STRUCTURE AT THE NANO-SCALE IN ENTIRE EUKARYOTIC CELLS BY FINE ALIGNMENT OF SERIAL BLOCK FACE SEM IMAGE STACKS. **Qianping He**, Matthew D. Guay, Guofeng Zhang, Richard D. Leapman

**2856-Pos BOARD B528**  
POLARIZATION AGENTS FOR SENSITIVITY-ENHANCED NMR SPECTROSCOPY IN CELLS. Byung Joon Lim, **Galia T. Debelouchina**

**2857-Pos BOARD B529**  
IMPROVED DE NOVO MAIN-CHAIN TRACING METHOD MAINMAST FOR MULTI-CHAIN MODELING, LOCAL REFINEMENT, AND GRAPHICAL USER INTERFACE. **Genki Terashi**, Yuhong Zha, Daisuke Kihara

**2858-Pos BOARD B530 TRAVEL AWARDEE**  
STRUCTURAL INSIGHTS INTO ENTRY AND ANTIBODY NEUTRALIZATION OF EASTERN EQUINE ENCEPHALITIS VIRUS. **Syed Saif Hasan**, Chengqun Sun, Arthur Kim, Yasunori Watanabe, Chun-Liang Chen, Thomas Klose, Geeta Buda, Max Crispin, Michael S. Diamond, William B. Klimstra, Michael G. Rossmann

**2859-Pos BOARD B531**  
ENDOPHILIN B1 AND MEMBRANE REMODELING AT THE BRINK OF DEATH. Veer Bhatt, Robert Ashley, **Anna C. Sundborger-Lunna**

**2860-Pos BOARD B532**  
AN INTERMEDIATE STATE OF HUMAN BK CHANNEL RECONSTITUTED IN LIPOSOMES. Lige Tonggu, **Liguo Wang**

**2861-Pos BOARD B533**  
CRYO-EM IMAGING OF KV1.2 CHANNELS WITH MEMBRANE POTENTIAL APPLIED. **Hideki Shigematsu**, Youshan Yang, Yangyang Yan, Fred J. Sigworth

**2862-Pos BOARD B534**  
RECONSTRUCTION OF AVERAGE SUBTRACTED TUBULAR REGIONS (RASTR). **Peter S. Randolph**, Scott Stag

**2863-Pos BOARD B535**  
STRUCTURAL INSIGHTS INTO THE DISEASE-CAUSING MUTANT A-ACTININ 4 K255E BOUND TO F-ACTIN. **Weili Zheng**, Joan L. Arolas, Slobodan Vujan, Kristina Djinic-Carugo, Edward H. Egelman

## Biosurfaces (Boards B536 - B539)

**2864-Pos BOARD B536**  
INVESTIGATING THE BIOPHYSICAL CHANGES IN PREY CELLS UNDER ATTACK BY WILD BDELLOVIBRIO. **Ciara Dwyer**, Catherine B. Volle

**2865-Pos BOARD B537**  
CHARACTERIZING THE PERSISTENCE AND ADHESION OF MULTI-SPECIES BIOFILMS DURING AND AFTER PREDATION BY BDELLOVIBRIO. **Celestine Ooko**, Catherine B. Volle

**2866-Pos BOARD B538**  
COMPUTATIONAL AND EXPERIMENTAL APPROACHES TO UNDERSTAND A LIVING BIOTIC-ABIOTIC INTERFACE USING GOLD BINDING PEPTIDES. **Meagan C. Small**, Deborah A. Sarkes, Hong Dong, Dimitra N. Stratis-Cullum, Margaret M. Hurley

**2867-Pos BOARD B539**  
PROBING BIOPHYSICOCHEMICAL INTERACTIONS AT NANO-BIO INTERFACE OF PEROVSKITE TANDEM BIOSOLAR CELLS. **Subhabrata Das**, Teguh Citra Asmara, Zhaoning Song, Andriwo Rusydi, Bernardo Barbiellini, Ponisseril somasundaran, Venkatesan renugopalakrishnan

## Bioengineering (Boards B540 - B554)

**2868-Pos BOARD B540**  
DESIGN AND IMPLEMENTATION OF 3D-PRINTABLE OPTOMECHANICAL COMPONENTS. **Ryan Bullis**, Julie Gunderson

**2869-Pos BOARD B541**  
MACROPHAGE CHECKPOINT BLOCKADE AND TUMOR MECHANICS IN A CELL-BASED IMMUNOTHERAPY. **Lawrence J. Dooling**, Jason C. Andrechak, Charlotte R. Pfeifer, Dennis E. Discher

**2870-Pos BOARD B542**  
PROBING THE ROLE OF HIV ANTIGEN NANOSCALE ORGANIZATION ON B-CELL ACTIVATION WITH DNA ORIGAMI. **Remi Veneziano**, Tyson Moyer, Matthew B. Stone, Sudha Kumari, William R. Schief, Mark Bathe, Darrell Irvine

**2871-Pos BOARD B543**  
SELF-INTERACTIONS OF A VIRUS GLYCAN SHIELD. **Eric E. Ogharandukun**, Hashanthi K. Abeyratne-Perera, Preethi Chandran

**2872-Pos BOARD B544**  
THE TREATMENT OF MDA-MB-231 BREAST CANCER CELLS WITH BIOCOMPATIBLE MANGANESE IRON OXIDE NANOPARTICLES AS DRUG CARRIERS. **Negin Farzad**, Christina Zito, Saion K. Sinha

**2873-Pos BOARD B545**  
ULTRASOUND-MEDIATED TARGETED DRUG DELIVERY IN T-CELLS. **Alina Karki**, Emily Giddings, Mercedes Rincon, Junru Wu

**2874-Pos BOARD B546 TRAVEL AWARDEE**  
STABLE HYBRID NANOPORES FOR BIOMOLECULE SENSING. **Mehrnaz Mojtabavi**, Sandra Greive, Benjamin Cressiot, Xinqi Kang, Alfred Anston, Meni Wanunu

**2875-Pos BOARD B547**  
A FATTY ACID INDUCES THE FUNCTIONAL ASSEMBLY OF A CHANNEL PROTEIN INTO PHOSPHOLIPID VESICLES. **Claire Hilburger**, Kamryn Lewis, Miranda Jacobs, Neha P. Kamat

**2876-Pos BOARD B548**  
TUNING MEMBRANE COMPOSITION TO ENHANCE DNA-MEDIATED VESICLE FUSION. **Justin A. Peruzzi**, Neha P. Kamat

**2877-Pos BOARD B549**  
DOES MEMBRANE ASYMMETRY AFFECT NANOPARTICLE-MEMBRANE INTERACTIONS. **Saeed Nazemidashtarjandi**, Amir M. Farnoud

**2878-Pos BOARD B550**  
ENGINEERING A COILED COIL PROTEIN AS PH SENSOR. **Ameed Hashmi**, Mourad Sadqi, Victor Muñoz

**2879-Pos BOARD B551**  
ENGINEERING A CYTOCHROME WITH A TUNABLE BANDGAP POTENTIAL. **Samuel D. Fontaine**, Coleman Swaim, P. Raj Pokkuluri, Oleksandr Kokhan

**2880-Pos BOARD B552**  
PHOTO-CONTROL OF SMALL GTPASE RAS GDP-GTP EXCHANGE REACTION USING NOVEL PEPTIDE INHIBITOR MODIFIED WITH AZOBENZENE DERIVATIVES. **Nobuyuki Nishibe**, Masahiro Kuboyama, Kenichi Taii, Toshio Nagashima, Toshio Yamazaki, Shinsaku Maruta

**2881-Pos BOARD B553**  
PHOTO-CONTROL OF SMALL GTPASE RAS USING PHOTO RESPONSIVE PEPTIDE INHIBITOR WHICH MIMIC AH HELIX OF SOS. **Masahiro Kuboyama**, Nobuyuki Nishibe, Kenichi Taii, Toshio Nagashima, Toshio Yamazaki, Kazunori Kondo, Shinsaku Maruta

**2882-Pos BOARD B554**  
PHOTO-CONTROL OF RAS GDP-GTP EXCHANGE USING THE SOSAH MIMICKING PEPTIDES MODIFIED WITH SPIROPYRAN DERIVATIVE. **Kenichi Taii**, Nobuyuki Nishibe, Kei Sadakane, Shinsaku Maruta

# Notes

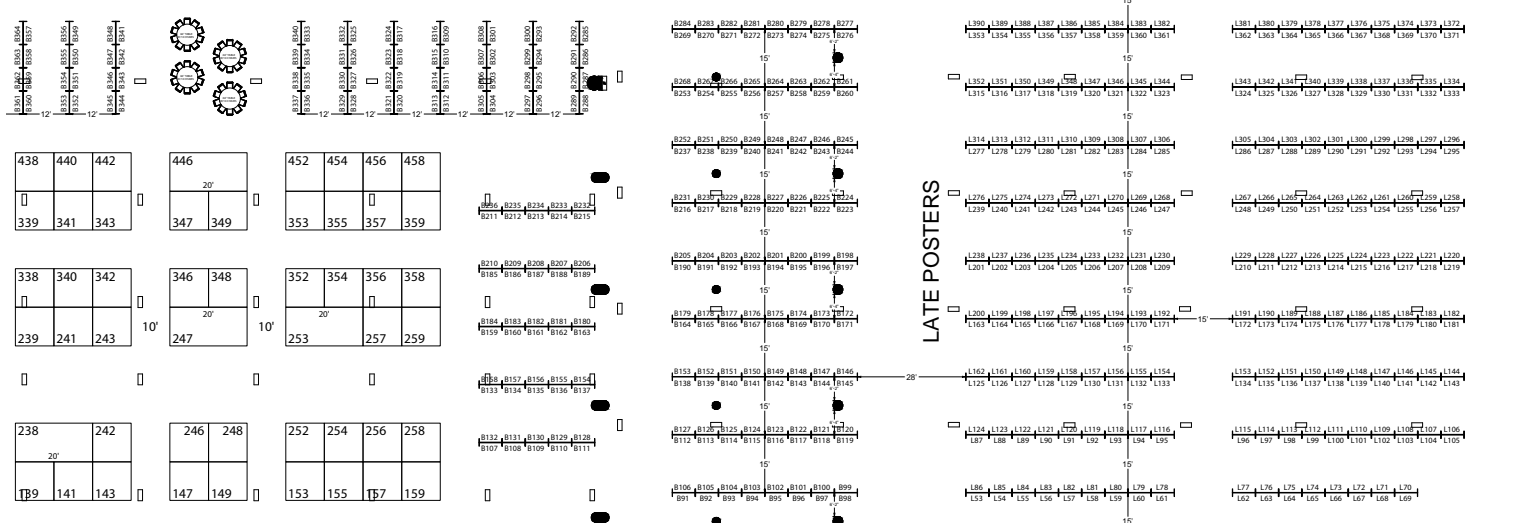
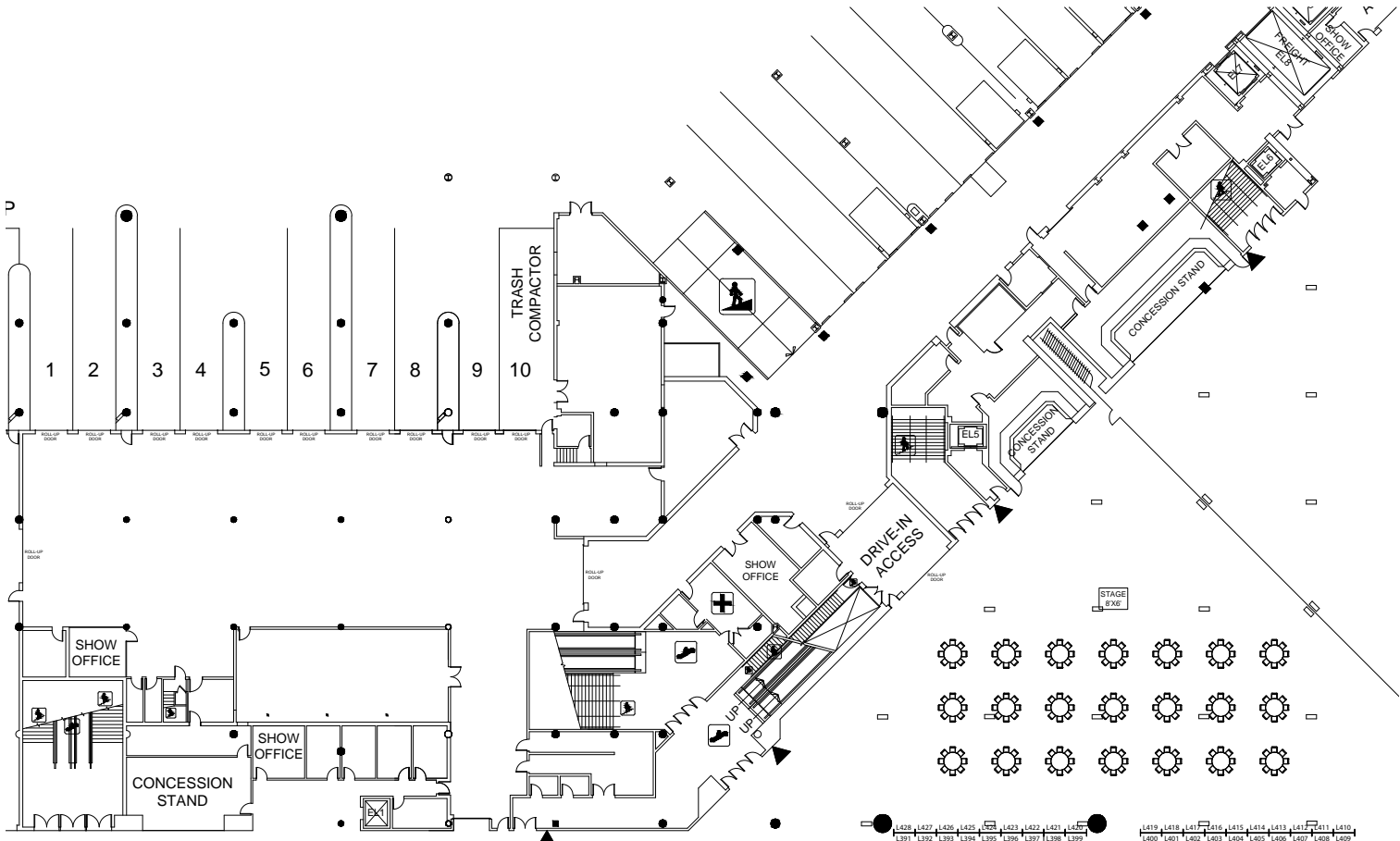
# Notes

## Exhibitor List and Booth Numbers

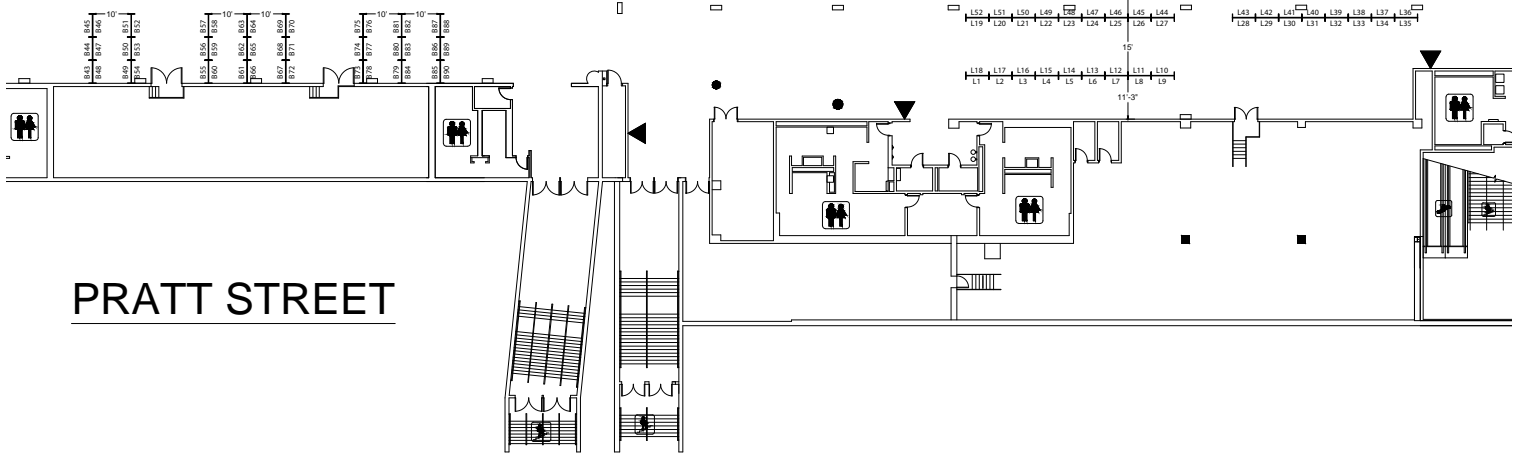
Booth Number/Exhibitor	Booth Number/Exhibitor	Booth Number/Exhibitor
409 89 North	347 ForteBio	323 npi electronic GmbH
504 AAT Bioquest Inc	808 <b>NEW 2019</b> FUJIFILM Cellular Dynamics	422 OLIS Inc
320 Abbelight	702 GATTAquant	222 Olympus America Inc
502 Abberior Instruments America LLC	446 Gene Tools LLC	332 ONI
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321 ALA Scientific Instruments Inc	342 Hellma USA	208 Photometrics
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602 Allen Institute for Cell Science	211 ID Quantique SA	401 PicoQuant Photonics North America Inc
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316 Anatrace   Molecular Dimensions	405 Ionovation GmbH	610 Pressure BioSciences Inc
241 Andor Technology	601 IOP Publishing	334 Prior Scientific Inc
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243 Arago Bio - Refeyn	234 <b>NEW 2019</b> JASCO	619 Royal Society Publishing
328 ASI/Applied Scientific Instrumentation	333 JETSTREAM - CLOUD	339 RPMC Lasers Inc
239 Asylum Research	600 Journal of General Physiology	209 SB Drug Discovery
810 Aurora Scientific Inc	210 KinTek Corporation	300 Semrock, a business unit of IDEX Health & Science
228 Avanti Polar Lipids Inc	310 Laboratory for Fluorescence Dynamics	258 SENSEAPEX
616 Beckman Coulter Life Sciences	338 LaCroix Precision Optics	704 Siskiyou Corporation
802 <b>NEW 2019</b> BioCAT	716 Larodan AB	247 Sophion Bioscience A/S
329 Bio-Logic USA	516 <b>NEW 2019</b> Leica Microsystems	608 Springer Nature
404 <b>NEW 2019</b> BioTek Instruments Inc	254 Linnwave	402 Strex
109 BMG LABTECH	701 LUMICKS	201 <b>NEW 2019</b> Sutter Instrument
301 Bruker Corporation	216 Mad City Labs Inc	256 T&T Scientific Corporation
709 Cambridge University Press	253 Malvern Panalytical	517 <b>NEW 2019</b> TA Instruments
700 Carl Zeiss Microscopy LLC	710 <b>NEW 2019</b> Matreya LLC	518 The Company of Biologists
242 Cedarlane	348 Metrion Biosciences	717 The Journal of Physiology
609 Cell Press	331 <b>NEW 2019</b> Micro Photonics	103 Thorlabs
508 Chroma Technology	420 <b>NEW 2019</b> MicroData Instrument Inc	304 TMC
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259 Ecocyte Bioscience US LLC	442 Multi Channel Systems	349 Tomocube Inc
501 Edinburgh Instruments	217 Nanion Technologies	430 <b>NEW 2019</b> TOPTICA Photonics
816 Electron Microscopy Sciences	505 NanoSurface Biomedical	719 tousimis
400 ELEMENTS SRL	428 NanoTemper Technologies	438 Warner Instruments
340 Embi Tec	417 Narishige International USA Inc	617 Wyatt Technology Corporation
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419 Expression Systems	434 Newport Corporation	718 ZenBio Inc
330 <b>NEW 2019</b> FISBA US	302 Nicoya Lifesciences	
318 Fluicell AB	317 Nikon Instruments Inc	







LATE POSTERS



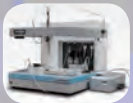
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**Confirmed Speakers:**

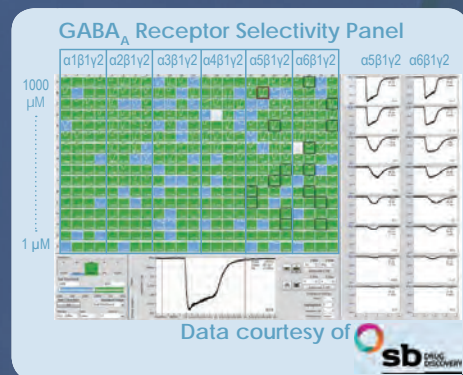


*"Always Look On the Bright Side of Life Science"*  
Dr. Jean-Francois Rolland, Axxam, Italy



*"Probing the evolution of bacterial multidrug export using SSM electrophysiology"*  
Dr. Randy Stockbridge, University of Michigan, USA

**Monday March 4, 12:30 – 2:00 P.M.**  
**Room 301, Baltimore Convention Center**



**WELCOME!**

# Exhibit Dates and Times

Sunday, March 3 .....	10:00 AM–5:00 PM
Monday, March 4 .....	10:00 AM–5:00 PM
Tuesday, March 5 .....	10:00 AM–4:00 PM
Coffee Served Daily .....	10:15 AM–11:00 AM
Afternoon Snack Served Sunday – Tuesday .....	1:45 PM–3:00 PM

## Exhibit Raffle

To win an Amazon Echo, pick up a Passport Competition booklet inside the entrance of the Exhibit Hall. Visit participating exhibitors, talk to them to find out the answer to their question, get your passport stamped, and drop off your completed passport at the Society Booth before 2:30 PM on Tuesday, March 5. Winner will be announced on Tuesday, March 5, at 3:00 PM in front of the Exhibit Hall. You must be present to win.

## Exhibitor Presentations

Exhibitor Presentations will take place in Rooms 301 and 303 on the 3rd floor of the Baltimore Convention Center. See page 162 for detailed descriptions.

Room 301		Room 303	
<b>Sunday, March 3</b>		<b>Sunday, March 3</b>	
10:30 AM – 12:00 PM	HORIBA Scientific	9:30 AM – 11:00 AM	Mizar Imaging
2:30 PM – 4:00 PM	IonOptix	11:30 AM – 1:00 PM	Leica Microsystems
		1:30 PM – 3:00 PM	Carl Zeiss Microscopy LLC
		3:30 PM – 5:00 PM	Wyatt Technology Corporation
		5:30 PM – 7:00 PM	ELEMENTS SRL
<b>Monday, March 4</b>		<b>Monday, March 4</b>	
10:30 AM – 12:00 PM	Bruker Corporation	9:30 AM – 11:00 AM	Bruker Corporation
12:30 PM – 2:00 PM	Nanon Technologies	11:30 AM – 1:00 PM	Asylum Research
2:30 PM – 4:00 PM	Alvéole	1:30 PM – 3:00 PM	Bruker Corporation
4:30 PM – 6:00 PM	Molecular Devices	3:30 PM – 5:00 PM	NanoSurface Biomedical
		5:30 PM – 7:00 PM	LUMICKS
		<b>Tuesday, March 5</b>	
		9:30 AM – 11:00 AM	Sophion Bioscience A/S

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Asylum Research	HORIBA Scientific	NanoSurface Biomedical
Alvéole	IonOptix	Photonics Media
Beckman Coulter Life Sciences	Journal of Cell Science	Physics Today
Bruker Corporation	Journal of General Physiology	Smart Ephys
Burroughs Wellcome Fund	Leica Microsystems	Sophion Bioscience A/S
Carl Zeiss Microscopy LLC	LUMICKS	Sutter Instrument
Chroma Technology	Mad City Labs	The Journal of Physical Chemistry
ELEMENTS SRL	Mizar Imaging	Wyatt Technology Corporation
FISBA US	Molecular Devices	

*\*As of January 18, 2019*

## Exhibitor Presentations

Rooms 301 and 303, Baltimore Convention Center

### Room 301: Sunday, March 3

10:30 AM – 12:00 PM

#### **HORIBA Scientific**

##### **Unique Fluorescence Molecular Fingerprinting in Action: What Can CCD Detection Do for You?**

Fluorescence is a standard tool for the study of changes on the molecular level, but it is now also becoming an emerging technique for molecular fingerprinting and spectral kinetics. The Duetta™ 2-in-1 fluorescence and absorbance spectrometer from HORIBA Scientific is a unique and powerful benchtop instrument that provides so much more than standard PMT-based scanning benchtop fluorometers. CCD detection technology, and incorporated absorbance measurements, provide more data, with more accuracy, and in less time. In this presentation, HORIBA Scientific will demonstrate two of many methods for which Duetta is uniquely equipped to measure fluorescent samples. First, Duetta can measure protein binding and FRET over the full emission range (250-1100 nm), demonstrating the effects of both donor and acceptor spectra over time with true spectral kinetics. In addition, the method of measuring Absorbance-Transmittance Excitation Emission Matrices (A-TEEMs) gives information about the molecular fingerprint of a mixture for use in component analysis of mixtures. The use of the absorbance detector enables inner-filter effect correction, which can easily be overlooked using standard fluorometers.

##### Full Spectral Kinetics and FRET

Because Duetta uses a CCD detector for emission detection, kinetics over the entire emission spectrum (250-1100 nm) instead of only at one or two different emission wavelengths. We will demonstrate the binding of a small molecule, 1,8-anilinonaphthalene sulfonate (ANS), to bovine serum albumin protein (BSA) that shows both the decrease in donor emission (BSA) and the increase of the acceptor emission (ANS) as an example of FRET kinetics. The binding of ANS to hydrophobic pockets in BSA is a known phenomenon, but is typically only measured as a kinetics experiment at the ANS emission wavelength of 475 nm. Historically, concentration-dependent experiments where emission spectra are collected over a range of ANS or protein concentrations, or both, are used to show binding kinetics or FRET as well. Duetta easily measures both the donor BSA (tryptophan) emission as well as the acceptor ANS emission during binding and shows that energy transfer occurs over the full spectral range. This is a unique capability for a benchtop fluorometer in the field of biological fluorescence.

##### A-TEEM Molecular Fingerprinting

The use of fluorescence for molecular fingerprinting is a relatively new concept and just as exciting if not more so than spectral kinetics. In most applications, changes in fluorescence intensity, or wavelength, or both, correlate to changes in physical properties of a sample. A-TEEM is

a method of measuring the full fluorescence contour plot of a sample at all excitation wavelengths and all emission wavelengths. The matrix is then corrected for effects of high concentration (inner-filter effect) using the absorbance spectrum. The resulting A-TEEM gives an accurate profile of all emitting species and in turn, gives more information about the content of the sample in question, thus making it a better data set for chemometric and quantitative analysis. Solutions of tryptophan and 2-aminopurine, a fluorescent derivative of adenine, are used to demonstrate 1.) Effects of high absorbance/concentration on the fluorescence profile; and 2.) The A-TEEM profile for detection of multiple components.

##### **Speaker**

Karen Gall, Applications Scientist, HORIBA Scientific

2:30 PM – 4:00 PM

#### **IonOptix**

##### **High-Content, High-Throughput Calcium and Contractility Measurements in Intact Cardiomyocytes**

High-content excitation-contraction coupling measurements in cardiomyocytes have historically been a slow, labor-intensive process requiring significant user involvement. While challenging, this methodology has proven itself essential throughout countless publications in the study of cardiac physiology and disease. Throughput, however, has limited the scope of calcium and contractility measurements and restricted study sample size and the number of conditions that can be tested in a given investigation. To improve the speed of data acquisition and analysis without compromising data quality, several advancements needed to be made to both the instrument hardware and software. Through its collaboration with IonOptix, CytoCypher's MultiCell system improves on the traditional instrument by introducing many innovative approaches, including a cutting-edge fast motorized microscope and automated processes to improve throughput while preserving data fidelity. The new MultiCell system provides high optical and temporal resolution calcium and cell shortening data as well as automatic, "single-click" analysis. New features focused on pipelining data acquisition have improved the reliability and reproducibility of data collection. The resulting methodology is orders of magnitude faster, permitting investigations with greater statistical power and higher confidence.

In this presentation, we will demonstrate the CytoCypher MultiCell high-throughput system for calcium and contractility measurements on intact, isolated myocytes. We will also show our protocols for these experiments, along with the analysis and statistical treatment of the resulting data sets. With this novel instrument, we have consistently acquired and analyzed data from over 1,000 cardiomyocytes per day.

##### **Speaker**

Michiel Helmes, CEO, CytoCypher/CSO, IonOptix

## **Room 301: Monday, March 4**

**10:30 AM – 12:00 PM**

### **Bruker Corporation**

#### **Using NMR (Nuclear Magnetic Resonance) and EPR (Electron Paramagnetic Resonance) in Biophysics**

Magnetic resonance offers many insights into how biological systems function. The two techniques shed light on the identity of species, dynamics, and structures of proteins, peptides, nucleotides, and lipids. The speakers will present an overview of these techniques and applications for people who may be new to the field and wish to incorporate them in their studies.

NMR is a valuable tool for the study of structures and dynamic processes of proteins, peptides and nucleotides. NMR is also well suited to study the interaction of such molecules. Various NMR methods exist to study the interaction of proteins with small molecules in drug discovery, interactions of proteins with each other or with peptides and nucleotides.

In drug discovery fragment based screening by NMR is a well-established technique. A brief presentation of these methods will be included.

The investigation of interaction between larger molecules is facilitated by several NMR methods and by the use of isotopic labeling. Interactions such as protein oligomerization, protein-protein and protein-nucleotide interaction in solutions can be investigated. An overview of these techniques and applications will be included.

In contrast to NMR, EPR detects unpaired electrons in free radicals and transition metal ions. One electron transfer reactions result in unpaired electrons. Examples of paramagnetic species encountered in biology are:

- ROS (Reactive Oxygen Species), RNS (Reactive Nitrogen Species)
- Amino acid radicals such as tyrosine and tryptophan radicals
- Paramagnetic intermediates in photosynthesis
- Metalloenzymes

In addition to these naturally occurring paramagnetic species, spin labels can be incorporated into a number of biomolecules via SDSL (Site Directed Spin Labeling). Applications and techniques are:

- Motional dynamics of proteins, peptides, and nucleotides via linse-hape analysis
- Accessibility studies in membrane proteins or peptides via saturation measurements
- Distance measurements (2-8 nm) via DEER (Double Electron-Electron Resonance) to complement other structural methods such as Xray, NMR, CryoEM and FRET

An introduction to the techniques and applications will be presented.

#### **Speakers**

Ralph Weber, Senior Application Scientist, Bruker Corporation  
Clemens Anklin, Vice President Applications, Bruker Corporation

**12:30 PM – 2:00 PM**

### **Nanion Technologies**

#### **Ion Channels and Transporters in the Spotlight**

Nanion Technologies is the leading solution provider for electrophysiologists since 2002. If you are studying ion channels and electrogenic transporters, our chip- and plate-based devices are well suited to advance your research and screening projects. In our portfolio, you will find instrumentation for automated patch clamp, bilayer recordings, SSM-based electrophysiology, impedance and extracellular field recordings, covering the needs for low, medium and high throughput assays. Our workshop will start with an introduction by Dr. Niels Fertig (CEO, Nanion) and Dr. Andrea Brüggemann (CSO, Nanion), as a guide through the overall capabilities of Nanion's technology portfolio. In continuation, we will welcome our speakers, Dr. Jean-Francois Rolland (Axxam) and Prof. Dr. Randy Stockbridge (University of Michigan), among others.

As a part of our workshop, Dr. Rolland will focus on his recent work on assay development in ion channel drug discovery, using the high throughput automated patch clamp screening platform, the SyncroPatch 384/768PE. Application areas of this powerful system, recording from up to 768 cells simultaneously, range from high throughput screening (HTS), cardiac safety assessment and efficacy screening, to the analysis of ion channel mutations. The SyncroPatch 384/768PE supports voltage- and current clamp recordings, temperature control, and minimal cell usage. In addition to the use of stably transfected cell lines, more challenging cell assays including stem cell-derived cells, transiently transfected cells or primary cells can be used successfully. In this presentation Dr. Rolland will also discuss the highly promising approach of using optogenetics combined with automated patch clamp technology in HTS. This method, using light to modulate molecular events in a targeted manner in living cells, could lead to cheaper, faster and highly reliable assays, suitable for running the early steps of ion channels' drug discovery programs, especially when combined to automated electrophysiology. Among others, data obtained from Axxam's bPAC-HCN2 cell line that was successfully assayed on SyncroPatch 384PE, will be presented.

In continuation, Dr. Stockbridge will be focused on electrogenic transporter assay technology, the SURFE2 R. The SURFE2 R N1 (single channel) and SURFE2 R 96SE (96 channels) technologies enable label-free real time measurements of electrogenic transporter protein activity. Employing SSM (solid supported membrane)-based electrophysiology, the SURFE2 R instruments compensate for the low turnover rate of these proteins by measurement of up to 109 transporters in parallel. Dr. Stockbridge, as an expert in measuring membrane transport function, will present her recent data obtained on the SURFE2 R N1 instrument. She has undertaken a comparative mechanistic analysis to understand how drug export function evolved in the SMR (small multidrug resistance) exporters family. This involved screening panels of potential substrates (drugs and other compounds) to understand how substrate specificity differs among the drug exporters, guanidinium exporters, and various evolutionary intermediates.

The Nanion team is excited to meet you at our workshop. Join us to learn more about how our "smart tools for electrophysiologists" can help take your research to the next level!

#### **Speakers**

Andrea Brüggemann, CSO, Nanion Technologies  
Niels Fertig, CEO, Nanion Technologies  
Jean-Francois Rolland, Head of Electrophysiology, Axxam  
Randy Stockbridge, Assistant Professor, University of Michigan

2:30 PM – 4:00 PM

## Alvéole

### Bioengineering Relevant Cellular Microenvironments with Primo®

In vivo, the cellular microenvironment has a crucial impact on the regulation of cell behavior and functions, such as cellular differentiation, proliferation and migration. One of the challenges confronting cell biologists is to mimic this microenvironment in vitro in order to more efficiently study living cells and model diseases. To this end, we present the PRIMO device developed by ALVEOLE. This contactless and maskless UV projection system based on the LMAP technology(1) allows to control the biochemical and mechanical properties of in vitro microenvironments. We will first show that PRIMO is a suitable tool to print biomolecules on substrates (including glass, plastic, soft/stiff substrates, textured surfaces, etc.) with an exquisite control over protein densities (micropatterning). Then, we will also present how the projected UV light can be used in order to structure photosensitive resists (such as SU8) and create molds onto which elastomeric solutions can be polymerized (microfabrication).

Finally, one of our users will share his research conducted with PRIMO. He used this technology in order to structure and functionalize hydrogels (microstructure combined with micropatterning) paving the way for 3D cell culture onto controlled, reproducible soft substrates(2). Visit [www.alveolelab.com](http://www.alveolelab.com) for more information.

#### Speakers

Aurélien Pasturel, University of Bordeaux, CNRS, Alvéole  
Pierre-Olivier Strale, Senior Scientist, Alvéole

4:30 PM – 6:00 PM

## Molecular Devices

### Supercharge Your Patch-Clamp Data Acquisition and Analysis with the New Axon pCLAMP 11 Software

The patch-clamp technique remains the best method for examining ion channel physiology and membrane biophysics. Axon Instruments and pCLAMP software continue to push the envelope with new innovations with best-in-class systems and software. In this user meeting we learn about new features of pCLAMP 11 software and methods to optimize your workflow and simplify experiments.

#### Speaker

Jeffrey Tang, Senior Global Axon Electrophysiological Application Scientist, Molecular Devices

## Room 303: Sunday, March 3

9:30 AM – 11:00 AM

## Mizar Imaging

### Tilt – High-Resolution Light Sheet Imaging

Mizar Imaging is proud to introduce the Tilt, the first high-resolution light sheet imaging system that is a simple add-on to most inverted microscopes. When installed on your microscope, the Tilt does not interfere with any existing modalities so you can easily add the Tilt to an inverted microscope, including a TIRF or Spinning Disc confocal microscope system, to add the ability to do long term live cell imaging with the lowest possible photobleaching and phototoxicity.

The Tilt is well-suited to image both larger organisms, such as *C. elegans*, *Drosophila*, *Danio rerio* and other similar model organisms as well as imaging high-resolution intracellular dynamics inside single cells. This remarkable diversity is realized because the Tilt can work with any objective on your microscope – from 20x through 150x. There is no limit to what you can do with the Tilt.

The key benefit of light sheet imaging is significantly reducing the photobleaching and phototoxicity of your sample. The Tilt is no exception. When imaging with the Tilt, cells can be kept alive for hours and even days. This is aided by an optional incubation chamber for the Tilt, which allows for precise control of temperature (heating and cooling available), CO<sub>2</sub> and humidity.

The Tilt light-sheet imaging system is the ideal solution for long-term live-cell imaging of a wide array of samples with the added benefit of being a simple, low cost add-on to an existing inverted microscope.

#### Speaker

Chris Baumann, Sales and Product Manager, Mizar Imaging

11:30 AM – 1:00 PM

## Leica Microsystems

### Leica SP8 FALCON: A New Way to Generate Fluorescence Lifetime Images at Confocal Speed

Functional imaging is a rapidly growing field, because understanding the function and interaction of molecules is the key to revealing the underlying biology. In this context, fluorescence lifetime imaging (FLIM) is a powerful tool, providing valuable information beyond spectral imaging. FLIM is immune to concentration artifacts and sensitive to molecular environment, but previous FLIM solutions were slow and difficult to implement, particularly for complex imaging workflows. Therefore, FLIM imaging has so far been limited to specialized laboratories and classical TCSPC has been unable to deliver the speeds needed to address most of the biological processes.

We present SP8 FALCON, the fast, intuitive and totally integrated all-Leica FLIM solution. SP8 FALCON delivers video-rate FLIM with pixel-by-pixel quantification, thanks to a unique combination of fast electronics, sensitive spectral hybrid detectors (Leica HyDs), and a novel concept for measuring time. Photon arrival times can now be recorded at count rates typical for standard confocal imaging. The system has ultra-short dead time, and powerful built-in algorithms take care of the data acquisition and analysis, while keeping accuracy and excellent data quality. This talk explains the technical implementations enabling this new level of performance and explains the new way to generate FLIM images.

SP8 FALCON with STED enables STED-FCS at high count rate and separation of multiple fluorophores spectrally overlapping with nanoscopic resolution.

SP8 DIVE (Leica multiphoton system) with spectrally tunable non-descanned detector (Leica 4Tune detector) combined with FALCON allows metabolic imaging, species separation and in vivo FLIM imaging.

The deep integration of SP8 FALCON into the Leica SP8 platform provides easy access to complex FLIM experiments, enabling fast FLIM-FRET, 3D- and 4D-imaging modes, high-content screening, and autofluorescence component separation.

1:30 PM – 3:00 PM

## Carl Zeiss Microscopy LLC

### ZEISS Elyra 7 with Lattice SIM, a New Platform for Fast and Gentle 3D Superresolution Microscopy

Life sciences research often requires you to measure, quantify and understand the finest details and sub-cellular structures of the sample. Whether you are working with tissue, bacteria, organoids, neurons, living or fixed cells, ZEISS Elyra 7 takes your images beyond the diffraction limit of conventional microscopy to superresolution. Examine the fastest processes in living samples – in large fields of view, in 3D, over long time periods, and with multiple colors.

Lattice SIM enables fast imaging of 3D volumes with resolution down to 120 nm laterally and 300 nm axially. Due to higher light efficiency, the new Lattice SIM technology provides gentle superresolution imaging of living specimens at up to 255 frames per second. Using less light to illuminate the specimen means imaging longer with less bleaching of the sample. The novel Lattice SIM technology allows you to uncover new mechanistic details and quantify the finest subcellular structures in large fields of view.

ZEISS Elyra 7 can be expanded with single molecule localization microscopy (SMLM) for techniques such as PALM, dSTORM and PAINT. ZEISS Elyra 7's SMLM module delivers molecular resolution in large 3D volumes and powerful post-processing algorithms for quantification. Choose freely among labels when imaging with resolutions down to 20 nm laterally and 50 nm axially. Count molecules and come to understand, molecule-by-molecule, how individual proteins are arranged within a structural context.

ZEISS Elyra 7 is a flexible research grade live cell microscope from ZEISS. The new Apotome mode allows fast optical sectioning of 3D samples and total internal reflection microscopy provides live imaging capability for membrane and single molecule studies.

Join this workshop and learn how the newest member of the ZEISS imaging portfolio, ZEISS Elyra 7, can help your imaging experiments in completely new ways.

#### Speaker

Renée Dalrymple, Sales Development Manager, Carl Zeiss Microscopy LLC

3:30 PM – 5:00 PM

## Wyatt Technology Corporation

### From Proteins to Exosomes: Tools for Essential Biophysical QC, Characterization, and Isolation

In this seminar we will present solutions for some of the key biophysical characterization challenges encountered in the course of biophysical research. The tools to overcome these challenges are based on:

- multi-angle light scattering (MALS) for determining absolute molar mass and size of macromolecules and nanoparticles from small peptides to vesicles;
- dynamic light scattering (DLS) for determining the hydrodynamic radii of particles from 0.2 to 5000 nm;
- asymmetric-flow field-flow fractionation (AF4) for separation and characterization of particle distributions from 1 nm to 10  $\mu$ m
- composition-gradient MALS (CG-MALS) for label-free analysis of biomolecular interactions to determine binding affinity and absolute stoichiometry in solution

The combination of these measurement techniques with each other and with other methods of automated sample preparation and delivery creates a powerful toolkit that is useful across many fields of experimental bioscience. The presentation will include applications to:

- quality control of proteins and other biomacromolecules to ensure reliable, repeatable studies of structure and interactions
- rapid optimization of crystallization conditions
- analysis of oligomeric state, protein-protein and protein-nucleic acid complexes
- understanding self-assembly, aggregation and fibril formation
- characterization of vesicle size and content, and high-resolution size-based isolation of exosomes and exomers.

In addition to describing the principles and instrumentation of SEC-MALS, AF4-MALS, CG-MALS and DLS, we will perform a live demo of protein and buffer characterization by automated DLS in microwell plates.

#### Speaker

Eric Seymour, Senior Application Scientist, Wyatt Technology Corporation

5:30 PM – 7:00 PM

## ELEMENTS SRL

### Portable and Cost-Effective Low-Noise Amplifiers for Electrophysiology and Nanopore Applications

Ultra-portable and cost-effective amplifier technology is now a reality accessible to any electrophysiology research lab, thanks to Elements microelectronic-based design of custom microchip (ASIC) using standard and low-cost CMOS processes.

Elements provides an integrative solid-state solution to measure currents in the picoampere (10-12 pA) range, with bandwidths up to hundreds of kHz, featuring very low noise recordings, signal digitalization thanks to the internal Analog-to-Digital converter, signal generator, digital data elaboration, and USB powered, all in a tiny form factor (i.e. 42x18x78 mm) or about the size of a point-and-shoot digital camera!

In this presentation, we will be featuring our latest electrophysiology product, the world's smallest integrated patch clamp amplifier, as well as a portable nanopore kit for protein detection using disposable glass nanopore chips.

During the event will be presented these two use cases:

1. ePatch amplifier was used to record the current of HCN channels transiently expressed in HEK293T cells, with the aim to test the effect of Lamotrigine, a widely used anticonvulsant drug, on the biophysical properties of the current. Data courtesy of Dr. A. Moroni - University of Milan - Italy and Dr. Bina Santoro - Columbia University - New York – USA
2. Portable Nanopore Reader: example of DNA fragment translocations through glass nanopore chips. Data courtesy of Dr. D. Niedzwiecki, Goeppert– USA

Attend this presentation to learn about:

- The advantages of using a versatile and compact nano-current amplifier technology,
- Portable nanopore solution for protein detection using disposable nanopore chips,
- How the world smallest and cheapest patch clamp amplifier is radically changing voltage-clamp measurements!

Complimentary Italian hors d'oeuvres and drinks will be served! Seating is limited. Be the first to RSVP by emailing [info@elements-ic.com](mailto:info@elements-ic.com) to receive a copy of the presentation and be entered in a raffle to receive a free 30-day trial of the ePatch or nanopore Kit amplifier!

#### Speakers

Federico Thei, CEO, ELEMENTS SRL  
Filippo Cona, Software Engineer, ELEMENTS SRL  
Alessandro Porro, Application Scientist, ELEMENTS SRL  
Serge Kaddoura, NanoscaleLABS



## **Room 303: Monday, March 4**

9:30 AM – 11:00 AM

### **Bruker Corporation**

#### **Advances in Dye Development and Microscopy for Live Cell Superresolution Microscopy with the Vutara 352**

Expanding the frontier of super-resolution imaging requires advances in both microscopy hardware and fluorescent labels. Here we describe a cooperative effort to improve both technological fronts with the ultimate goal of live-cell super-resolution microscopy. Bruker's Vutara 352 super-resolution microscope has been designed for live-cell super-resolution microscopy with both high spatial and temporal resolution capabilities. The patented biplane module allows simultaneous two-color imaging in 3D while the sCMOS detector enables fast imaging of biological phenomena. Although this microscope system is capable of live-cell super-resolution imaging, it has been stymied by limitations in the current generation of live-cell-compatible fluorophores. Extant live-cell probes are either fluorescent proteins with low photon counts—and therefore low localization precision—or organic dyes, which require high laser power resulting in phototoxicity in living samples. To remedy this problem, we developed spontaneously blinking (SB) versions of the Janelia Fluor and Alexa Fluor dyes, which blink under physiological conditions at low laser power while still providing high photon counts. In particular, the spontaneously blinking Janelia Fluor 549 (SB-JF549) and red-shifted SB-JF646 are cell-permeable and are easily conjugated to HaloTag or SNAP-tag ligands, making them ready to use in live cell multi-color superresolution experiments. The SB dyes, in combination with the Vutara 352, provide a powerful methodology for simultaneous imaging, localization and visualization of live-cell single-molecule localization data, while offering numerous statistical tools to quantify the data into publishable results.

#### **Speaker**

Robert Hobson, Applications Scientist, Bruker Corporation

11:30 AM – 1:00 PM

### **Asylum Research**

#### **Capturing Biochemical Reactions with Video-Rate AFM**

Oxford Instruments Asylum Research will present the latest data acquired with its Cypher VRS, the world's first and only full-featured video-rate AFM. The Cypher VRS Atomic Force Microscope sets a new standard with easy operation—enabling high resolution imaging of dynamic events at high speeds, up to 625 lines/second which corresponds to about 10 frames per second. This speed is about 300x faster than typical AFMs and 10x faster than current “fast scanning” AFMs.

One of the strengths of traditional AFMs is its capability to monitor dynamic events in near-native conditions (i.e. in liquid at biologically relevant temperatures). However, capturing biological processes in real-time has been challenging up until now. Video rate AFMs provide that temporal resolution, allowing researchers to observe the progression of these reactions and capture kinetics. Video rate AFMs have allowed researchers to conduct a new set of experiments including biochemical reactions, membrane dynamics, conformational changes, self-assembly and degradation. In most cases, the spatial resolution is not compromised enabling researchers to locate the target or active site while tracking the progression of the reaction. They can observe structural dynamics of biomolecules and then correlate it to their function.

We will present a set of data to illustrate the potential of this new capability. Examples include DNA digestion and cleavage, DNA origami conformation changes, protein fiber assembly, membrane dynamics including molecular structure and rearrangement in the bacteriorhodopsin membrane, lipid bilayer growth, assembly of Type I collagen into fibrils and dynamic motion of CTAB hemi-micelles at the solid (HOPG) – liquid (aqueous buffer) interface.

#### **Speaker**

Sophia Hohlbauch, Applications Scientist, Asylum Research

**1:30 PM – 3:00 PM**

## **Bruker Corporation**

### **Investigating Dynamic Biological Processes with High-Speed, High-Resolution Correlative AFM-Light Microscopy**

The ability of atomic force microscopy (AFM) to obtain three-dimensional topography images of biological molecules and complexes with nanometer resolution and under near-physiological conditions remains unmatched by other imaging techniques. However, the typically longer image acquisition times required to obtain a single high-resolution image (~minutes) has limited the advancement of AFM for investigating dynamic biological processes. While recent years have shown significant progress in the development of high-speed AFM (HS-AFM), the ability to scan faster has typically been achieved at the cost of decreased scanner range and restricted sample size. As such, these HS-AFM systems have mainly been focused on studying single molecule dynamics and have been very limited in their ability to conduct live cell imaging.

The novel NanoWizard® ULTRA Speed A AFM not only enables high-speed studies of time-resolved dynamics associated with cellular processes, its latest scanner technologies and compact design also allow full integration of AFM into advanced commercially available light microscopy techniques. Thus, fast AFM imaging of several frames per second can be seamlessly combined with methods such as epifluorescence, confocal, TIRF, STED microscopy, and many more. Please join us for this informative seminar where we will present how the latest advances in the ULTRA Speed A AFM are being applied to study a wide-range of biological samples, from individual biomolecules to mammalian cells and tissues. We will also describe how this unique system is enabling new research opportunities with high-speed, high-resolution correlative AFM-light microscopy.

#### **Speaker**

Andrea Slade, BioAFM Product Manager, JPK BioAFM Center, Bruker Nano Surfaces

**3:30 PM – 5:00 PM**

## **NanoSurface Biomedical**

### **Biomimetic Cell Culture Platforms for Enhancing Cell Biology Studies**

Cells use structural and mechanical cues from the extracellular matrix (ECM) to regulate a broad spectrum of processes such as cell signaling, electrophysiology, differentiation, division, and even life and death. Over the past few decades, the literature has demonstrated that many cell types cultured in conventional flat, rigid, and static culture conditions lack both structural and functional phenotypes seen in the body, and that the lack of extracellular cues contributes significantly to the disconnect between in vitro experimental results and in vivo observation. We will demonstrate that ECM-inspired substrate nanotopography drastically improves the structural and functional development of a variety of cell types. Specifically, we show how NanoSurface Cultureware and the NanoSurface Cytostretcher can be utilized to study the effects of cell-nanotopography interactions on adhesion, signaling, polarity, migration, physiology, and differentiation across many cell types and model systems including cancer biology, human epithelia, and cardiovascular function. Further, we will describe how the differentiation of induced pluripotent stem cells can be accelerated and enhanced by providing a more biomimetic culture environment. We will also illustrate how the combination of nanotopography and mechanical stretch can enhance the in vitro phenotypes of cells in culture.

#### **Speaker**

Nicholas Geisse, Chief Science Officer, NanoSurface Biomedical

5:30 PM – 7:00 PM

## LUMICKS

### A Versatile Platform for High-Resolution Single-Molecule Research: Expanding Capabilities and Exploring New Possibilities

Proteins interact with nucleic acids and the cytoskeleton to perform biological processes that are key to cell metabolism and life. The direct observation of such interactions in real time and at the single-molecule enable scientists to make new discoveries and to test current biological models. Single-molecule studies of cytoskeleton filaments and their interaction to associated proteins are often developed in surface-based assays where the glass surface is used as a substrate to rigidly anchor the biological molecules of interest. To capture the dynamics of the system and its interactions, the samples are typically labeled with fluorescent dyes and are imaged with fluorescence methods. However, despite the versatility of fluorescent methods, label-free imaging methods are desirable to better mimic the native biological conditions and to reduce photo-damage due to fluorescence excitation during long experiments.

Here, we present our recent developments to further enable discoveries in the field of biology and biophysics with a special focus in surface-based assays. We present a novel instrument arrangement that includes optical tweezers in combination with Interference Reflection Microscopy (IRM) and Total Internal Reflection Fluorescence (TIRF) Microscopy. IRM is a recently introduced imaging method that allows visualization of biological structures in 3D without the need for fluorescence labeling and with sensitivity exceeding that of Differential Interference Contrast (DIC) microscopy. In addition, we show the latest applications of these technologies and how they enhance our understanding of several fields of biology, including molecular motors and cytoskeleton filaments, DNA/RNA-protein interactions, protein folding/unfolding, cell membranes, and genome structure and organization. These applications show that the technological advances in hybrid single-molecule methods for imaging and manipulation can be turned into easy-to-use and stable instruments with the ability to open up new venues in many research areas.

#### Speakers

Andrea Candelli, Application Scientist, LUMICKS

Sara Tafoya, Application Scientist, LUMICKS

Trey Simpson, Application Scientist, LUMICKS

## ROOM 303: Tuesday, March 5

9:30 AM – 11:00 AM

### Sophion Bioscience A/S

#### Electrophysiological Characterization Using Automated Patch Clamp (QPatch and Qube) of hiPSC-Derived Neurological Disease Models, New Automated Patch Clamp Ion Channel Assays for CiPA Cardiac Safety Testing (Dynamic hERG and LQT3 Late Nav1.5) and Nav1.7 Drug Discovery

Successful ion channel drug discovery requires the integration of multiple technologies and workflows. Sophion Bioscience is a leader in automated patch clamp technology, providing medium to high throughput, automated patch clamp to the pharmaceutical industry and universities. The QPatch and Qube are fully automated patch clamp systems, executing simultaneous 8, 16, 48 or 384 parallel patch clamp recordings in conjunction with computer controlled liquid handling and on-board cell handling. Sophion partners with other biotech companies to create robust, ion channel and electrophysiological workflows for drug development for ion channel targets. During this workshop, three industry speakers will provide insight into the drug discovery process. Dr Kadla Roskva Rosholm will present how hiPSC-derived neurological disease models have been characterized by use of high throughput electrophysiology at Sophion Bioscience. Next, Dr Marc Rogers from Metrion Biosciences will present their development of new automated patch clamp ion channel assays for CiPA cardiac safety testing: dynamic hERG and LQT3 late Nav1.5. Finally, Dr Brian Moyer will present on Amgen's Nav1.7 drug discovery program.

#### Speakers

Kadla Roskva Rosholm, Application Scientist, Sophion Bioscience A/S

Marc Rogers, Chief Scientific Officer, Metrion Biosciences

Brian Moyer, Scientific Director, Department of Neuroscience, Amgen

## Exhibitor List

Company Name	Booth Number	Company Name	Booth Number	Company Name	Booth Number
<b>89 North</b> 20 Winter Sport Lane, Suite 135 Williston, VT 05495 <a href="http://www.89north.com">www.89north.com</a>  89 North provides innovative solutions for fluorescence imaging featuring the LDI, a state-of-the-art 7-line laser illuminator with up to 1 watt of power per channel, available with fiber optic output or liquid light guide. Also on display from our international partners are the new X-Light V3 spinning disk confocal from CrestOptics, the new OptoTIRF illuminator from Cairn Research, and the UGA-42 GEO from Rapp Optoelectronic. 89 North offers engineering and manufacturing expertise to customize existing products or to create new solutions for system integration.	409	<b>Abberior Instruments America LLC</b> One Broadway, Cambridge Innovation Center Cambridge, MA 02139 <a href="http://www.abberior-instruments.com">www.abberior-instruments.com</a>  Abberior Instruments develops and markets STED super resolution microscopes. Founded by Stefan Hell our imaging systems are highly innovative. Further, we provide STED microscopes from low to high budget.	502	<b>ALA Scientific Instruments Inc</b> 60 Marine Street Farmingdale, NY 11735 <a href="http://www.alascience.com">www.alascience.com</a>  As manufacturers (fluidics, chambers, temperature controllers, etc.) and distributors (npi, Sutter, Narishige, TMC) of instruments for patch/cellular electrophysiology, our scientists/engineers have decades of experience assembling systems and building custom set-ups. We focus on your equipment needs so you can focus on your research.	321
<b>AAT Bioquest Inc</b> 520 Mercury Drive Sunnyvale, CA 94085 <a href="http://www.aatbio.com">www.aatbio.com</a>  AAT Bioquest develops, manufactures, and markets bioanalytical reagents and assay kits for life science research and drug discovery. We specialize in absorption, fluorescence and luminescence-based biological detection technologies. Our products include the outstanding Fluo-8®, Cal-520™, Cal-590™, Cal-630™, Calbryte™-520 and FLIPR calcium assay kits, fluorescent ion indicators, fluorescent labeling reagents, cell and in vivo imaging probes. We also offer a full spectrum of apoptosis probes and assay kits.	504	<b>Agilent</b> 121 Hartwell Avenue Lexington, MA 02421 <a href="http://www.agilent.com">www.agilent.com</a>  Agilent Technologies Inc is a global leader in life sciences, diagnostics, and applied chemical markets. With more than 50 years of insight and innovation, Agilent instruments, software, services, solutions, and people provide trusted answers to its customers' most challenging questions. Agilent employs about 13,500 people worldwide.	229	<b>Alembic Instruments Inc</b> 3285 Cavendish Boulevard, Suite 570 Montreal, QC H4B 2L9 Canada <a href="http://www.alembicinst.com">www.alembicinst.com</a>  Alembic Instruments makes patch clamps amplifiers with 100% Rs Compensation! Our patented Rs Compensator™ completely eliminates series resistance errors rapidly, easily, and with full stability. Only the Rs Compensator™ can voltage clamp the largest, fastest ionic currents, under physiologic conditions - currents that are simply out of reach without it. Come see the NEW Alembic VE-3 computer controlled Patch clamp amplifier! Features: 4 channels with integrated data acquisition, true current-clamp, embedded computer with dedicated FPGA for real-time Dynamic Clamp experiments, and more.	432
<b>Abbelight</b> 6 rue Jean Calvin Paris, France 75005 France <a href="http://www.abbelight.com">www.abbelight.com</a>  Abbelight has developed the first 3D super-resolution microscope (SMLM) with isotropic 15 nm precision over the largest field of view (200x200 micron). The result of 10 years of research in single molecule imaging, abbelight provides cutting-edge instruments, software and expertise to accelerate the imaging workflow of your research project.	320	<b>AIP Publishing</b> 1305 Walt Whitman Road, Suite 300 Melville, NY 11747 <a href="http://www.scitation.org">www.scitation.org</a>  AIP Publishing is a wholly owned not-for-profit subsidiary of the American Institute of Physics (AIP). Our portfolio offers scientists, engineers, researchers and students a foundation of interdisciplinary and emerging basic and applied research. Spanning the physical sciences, publications cover physics, plasmas, fluids, mathematical physics, instrumentation, and education. Visit <a href="http://publishing.aip.org">publishing.aip.org</a> .	605	 <b>ALLEN INSTITUTE for CELL SCIENCE</b>  <b>Allen Institute for Cell Science</b> 615 Westlake Avenue North Seattle, WA 98109 <a href="http://cellscience.alleninstitute.org">cellscience.alleninstitute.org</a>  Launched by Paul G. Allen in 2014, the Allen Institute for Cell Science studies the cell as an integrated system. The Institute is producing novel visual, dynamic, predictive models of the cell to accelerate biological research. The Institute provides public tools, including gene edited cell lines, methods, images, and models on <a href="http://www.allencell.org">www.allencell.org</a> .	602

**Alvéole** **705**  
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**Anatrace | Molecular Dimensions** **316**  
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Canada  
www.aurorascientific.com

Aurora Scientific provides solutions for measuring the dynamic physical properties of muscle and connective tissue. Muscle mechanics systems cover the range from single myocyte to whole large-animal in-situ. Products: Muscle Lever Systems, Force Transducers, High-Current Stimulators, Test Apparatus and Software. New Products: Dynamic Muscle Analysis Software with high throughput module.

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Alabaster, AL 35007  
www.avantilipids.com

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www.bio.aps.anl.gov

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**211**
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**233**
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**405**
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Specializing in affinity-purified secondary antibodies (many adsorbed against other species) conjugated with Alexa Fluor®, DyLight™, and Cyanine fluorescent dyes; R-PE; and other detection ligands. Other products include anti-IgG, Light Chain specific for Western blotting after IP, Alexa Fluor® 680 and 790 for highly sensitive Western blots. ISO 9001:2015 registered.

**238**
**708**

**JASCO**

28600 Mary's Court  
Easton, MD 21601  
www.jascoinc.com

JASCO will be exhibiting a range of biophysical characterization tools including Circular Dichroism, Fluorescence and FTIR instrumentation. The JASCO J-1000 Series Spectrophotometers provide an optical bench specifically designed for high sensitivity measurements in the far- and near-UV regions. Temperature control systems can be coupled with multi-position cells to run thermal melts. Automated high-throughput CD can obtain measurements on up to 192 samples without user intervention, saving both time and money. Microsampling cells provide measurements on sample volumes as low as 2 microliters.

**JETSTREAM - CLOUD**

2709 E 10th Street  
Bloomington, IN 47408  
www.jetstream-cloud.org

Jetstream is NSF's first production cloud facility and is part of the NSF eXtreme Digital (XD) program. It is a Infrastructure-as-a-Service platform that supports hundreds of virtual machines (VMs) and data volumes. Jetstream enables on-demand access to interactive, user-configurable computing and analysis capability. It is used by researchers, educators, software developers, and science gateway creators. Jetstream also seeks to democratize access to cloud capabilities and promote sharable, reproducible research.

**Journal of General Physiology 600**

950 Third Avenue, Floor 2  
New York, NY 10022  
jgp.rupress.org

Journal of General Physiology (JGP) publishes mechanistic and quantitative cellular and molecular physiology of the highest quality. All editorial decisions are made by research-active scientists. Established in 1918, JGP recently celebrated 100 years. JGP publishes 12 issues per year.

**234**
**KinTek Corporation**

7604 Sandia Loop  
Austin, TX 78735  
www.kintekcorp.com

KinTek is the world leader for state-of-the-art kinetic analysis that supersedes anecdotal single molecule studies. We offer premier research instruments supported by first-class service. At the meeting we will show our new Auto-Stopped-Flow with optional robotic sample loader, offering the highest signal using the smallest sample volumes, and our Rapid Chemical/Freeze-Quench-Flow instruments. New advances in KinTek Explorer software for dynamic simulation and fitting of kinetic data will be revealed – available for PC and Mac.

**Laboratory for Fluorescence Dynamics**

3120 National Sciences II  
University of California, Irvine  
Irvine, CA 92697  
www.lfd.uci.edu

The Laboratory for Fluorescence Dynamics (LFD) is a national research resource center for biomedical fluorescence spectroscopy, supported by the National Institute of Health (NIGMS) and the University of California, Irvine (UCI). Main activities: Services and Resources: state-of-the-art lab for fluorescence measurements, microscopy, spectroscopy. Research and Development: design, test, and implement advances in the technology of hardware, software, biomedical applications. Training and Dissemination: disseminates knowledge of fluorescence spectroscopic principles, instrumentation, applications.

**LaCroix Precision Optics**

PO Box 2556, 50 LaCroix Drive  
Batesville, AR 72503  
www.lacroixoptics.com

Since 1947, LaCroix Precision Optics has positioned itself as a premier domestic volume and prototype manufacturer of custom precision optics. Capabilities include Spherical, Aspherical, Plano, and custom coated optics. At our facility in Batesville, Arkansas, we use both traditional methods and advanced CNC processing to achieve the highest level of precision and quality demanded by our customers. We are certified to ISO 9001:2015 and is ITAR certified and compliant. We take great pride in producing quality optics made to specification, world-class service, and a fair price.

**210**
**Larodan AB**

Retzius väg 8  
Solna, 171 65  
Sweden  
www.larodan.com

Larodan makes a comprehensive range of research grade lipids for use as analytical standards and reagents, serving customers all around the world. Our products include all classes of lipids, from simple fatty acids and methyl esters to complex oxylipins, glycerides, and phospholipids. We are headquartered at the Karolinska Institute in Stockholm, Sweden, with US offices in Michigan.

**Leica Microsystems**

1700 Leider Lane  
Buffalo Grove, IL 60089  
www.leica-microsystems.com

Leica Microsystems develops and manufactures microscopes and scientific instruments for the analysis of microstructures and nanostructures. The company is one of the market leaders in compound and stereo microscopy, digital microscopy, confocal laser scanning microscopy, electron microscopy sample preparation, optical coherence tomography, and surgical microscopes.

**Linnowave**

Henkestrasse 91  
Erlangen, 91052  
Germany  
www.linnowave.com

Linnowave is a startup company based in Erlangen (Germany) developing innovative equipment for state of the art high-resolution microscopy applications. We push today's technical limits in optical sciences by combining classical and integrated optics with modern nano- and microfabrication techniques, that were formerly only accessible to the semiconductor industry. Over 15 years of combined experience in high-resolution microscopy and spectroscopy in quantum optical as well as biophysical research allow us to come up with unconventional but yet simple solutions.

**716**
**333**
**NEW  
2019**
**254**
**NEW  
2019**

**LUMICKS**
**701**

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LUMICKS is the leading supplier of Dynamic Single-Molecule and Cell analysis instruments for the study of molecular motor activity, protein folding, DNA-protein interactions, and cell-target avidity. Our optical tweezers and acoustic force spectroscopy instruments enable the analysis of complex dynamic details related to the behavior and interaction of single molecules and cells.


**Mad City Labs Inc**
**216**

2524 Todd Drive  
Madison, WI 53713  
www.madcitylabs.com

For 20 years, Mad City Labs has been the trusted name in designing and manufacturing nanopositioning systems and precision microscopy instruments for biophysicists. Our products include Piezo Nanopositioners, Precision Micropositioners, Atomic Force Microscopes (AFM), Near Field Scanning Optical Microscopes (NSOM), and Single Molecule Microscopes. Our nanopositioners feature proprietary PicoQ<sup>®</sup> sensors with ultra-low noise & high stability performance. PicoQ<sup>®</sup> sensors combined with our innovative flexure guided stage designs leads to outstanding stability & sub-nanometer precision for super resolution microscopy, atomic force microscopy, optical/magnetic tweezers, and high resolution imaging. When paired with our high precision micropositioning systems they are the ideal building blocks for nanoscopy applications. Mad City Labs AFMs achieve atomic step resolution by leveraging the performance of our closed loop nanopositioners. Affordable and available in a variety of configurations with automated software and calibration. The RM21<sup>®</sup> MicroMirror TIRF microscope is a unique multi-spectral TIRF microscope. The MicroMirror TIRF spatially segregates the excitation wavelengths leading to improved signal-to-noise ratios and efficient data collection. Ideal for Colocalization single molecule spectroscopy, smFRET, and dark-field TIRF. The entire range of RM21<sup>®</sup> single molecule microscopes are designed for advanced fluorescence microscopy and are nanopositioner-ready to facilitate nanoscopy methods. Advantages: direct optical pathway access, high stability & precision alignment, flexible configurations, and TIRF module options. Mad City Labs specializes in finding the correct instrument solutions for your biophysics applications. Stop by and visit with our scientists and engineers during the exhibit!

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**253**

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Malvern Analytical is a leader in analytical characterization, creating expert solutions for the challenges associated with maximizing productivity, developing better quality products and getting them to market faster. We provide superior, customer-focused solutions and services which deliver tangible economic impact through chemical, biophysical and structural analysis.

**Matreya LLC**
**710**

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Matreya is a manufacturer of high purity lipids for life science research. Matreya offers gangliosides, sphingolipids, glycolipids, ceramides, phospholipids, enzyme inhibitors, fluorescent/biotin labeled glycolipids, tocopherols, tocotrienols, fatty acids, hydroxy fatty acids, reference mixtures, and custom synthesis. When you require quality and consistency, along with rapid delivery, you may rely on Matreya.

**Metrion Biosciences**
**348**

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United Kingdom  
www.metrionbiosciences.com

**NEW  
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Metrion Biosciences is a UK-based CRO offering high quality ion channel drug discovery services to our clients on a global scale. Metrion's Leadership Team consists of highly experienced drug discovery professionals who work in a collaborative manner with our clients. Metrion's expertise spans ion channel screening to support medicinal chemistry, custom cell line generation, custom assay development (including phenotypic and translational assays) plus a panel of highly validated cardiac safety profiling assays. Our team has worked on ion channel targets spanning many therapeutic areas.

**Micro Photonics 331**

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**Multi Channel Systems 442**

Aspenhastrasse 21  
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Germany  
www.multichannelsystems.com

Multi Channel Systems provides scientific equipment for electrophysiological research: MEA-Systems for extracellular recordings, automated patch clamp systems, and robots for TEVC in *Xenopus* oocytes.

**Nanion Technologies 217**

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Germany  
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Nanion is a leading provider of automated patch clamp instrumentation with throughput capabilities ranging from 1, 8 and up to 768 cells in parallel. Nanion also provides devices for cardiotoxicity screening, parallel bilayer recordings and membrane transporter protein recordings. We are your one-stop-shop for ion channel research, drug discovery and safety screening.

**NanoSurface Biomedical 505**

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www.nanosurfacebio.com

NanoSurface Biomedical Inc is a biotechnology company based in Seattle, WA and was founded in 2015. NanoSurface's technologies specialize in nanopatterned surfaces that imitate the native extracellular matrix and structure cultured cells into physiologically relevant tissue models. Flagship products include NanoSurface Cultureware and the NanoSurface Cytostretcher. NanoSurface Biomedical seeks to accelerate discovery to improve human health by providing innovative products and services for drug development, disease modeling, and cell biology research.

**NanoTemper Technologies 428**

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**Narishige International** **417**

**USA Inc**  
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With over 50 years of experience and credibility, Narishige offers the latest in micromanipulation technology with a wide range of products for both in vivo and in vitro experiments such as isolation stages, motorized/manual manipulators, pullers, microforges, patch clamp systems, perfusion systems, and stereotaxic instruments. We are always eager to hear your opinions and requests. Narishige products can be customized to fit your unique needs, allowing us to be the craftsman for your solutions.

**NeoBiosystems Inc** **257**

1407 Heckman Way  
 San Jose, CA 95129  
[www.neobiosystems.com](http://www.neobiosystems.com)

NeoBiosystems designs and manufactures automated patch clamp and two electrode voltage clamp (TEVC) products. These products include automated manipulators, pressure controllers, and integrated patch clamp and TEVC systems. These computer-controlled systems improve the success rate of making seals in patch clamp and increase the throughput for two-electrode voltage clamps. The systems are also less expensive than the traditional method, and can reach high success rates in making gig ohm seals even for beginners. They can be used on any kind of cells and tissues.

**Newport Corporation** **434**

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[www.newport.com](http://www.newport.com)

Newport is a brand within the MKS Instruments Light & Motion division. The Newport product portfolio consists of a full range of solutions including motion control, optical tables and vibration isolation systems, photonics instruments, optics and opto-mechanical components. For more information, visit [www.newport.com](http://www.newport.com)

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[www.nicoyalife.com](http://www.nicoyalife.com)

Nicoya Lifesciences uses nanotechnology to make OpenSPR™, the world's only bench-top surface plasmon resonance instrument. OpenSPR is a user-friendly and low maintenance SPR solution that is currently being used in over 30 countries. With access to SPR technology on your own lab bench, you can get the high quality data you need to accelerate your research. To learn more visit [www.nicoyalife.com](http://www.nicoyalife.com)



**Nikon Instruments Inc** **317**

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Nikon Instruments Inc is a world leader in the development and manufacture of optical and digital imaging technology. With over 100 years of optical expertise, Nikon provides individual optical components and complete imaging systems ranging from basic documentation microscopes to confocal, and Super Resolution, powered by NIS-Elements imaging software.

**npi electronic GmbH** **323**

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npi electronic develops and produces equipment for research in physiological and pharmacological research sciences including patch and voltage clamp, extracellular and intracellular amplifiers, stimulus isolators, voltammetric-amperometric amplifiers, filters, µm-range drug application systems, temperature controllers and amplifiers for electroporation and transfection. npi electronic is expert in micro-electrode and patch clamp techniques.

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**ONI** **332**

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[www.oxfordni.com](http://www.oxfordni.com)

ONI creates state of the art fluorescence microscopes with single-molecule sensitivity. Designed to operate on regular surfaces & with a footprint smaller than a piece of A4 letter paper, the Nanoimager promises to revolutionize the entire microscopy workflow – providing researchers with tools to unveil nanometric structures that were previously invisible. It offers quantitative analysis for super-resolution microscopy, single-particle tracking, and single-molecule FRET. The Nanoimager is compact and affordable, making molecule microscopy techniques accessible to the wider research community.

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PCO is a leading specialist and Pioneer in Cameras and Optoelectronics with more than 30 years of expert knowledge and experience of developing and manufacturing high-end imaging systems. The company's cutting edge sCMOS and high-speed cameras are used in scientific and industrial research, automotive testing, quality control, metrology and a large variety of other applications all over the world.

**Peptides International Inc 252**

11621 Electron Drive  
Louisville, KY 40299  
www.pepnet.com

Peptides International manufactures & distributes biochemical products for drug discovery & research at universities, institutes, & pharmaceutical/biotech companies throughout the world. Our Louisville laboratory specializes in peptides of all types, solid phase resins such as CLEAR™, CLEAR-OX™, KLH, amino acid derivatives, & custom peptide synthesis. We are experts in toxins & RGD peptides. Other exceptional products that we offer include: proteins, enzyme inhibitors & substrates, click chemistry items, & combinatorial peptide libraries. We can take you from R & D to cGMP, effortlessly.

**Photometrics 208**

3440 East Britannia Drive #100  
Tucson, AZ 85706  
www.photometrics.com

Founded in 1978, Photometrics is the world's premier designer and manufacturer of high-performance CMOS, EMCCD and CCD cameras for life science research. The original architect of the world's first scientific-grade microscopy EMCCD camera, Photometrics maintains its leadership role with the release of the Prime 95B, the first Scientific CMOS camera with 95% quantum efficiency. Photometrics also offers comprehensive OEM support, including fully characterized, cost-efficient imaging systems and components. Photometrics is headquartered in Tucson, Arizona.

**PI (Physik Instrumente) 308**

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www.pi-usa.us

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**PicoQuant Photonics North America Inc 401**

9 Trinity Drive  
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www.picoquant-usa.com

Product lines include Pulsed Diode Lasers, Time-Correlated Single Photon Counting (TCSPC) electronics and detectors, fluorescence lifetime spectrometers, time-resolved fluorescence microscopes and upgrade kits for Laser Scanning Microscopes. Applications include Single Molecule Spectroscopy, Fluorescence Lifetime Imaging (FLIM), Fluorescence Resonance Energy Transfer (FRET), Fluorescence Correlation Spectroscopy (FCS), super-resolution microscopy.

**Precision Plastics 123**

6405 A Ammendale Road  
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www.precisionplastics.com

Precision Plastics is a custom plastic fabrication shop and OEM manufacturer that works closely with scientist to design, engineer and make custom laboratory equipment. We also have an extensive line of microscope enclosures and will make them to fit any microscope and application. We also make animal restraints, insect cages, scent trails, fume hoods, mazes, plethysmographs, manifolds, Beta shields, growth chambers, custom tanks and just about anything else you can think of. Please contact us, we'd love to work with you!

**Pressure BioSciences Inc 610**

14 Norfolk Avenue  
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Pressure BioSciences Inc (OTCQB: PBIO) is a leader in the development of pressure-based platform solutions for the life sciences industry. Our products/services are based on three patented, pressure-enhanced platforms: Pressure Cycling Technology (PCT) for use in the design and characterization of bio-therapeutic drugs. Pressure Enabled Protein Manufacturing Technology (PreEMT), for use in creation of novel protein therapeutics, and manufacturing of follow-on biologics. Ultra Shear Technology (UST). offers the potential to produce stable nanoemulsions of oil-like products in water.

**Prior Scientific Inc 334**

80 Reservoir Park Drive  
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 Liberty Lake, WA 99019  
 www.qnw.com

Quantum Northwest builds Peltier-based, temperature-controlled cuvette holders for spectroscopy. Our 18 models of cuvette holder are optimized for UV-Vis absorption, fluorescence, circular dichroism, Raman and FTIR. We make single cell holders as well as multi-cell cuvette changers. We are particularly adept at configuring these models of cuvette holder for many different spectrometer designs. We make stand-alone cuvette holders for laser spectroscopy and for use with fiber optic spectroscopy systems. New products are now available for neutron scattering.

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The Royal Society journal Interface, edited by Prof Richard Cogdell FRS, University of Glasgow, publishes research and reviews. Its sister journal Interface Focus, edited by Prof Russell Foster FRS, University of Oxford, publishes themed issues. Our authors benefit from constructive and timely peer review, where both the physical and life sciences are considered equally; open access options; high production standards; high levels of article usage rates; and promotion by a dedicated press office. To find out more, please visit booth 619 and Dr. Tim Holt will be happy to answer your questions.

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 www.rpmlasers.com

RPMC Lasers Inc (Incorporated in 1996) is the leading laser distributor in North America. We offer diode lasers, laser modules, solid state lasers and amplifiers, and fiber lasers and amplifiers. We also offer custom solid-state lasers and laser diode subsystems. We have over 1500 different laser diodes and solid-state lasers from technology leading manufacturers in the US, Europe, and Asia. Our goal is to provide high quality technical advice with an in-depth knowledge of the products we offer at an attractive value proposition, the best laser at a fair price.

**SB Drug Discovery 209**  
 West of Scotland Science Park  
 Glasgow, G20 0XA  
 United Kingdom  
 www.sbdrugdiscovery.com

SB Drug Discovery is a contract research organization specializing in ion channel, GPCR and transporter drug discovery services including recombinant cell line generation, assay development, high throughput screening and selectivity profiling. With over 150 recombinant ion channel cell lines, SB's ion channel discovery team combines one of the largest commercial sources of ion channel reagents with high throughput electrophysiology to offer a complete resource for drug discovery screening, lead optimization and selectivity.

**Semrock, a business unit of IDEX Health & Science 300**  
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 Rochester, NY 14624  
 www.semrock.com

Semrock, a business unit of IDEX Health & Science, manufactures optical filters that set the standard for use in biomedical and analytical instrumentation. These include LED bandpass sets, sets for Brilliant dyes, and other high performance fluorescence and Raman spectroscopy filters. These innovative products are built on the latest in optical coating technology for end users or high-volume delivery demands.

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**Sophion Bioscience A/S 247**  
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 Ballerup, 2750  
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Sophion was founded almost 20 years ago by a group of passionate electrophysiologists, with the shared purpose of making patch clamping objective and independent of user skills to provide faster, more accurate and objective patch clamping results. With our products QPatch and Qube we cover most throughput needs and provide the user with real whole-cell patch clamp data based on true gigaseals. With our technical, biological and application support we help our partners achieving their targets and ensuring uncompromised data quality in a user-friendly environment from assay setup to data analysis.



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Strex manufactures innovative biological research instruments. Our most popular products are our Cell Stretching Systems for cell culture, uniaxial, and biaxial stretch. These devices mimic mechanical cell strain in cell cultures and create an environment similar to in vivo conditions. The most common cell or tissue types are: endothelial cells, cardiomyocyte, blood vessel tissue, heart tissue, bladder tissue and lung tissue/cells. Microscope mountable options are available as well. We also provide an innovative LN2-free Controlled Rate Freezer for benchtop use. Contact us for more information.



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This year we will be showcasing several exciting products. The dPatch® is a dual headstage integrated digital patch clamp amplifier with built-in digitizer and comprehensive SutterPatch software. The award winning Lambda OBC Optical Beam Combiner is a patented concept for combining separate light sources with different spectra into a single output beam. The BOB is a flexible open architecture upright microscope that can be configured for your research needs. In addition, the stainless steel TRIO manipulator provides greater stability.

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T&T Scientific Corporation produces low-cost, fully assembled, and single-use liposome extrusion devices that simplify the process of preparing liposomes for research laboratories, manufacturing facilities, and clinical settings. T&T Scientific's NanoSizer™ extruders are provided fully assembled, ready to use, and they do not require any assembly or cleaning which enables a more efficient process. NanoSizer extruders are single-use which means they are clean every time, eliminating the risk of contamination. Automated NanoSizer extrusion equipment is transforming liposome production of a small and large volume of solutions alike, simplifying scale-up from research and development through to final large scale manufacturing.

**TA Instruments 517**

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At TA Instruments we believe in offering solutions through quantitative understanding and multi-parameter analysis. By measuring native systems via their heat production, we enable scientists to address both questions of "how stable" and "how fast", two tenets of a chemical system. Our Affinity ITC and Nano DSC, both with automated options, are high precision calorimeters for label-free measurements of binding interactions, biomolecular structure and stability. We also offer the ultra-sensitive TAM IV isothermal calorimeter, a configurable platform with applications ranging from shelf-life stability for small molecule and biologics, amorphicity content, microbial activity, and more. Visit us to learn about the very latest in our applications using native assays.

**The Company of Biologists 518**

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**The Journal of Physiology 717**

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jp.physoc.org

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**Thorlabs**

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www.thorlabs.com

Thorlabs has been proud to serve the photonics industry for over 25 years. With increasing use of photonics technologies in the life sciences, we have grown our capabilities to serve the life science and biomedical markets with purpose-built components and systems. Thorlabs offers multiphoton, OCT, and widefield imaging systems, as well as cameras, lasers, optics, fiber, electronics, and mechanical components. Our offices, located in 9 countries, are focused on providing same-day shipping of stocked components, a fast response to customer inquiries, and fast turnaround on custom needs.

**TMC**

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Peabody, MA 01960  
www.techmfg.com

TMC designs and manufactures a complete line of floor vibration isolation systems and laboratory tables for biophysics research. Products include the world-renowned CleanBench vibration isolated lab table, and the Everstill active vibration isolation benchtop platform, as well as the brand new CleanBench Aktiv lab table that combines pneumatic and active vibration isolation for unprecedented performance. For large precision instruments like electron microscopes TMC offers the STACIS family of active piezoelectric solutions that help keep these instruments inside their vibration specifications.

**103 Tokai Hit Co Ltd**

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Fujinomiya-shi, Shizuoka 418-0074  
Japan  
www.tokaihit.com

Happiness for Cells, Success for Researchers For BPS 2019, we will introduce: - New Microscope Environmental enclosure for temperature control - Media-exchange-system for various applications with TTL operation & high-quality - IonOptics OEM Electro-stimulation chamber system Various system and customization are possible with Tokai Hit to support successful cell-culturing. They are unique and only available from Tokai Hit. A fail-proof Incubation/Stress-Free Quality/Intuitive operation Please visit our booth 335 and see our new devices.

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Portland, OR 97203  
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TCI is a leading global manufacturer and supplier of specialty chemicals to the chemical, pharmaceutical, biotech, electronic, and environmental industries. Drawing on over 80 years of synthetic organic chemistry experience, TCI develops new technology that produces rare and novel compounds. Our current catalog lists over 28,000 products for use in research and production. Our manufacturing capabilities include multistep synthesis and continuous production from milligram to ton scale for custom and contract research services. Visit our website www.TCIchemicals.com today!

**335**

**Tomocube Inc**

2nd Floor, KHE Building, 48 YUuseong-daero  
Daejeon, 34109  
South Korea  
www.tomocube.com

Tomocube is dedicated to delivering products that can enhance biological and medical research via novel optical solutions that can assist Tomocube in understanding, diagnosing, and treating human diseases. Current optical microscopes only provide users with a 2D view of their sample. To get a 3D view, users must use expensive and invasive electron or confocal microscopes, which require extensive pre-preparation of samples and are not amenable to dynamic samples such as live cells. Our platform enables researchers to measure nanoscale, real-time, dynamic images of individual living cells without the need for sample preparation.

**111**

**NEW  
2019**

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TOPTICA is a privately held technology driven company, which develops, produces and sells diode and ultrafast fiber lasers for scientific and industrial applications. The company sets its own challenge to regularly present exciting product innovations and world firsts.

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 2211 Lewis Avenue  
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Tousimis is a globally recognized manufacturer of highly reliable CPD systems. We are based in the Washington, DC area with global sales and service support. We have over four decades' experience designing and fabricating our CPD systems. Our CPD process reproducibly preserves micro & Nano 3D structure. Current applications include: Biological, MEMS, Gel, Nano Particle, C-Nanotubes, Graphene, and others. Please visit and learn about how we can benefit your Biophysical research!



**Warner Instruments** 438  
 1125 Dixwell Avenue  
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 www.warneronline.com

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**Wyatt Technology Corporation** 617  
 6330 Hollister Avenue  
 Santa Barbara, CA 93117  
 www.wyatt.com

Wyatt Technology is the recognized leader in light scattering instrumentation and software for determining absolute molar mass, size, charge and interactions of macromolecules and nanoparticles in solution. Wyatt provides in-line multi-angle static light scattering SEC-MALS; field flow fractionation (separation with no stationary phase)-FFF-MALS; composition gradients for interaction analysis - CG-MALS; high-throughput dynamic light scattering-DLS; high-sensitivity electrophoretic mobility-MP-PALS; differential refractometry, and differential viscosity.

**Xenocs** 711  
 7 Pomeroy Lane, Unit #3  
 Amherst, MA 01002  
 www.xenocs.com

Xenocs makes SAXS/WAXS instruments for protein, RNA, lipid, micelles and other nano scale materials. For protein conformation, SAXS can give you the envelope of your protein. For protein folding, the Kratky plot is extremely sensitive. The BioXolver can be used for automated measurements from a 96-well plate using 5 uL of material. The BioXolver can also measure SEC-SAXS for highly monodisperse fractionated protein sample measurements. With a very low Qmin (0.006 A-1), variable detector distance, the BioXolver is a workhorse. Xenocs brings SAXS/WAXS measurements to your lab.

**ZenBio Inc** 718  
 3200 East Highway 54, Suite 100  
 Research Triangle Park, NC 27709  
 www.zenbio.com

Zen-Bio is a leading global provider of advanced cell-based solutions and services to the life science, cosmetics, and personal care communities. The company, founded in 1995, was a pioneer in adipose derived stem cells (ASCs) and continues this legacy by providing cutting edge human primary cell culture products and services. Our mission is to provide the highest quality human cell systems, reagents, blood products and contract services to our research partners; to develop and commercialize innovative research tools and to leverage our expertise through research and development.

## Product Categories

Company Name	Booth Number	Company Name	Booth Number	Company Name	Booth Number
<b>3-D Visualization</b>		<b>Biochemicals</b>		<b>Centrifuges</b>	
Abbelight	320	Anatrace   Molecular Dimensions	316	Beckman Coulter Life Sciences	616
Allen Institute for Cell Science	602	Larodan AB	716	Electron Microscopy Sciences	816
DNASTAR Inc	804	Matreya LLC	710	Embi Tec	340
Fluicell AB	318	Peptides International Inc	252	<b>Chromatography</b>	
ForteBio	347	Tokyo Chemical Industry Co Ltd	111	Wyatt Technology Corporation	617
<b>AFM/NSOM/Confocal Microscopes</b>		ZenBio Inc	718	<b>Circular Dichroism Spectroscopy</b>	
Abberior Instruments America LLC	502	<b>Biotechnology</b>		Applied Photophysics	509
Asylum Research	239	Alvéole	705	Hellma USA	342
Bruker Corporation	301	Anton Paar	500	JASCO	234
Ionovation GmbH	405	BioCAT	802	OLIS Inc	422
ISS	238	CoolLED	452	Quantum Northwest Inc	416
Mad City Labs Inc	216	Excelitas Technologies	346	<b>Computational Biology Products</b>	
<b>Amperometry/Voltammetry Instrumentation</b>		Expression Systems	419	Allen Institute for Cell Science	602
npi electronic GmbH	323	Metrion Biosciences	348	Cytocybernetics Inc	800
<b>Amphipols</b>		NanoSurface Biomedical	505	<b>Computational Software</b>	
Anatrace   Molecular Dimensions	316	Nicoya Lifesciences	302	Cytocybernetics Inc	800
<b>Amplifiers</b>		ONI	332	DNASTAR Inc	804
ELEMENTS SRL	400	Pressure Biosciences Inc	610	<b>Computers, hardware and software</b>	
HEKA Elektronik	440	Sophion Bioscience A/S	247	Aurora Scientific Inc	810
Mad City Labs Inc	216	Tokyo Chemical Industry Co Ltd	111	DNASTAR Inc	804
Multi Channel Systems	442	Wyatt Technology Corporation	617	JETSTREAM - CLOUD	333
npi electronic GmbH	323	<b>Books and Journals</b>		<b>Confocal Microscopes</b>	
Sutter Instrument	201	Journal of General Physiology	600	Abberior Instruments America LLC	502
<b>Analytical/Testing Services</b>		Royal Society Publishing	619	Bruker Corporation	301
Anton Paar	500	The Company of Biologists	518	Ionovation GmbH	405
Avanti Polar Lipids Inc	228	<b>Cameras</b>		ISS	238
Ecocyte Bioscience US LLC	259	Carl Zeiss Microscopy LLC	700	Linnowave	254
Peptides International Inc	252	FISBA US	330	LUMICKS	701
<b>Antibodies</b>		Hamamatsu Corporation	246	Mad City Labs Inc	216
AAT Bioquest Inc	504	PCO America	322	Molecular Devices	117
Avanti Polar Lipids Inc	228	Photometrics	208	Nikon Instruments Inc	317
Jackson ImmunoResearch Laboratories Inc	708	Thorlabs	103	PicoQuant Photonics North America Inc	401
Matreya LLC	710	<b>Cell Biology Products</b>		Siskiyou Corporation	704
Pressure Biosciences Inc	610	AAT Bioquest Inc	504	Thorlabs	103
Tokyo Chemical Industry Co Ltd	111	Alvéole	705	<b>Crystallization Utilities</b>	
<b>Assay Kits</b>		CoolLED	452	Linnowave	254
Agilent	229	Ecocyte Bioscience US LLC	259	<b>Crystallography</b>	
ZenBio Inc	718	Electron Microscopy Sciences	816	Anatrace   Molecular Dimensions	316
<b>Atomic Force Microscopes</b>		Fluicell AB	318	Pressure Biosciences Inc	610
Bruker Corporation	301	FUJIFILM Cellular Dynamics	808	TA Instruments	517
Mad City Labs Inc	216	NanoSurface Biomedical	505	Wyatt Technology Corporation	617
<b>Biochemical Reagents</b>		Strex	402	Xenocs	711
AAT Bioquest Inc	504	ZenBio Inc	718	<b>Curvettes</b>	
Anatrace   Molecular Dimensions	316	<b>Cell Culture Products</b>		Hellma USA	342
Larodan AB	716	BioTek Instruments Inc	404	<b>Data Acquisition</b>	
Peptides International Inc	252	Ecocyte Bioscience US LLC	259	ELEMENTS SRL	400
Tokyo Chemical Industry Co Ltd	111	Expression Systems	419	ID Quantique SA	211
		FUJIFILM Cellular Dynamics	808	IonOptix	233
		IonOptix	233	Molecular Devices	117
		NanoSurface Biomedical	505	PicoQuant Photonics North America Inc	401
		Strex	402		
		Tokai Hit Co Ltd	335		
		ZenBio Inc	718		

Company Name	Booth Number	Company Name	Booth Number	Company Name	Booth Number
<b>Data Analysis</b>		<b>Electrophysiological Instruments</b>		<b>Fluorescence Lifetime Imaging</b>	
Allen Institute for Cell Science	602	ELEMENTS SRL	400	Abberior Instruments America LLC	502
DNASTAR Inc	804	HEKA Elektronik	440	Aurora Scientific Inc	810
ELEMENTS SRL	400	Ionovation GmbH	405	CoolLED	452
IonOptix	233	Molecular Devices	117	HORIBA Scientific	309
JETSTREAM - CLOUD	333	Nikon Instruments Inc	317	ID Quantique SA	211
KinTek Corporation	210	SENSAPEX	258	ISS	238
Micro Photonics	331	Sophion Bioscience A/S	247	Mad City Labs Inc	216
Nikon Instruments Inc	317			PCO America	322
		<b>Electrophysiology Equipment</b>		PicoQuant Photonics North America Inc	401
<b>Data Analysis Software</b>		Aurora Scientific Inc	810	Rapp OptoElectronic GmbH	503
Agilent	229	CoolLED	452		
Allen Institute for Cell Science	602	Cytocybernetics Inc	800	<b>Fluorescent Filters</b>	
Aurora Scientific Inc	810	Ecocyte Bioscience US LLC	259	89 North	409
DNASTAR Inc	804	HEKA Elektronik	440	Chroma Technology	508
Micro Photonics	331	Multi Channel Systems	442	Electron Microscopy Sciences	816
OLIS Inc	422	Narishige International USA, Inc.	417	Semrock, a business unit of IDEX Health & Science	300
		NeoBiosystems Inc	257		
<b>Detergents</b>		npi electronic GmbH	323	<b>Fluorescent Probes</b>	
Anatrace   Molecular Dimensions	316	Prior Scientific Inc	334	AAT Bioquest Inc	504
Avanti Polar Lipids Inc	228	SENSAPEX	258	Jackson ImmunoResearch Laboratories Inc	708
		Sophion Bioscience A/S	247	Peptides International Inc	252
<b>Dissecting Equipment</b>		Sutter Instrument	201		
Electron Microscopy Sciences	816			<b>Fluorimeters</b>	
		<b>Electrophysiology Software</b>		Applied Photophysics	509
<b>Drug Discovery</b>		Cytocybernetics Inc	800	Edinburgh Instruments	501
AAT Bioquest Inc	504	Ecocyte Bioscience US LLC	259	Fluorescence Innovations Inc	519
Abbelight	320	ELEMENTS SRL	400	HORIBA Scientific	309
Agilent	229	HEKA Elektronik	440	ISS	238
BioCAT	802	Molecular Devices	117	OLIS Inc	422
BMG LABTECH	109	Multi Channel Systems	442	Quantum Northwest Inc	416
Cytocybernetics Inc	800			<b>Glass Capillary Tubing</b>	
Fluicell AB	318	<b>Environmental Chambers</b>		Warner Instruments	438
FUJIFILM Cellular Dynamics	808	Precision Plastics Inc	123		
LUMICKS	701	<b>Filter Wheels</b>		<b>Glassware</b>	
Malvern Panalytical	253	89 North	409	Hellma USA	342
Metrion Biosciences	348	ASI/Applied Scientific Instrumentation	328	NanoSurface Biomedical	505
Molecular Devices	117	Chroma Technology	508		
Nicoya Lifesciences	302			<b>High-Throughput Instrumentation</b>	
Pressure Biosciences Inc	610	<b>Flash Lamps</b>		Anton Paar	500
SB Drug Discovery	209	Rapp OptoElectronic GmbH	503	BioTek Instruments Inc	404
Tokyo Chemical Industry Co Ltd	111			BMG LABTECH	109
Xenocs	711	<b>Fluorescence Anisotropy</b>		Ecocyte Bioscience US LLC	259
		Edinburgh Instruments	501	Fluorescence Innovations Inc	519
<b>Electromechanical Instrumentation</b>		Fluorescence Innovations Inc	519	JASCO	234
Mad City Labs Inc	216	HORIBA Scientific	309	LUMICKS	701
Prior Scientific Inc	334	KinTek Corporation	210	Mad City Labs Inc	216
Strex	402	OLIS Inc	422	Molecular Devices	117
Tokai Hit Co Ltd	335			Multi Channel Systems	442
		<b>Fluorescence Correlation Spectroscopy</b>		NeoBiosystems Inc	257
<b>Electrophoresis Equipment</b>		ID Quantique SA	211	Wyatt Technology Corporation	617
Embi Tec	340	Ionovation GmbH	405	Xenocs	711
Wyatt Technology Corporation	617	ISS	238		
		<b>Fluorescence Image Analysis Equipment</b>		<b>Image Acquisition Systems</b>	
<b>Electrophysiological Data Acquisition</b>		BioTek Instruments Inc	404	Aurora Scientific Inc	810
Ecocyte Bioscience US LLC	259	Excelitas Technologies	346	PCO America	322
ELEMENTS SRL	400	Mizar Imaging	458		
Fluicell AB	318	Nikon Instruments Inc	317	<b>Image Analysis</b>	
HEKA Elektronik	440	ONI	332	Allen Institute for Cell Science	602
Metrion Biosciences	348	PCO America	322	Malvern Panalytical	253
Multi Channel Systems	442				
NeoBiosystems Inc	257				
SB Drug Discovery	209				

Company Name	Booth Number	Company Name	Booth Number	Company Name	Booth Number
<b>Image Analysis Software</b>		<b>Ion Channels</b>		<b>Light Sheet Microscopy</b>	
Abbelight	320	Anatrace   Molecular Dimensions	316	89 North	409
Allen Institute for Cell Science	602	CytoCybernetics Inc	800	ASI/Applied Scientific Instrumentation	328
Aurora Scientific Inc	810	Fluicell AB	318	Bruker Corporation	301
Carl Zeiss Microscopy LLC	700	FUJIFILM Cellular Dynamics	808	Carl Zeiss Microscopy LLC	700
Micro Photonics	331	Metrion Biosciences	348	Hamamatsu Corporation	246
Nikon Instruments Inc	317	SB Drug Discovery	209	Mad City Labs Inc	216
		Sophion Bioscience A/S	247	Mizar Imaging	458
		Warner Instruments	438	Nikon Instruments Inc	317
<b>Image Analysis, High Resolution</b>		<b>Isotope-Labeled Compounds</b>		<b>Light Sources</b>	
Nikon Instruments Inc	317	Larodan AB	716	89 North	409
PCO America	322			BioCAT	802
<b>Image Analyzers, Ratiometric Dyes</b>		<b>Label Free Sensing</b>		Chroma Technology	508
HORIBA Scientific	309	Allen Institute for Cell Science	602	CoolLED	452
		Arago Bio - Refeyn	243	Excelitas Technologies	346
<b>Image Intensifiers</b>		LUMICKS	701	Hellma USA	342
PCO America	322			IonOptix	233
		<b>Labeling Dyes</b>		Rapp OptoElectronic GmbH	503
<b>Image Stabilization</b>		AAT Bioquest Inc	504	SENSAPEX	258
Mad City Labs Inc	216	Peptides International Inc	252	Sutter Instrument	201
<b>Imaging Chambers</b>		<b>Laboratory Apparatus &amp; Equipment</b>		<b>Lipids</b>	
ALA Scientific Instruments Inc	321	Alvéole	705	Anatrace   Molecular Dimensions	316
ASI/Applied Scientific Instrumentation	328	BMG LABTECH	109	Avanti Polar Lipids Inc	228
Precision Plastics Inc	123	Edinburgh Instruments	501	Larodan AB	716
Strex	402	Electron Microscopy Sciences	816	Matreya LLC	710
Warner Instruments	438	Excelitas Technologies	346	Tokyo Chemical Industry Co Ltd	111
		LUMICKS	701		
<b>Imaging Systems</b>		NanoSurface Biomedical	505	<b>Liposome Preparation Equipment</b>	
89 North	409	Precision Plastics Inc	123	Larodan AB	716
Abberior Instruments America LLC	502	tousimis	719	Pressure Biosciences Inc	610
ASI/Applied Scientific Instrumentation	328			<b>Liquid Chromatography Instruments</b>	
BioTek Instruments Inc	404	<b>Lasers</b>		Wyatt Technology Corporation	617
Embi Tec	340	Abbelight	320	<b>Magnetic Resonance Imaging</b>	
FISBA US	330	Edinburgh Instruments	501	Bruker Corporation	301
HEKA Elektronik	440	Excelitas Technologies	346	<b>Mass Spectrometry</b>	
Mizar Imaging	458	PicoQuant Photonics North America Inc	401	Arago Bio - Refeyn	243
Molecular Devices	117	Rapp OptoElectronic GmbH	503	Avanti Polar Lipids Inc	228
Nikon Instruments Inc	317	RPMC Lasers Inc	339	Pressure Biosciences Inc	610
PCO America	322	Thorlabs	103	<b>Mathematical and Statistical Software</b>	
Prior Scientific Inc	334			KinTek Corporation	210
Thorlabs	103	<b>Life Sciences</b>		<b>Micro Environmental Control</b>	
		89 North	409	ALA Scientific Instruments Inc	321
<b>Imaging, Spectral</b>		Agilent	229	Alvéole	705
Abberior Instruments America LLC	502	Alvéole	705	NanoSurface Biomedical	505
Chroma Technology	508	BioCAT	802		
Hamamatsu Corporation	246	BMG LABTECH	109	<b>Microcalorimetry Systems</b>	
		Chroma Technology	508	Malvern Panalytical	253
<b>Immunochemicals</b>		CoolLED	452	TA Instruments	517
Jackson ImmunoResearch Laboratories Inc	708	Embi Tec	340	<b>Microdissecting Instruments</b>	
		FUJIFILM Cellular Dynamics	808	Rapp OptoElectronic GmbH	503
<b>Incubators</b>		Hamamatsu Corporation	246	<b>Microelectrode Holders</b>	
ASI/Applied Scientific Instrumentation	328	Linnowave	254	ALA Scientific Instruments Inc	321
Linnowave	254	Mad City Labs Inc	216	SENSAPEX	258
Tokai Hit Co Ltd	335	Metrion Biosciences	348	Warner Instruments	438
Warner Instruments	438	Nicoya Lifesciences	302		
		PicoQuant Photonics North America Inc	401		
<b>Infrared Spectroscopy</b>		Pressure Biosciences Inc	610		
JASCO	234	Siskiyou Corporation	704		
Quantum Northwest Inc	416				
<b>Interferometers</b>					
Mad City Labs Inc	216				

Company Name	Booth Number	Company Name	Booth Number	Company Name	Booth Number
<b>Microfluidic Chambers</b>		<b>Microscope Drift Correction</b>		<b>Nuclear Magnetic Resonance</b>	
ALA Scientific Instruments Inc	321	Abbelight	320	Bruker Corporation	301
MicroData Instrument Inc	420	ASI/Applied Scientific Instrumentation	328	<b>Particle Sizing Products</b>	
Warner Instruments	438	Mad City Labs Inc	216	Anton Paar500	
<b>Microforges</b>		<b>Microscope Stages</b>		Arago Bio - Refeyn	243
ALA Scientific Instruments Inc	321	ASI/Applied Scientific Instrumentation	328	Malvern Panalytical	253
MicroData Instrument Inc	420	Mad City Labs Inc	216	Wyatt Technology Corporation	617
Narishige International USA, Inc.	417	Nikon Instruments Inc	317	Xenocs	711
<b>Microinjectors</b>		Prior Scientific Inc	334	<b>Patch Clamp Instrumentation</b>	
ASI/Applied Scientific Instrumentation	328	Siskiyou Corporation	704	ELEMENTS SRL	400
MicroData Instrument Inc	420	<b>Microscopes</b>		Fluicell AB	318
Narishige International USA, Inc.	417	Abbelight	320	HEKA Elektronik	440
npi electronic GmbH	323	Abberior Instruments America LLC	502	Multi Channel Systems	442
Sutter Instrument	201	ASI/Applied Scientific Instrumentation	328	Narishige International USA, Inc.	417
Warner Instruments	438	Asylum Research	239	NeoBiosystems Inc	257
<b>Micromanipulators</b>		BioTek Instruments Inc	404	npi electronic GmbH	323
ASI/Applied Scientific Instrumentation	328	Bruker Corporation	301	SB Drug Discovery	209
LUMICKS	701	Carl Zeiss Microscopy LLC	700	SENSAPEX	258
MicroData Instrument Inc	420	Electron Microscopy Sciences	816	Siskiyou Corporation	704
Narishige International USA, Inc.	417	IonOptix	233	Tokai Hit Co Ltd	335
NeoBiosystems Inc	257	ISS	238	Warner Instruments	438
Prior Scientific Inc	334	Leica Microsystems	516	<b>Peptides</b>	
SENSAPEX	258	Linnwave	254	Tokyo Chemical Industry Co Ltd	111
Siskiyou Corporation	704	LUMICKS	701	<b>Perfusion Stepper System</b>	
Sutter Instrument	201	Mad City Labs Inc	216	Warner Instruments	438
<b>Micropipette Pullers</b>		MicroData Instrument Inc	420	<b>Perfusion Systems</b>	
MicroData Instrument Inc	420	Nikon Instruments Inc	317	ALA Scientific Instruments Inc	321
Narishige International USA, Inc.	417	Olympus America Inc	222	MicroData Instrument Inc	420
Siskiyou Corporation	704	ONI	332	Tokai Hit Co Ltd	335
Sutter Instrument	201	PicoQuant Photonics North America Inc	401	Warner Instruments	438
<b>Micropipettes</b>		Rapp OptoElectronic GmbH	503	<b>Pharmaceutical Development Equipment</b>	
Embi Tec	340	SENSAPEX	258	Fluicell AB	318
<b>Micropositioners</b>		Sutter Instrument	201	Malvern Panalytical	253
ASI/Applied Scientific Instrumentation	328	Thorlabs	103	ONI	332
Mad City Labs Inc	216	Warner Instruments	438	<b>Phospholipids</b>	
NeoBiosystems Inc	257	<b>Microscopy Chambers</b>		Larodan AB	716
Newport Corporation	434	Linnwave	254	Matreya LLC	710
PI (Physik Instrumente)	308	Precision Plastics Inc	123	<b>Photometers</b>	
<b>Microscope Accessories</b>		<b>Molecular Biology Products</b>		BioTek Instruments Inc	404
89 North	409	Embi Tec	340	Rapp OptoElectronic GmbH	503
Alvéole	705	Fluicell AB	318	<b>Piezo Lens Positioners</b>	
Carl Zeiss Microscopy LLC	700	Peptides International Inc	252	ASI/Applied Scientific Instrumentation	328
Chroma Technology	508	<b>Monochromators</b>		Mad City Labs Inc	216
CoolLED	452	BMG LABTECH	109	PI (Physik Instrumente)	308
Excelitas Technologies	346	Newport Corporation	434	<b>Piezo Scanning Stages</b>	
LaCroix Precision Optics	338	<b>Nanopositioning Systems</b>		Mad City Labs Inc	216
Leica Microsystems	516	ASI/Applied Scientific Instrumentation	328	PI (Physik Instrumente)	308
Mad City Labs Inc	216	Mad City Labs Inc	216	Mad City Labs Inc	216
Mizar Imaging	458	NeoBiosystems Inc	257	PI (Physik Instrumente)	308
NanoSurface Biomedical	505	Newport Corporation	434	Prior Scientific Inc	334
Nikon Instruments Inc	317	PI (Physik Instrumente)	308	<b>Near-Field Scanning Optical Microscopes (NSOM)</b>	
Precision Plastics Inc	123	Prior Scientific Inc	334	Mad City Labs Inc	216
Rapp OptoElectronic GmbH	503	Thorlabs	103		
Semrock, a business unit of IDEX Health & Science	300	<b>Near-Field Scanning Optical Microscopes (NSOM)</b>			
SENSAPEX	258				
Siskiyou Corporation	704				
Tokai Hit Co Ltd	335				

Company Name	Booth Number	Company Name	Booth Number	Company Name	Booth Number
<b>Piezo Stages</b>		<b>Rheometers/Viscometers</b>		<b>Spectrometers</b>	
ASI/Applied Scientific Instrumentation	328	Anton Paar	500	Anton Paar	500
Mad City Labs Inc	216	Malvern Panalytical	253	Applied Photophysics	509
Newport Corporation	434	TA Instruments	517	Arago Bio - Refeyn	243
PI (Physik Instrumente)	308	Xenocs	711	Edinburgh Instruments	501
Prior Scientific Inc	334			ISS	238
				JASCO	234
				Newport Corporation	434
				Quantum Northwest Inc	416
				Thorlabs	103
<b>Pipettes</b>		<b>Scanning Electron Microscope</b>		<b>Spectrophotometer Light Sources</b>	
Electron Microscopy Sciences	816	Carl Zeiss Microscopy LLC	700	Hellma USA	342
Embi Tec	340	tousimis	719		
<b>Probes</b>		<b>Scanning Probe Microscopes</b>		<b>Spectrophotometers</b>	
AAT Bioquest Inc	504	HEKA Elektronik	440	BioTek Instruments Inc	404
GATTAquant	702	Ionovation GmbH	405	JASCO	234
Mad City Labs Inc	216	Mad City Labs Inc	216	KinTek Corporation	210
		ONI	332	OLIS Inc	422
				Quantum Northwest Inc	416
<b>Protein Binding Studies</b>		<b>Scientific CMOS Cameras</b>		<b>Spectroscopy Accessories</b>	
Arago Bio - Refeyn	243	Abbelight	320	Applied Photophysics	509
Fluorescence Innovations Inc	519	Hamamatsu Corporation	246	Edinburgh Instruments	501
TA Instruments	517	PCO America	322	Hellma USA	342
Xenocs	711	Warner Instruments	438	HORIBA Scientific	309
				KinTek Corporation	210
				Quantum Northwest Inc	416
<b>Protein Expression</b>		<b>Screening, High-Throughput</b>		<b>Sphingolipids</b>	
Arago Bio - Refeyn	243	CoolLED	452	Avanti Polar Lipids Inc	228
Expression Systems	419	Fluorescence Innovations Inc	519	Larodan AB	716
SB Drug Discovery	209	Metrion Biosciences	348	Matreya LLC	710
		Multi Channel Systems	442		
		NanoSurface Biomedical	505		
		SB Drug Discovery	209		
		Sophion Bioscience A/S	247		
<b>Protein Purification Systems</b>		<b>Sensors</b>		<b>Stepper Technology</b>	
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Arago Bio - Refeyn	243	ID Quantique SA	211	Siskiyou Corporation	704
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Wong, P., 1210-Pos  
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Wu, H., 353-Pos, 739-Pos, 1529-Plat  
Wu, J., 2873-Pos  
Wu, J. C., 505-Pos  
Wu, L., 1548-Plat  
Wu, M., 267-Pos, 2659-Pos  
Wu, R. A., 743-Symp  
Wu, S., 43-Subg, 1639-Pos  
Wu, T., 2301-Plat, 2757-Pos  
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- Xhani, S., 2409-Pos  
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Xia, Y., 100-Plat, 587-Pos, 2048-Pos, 2051-Pos  
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Xiao, J., 369-Pos, 1371-Pos, 1601-Plat, No Abstract, 2301-Plat, 2320-Plat, 2702-Pos, 2704-Pos  
Xiao, X., 2238-Plat, 2645-Pos  
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Xu, H., 1536-Plat, 1678-Pos, 2434-Pos  
Xu, J., 2017-Pos  
Xu, K., 1470-Symp  
Xu, L., 375-Pos, 2583-Pos  
Xu, P., 687-Pos  
Xu, R. J., 991-Pos  
Xu, S., 1592-Plat, 1790-Pos, 2214-Pos, 2352-Pos  
Xu, W., 1046-Pos, 2184-Pos  
Xu, X., 311-Pos, 1012-Pos, 1747-Pos, 1810-Pos, 2688-Pos  
Xu, Y., 1944-Pos, 1945-Pos, 1950-Pos, 1981-Pos, 2105-Pos, 2265-Plat, 2617-Pos  
Xu, Z., 1592-Plat, 2239-Plat  
Xue, M., 1700-Pos  
Xue, Z., 1000-Pos

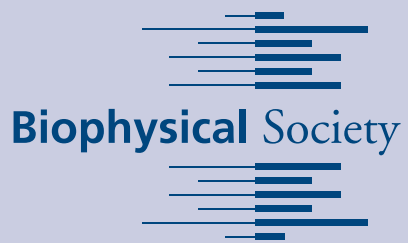
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- Yadav, A., 1670-Pos  
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- Yan, W., 598-Pos  
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Yang, H., No Abstract, 132-Plat, 1238-Pos, 1967-Pos, 1979-Pos, 2385-Pos, 2795-Pos  
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Yang, T., 653-Pos, 1976-Pos, 2680-Pos  
Yang, W., 1398-Pos, 2182-Pos, 2238-Plat  
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Yaniv, Y., 1141-Pos, 1142-Pos  
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# Notes

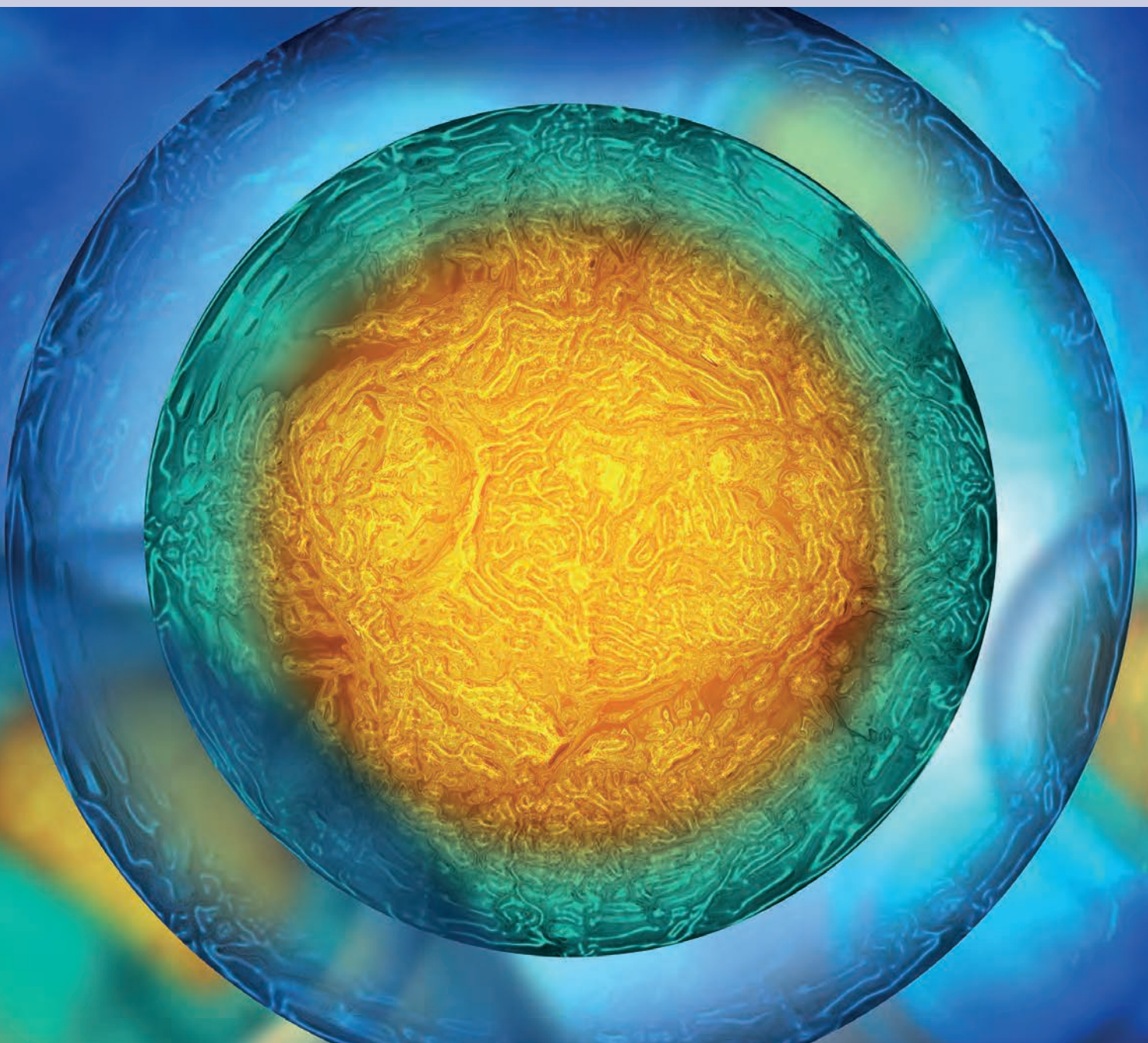




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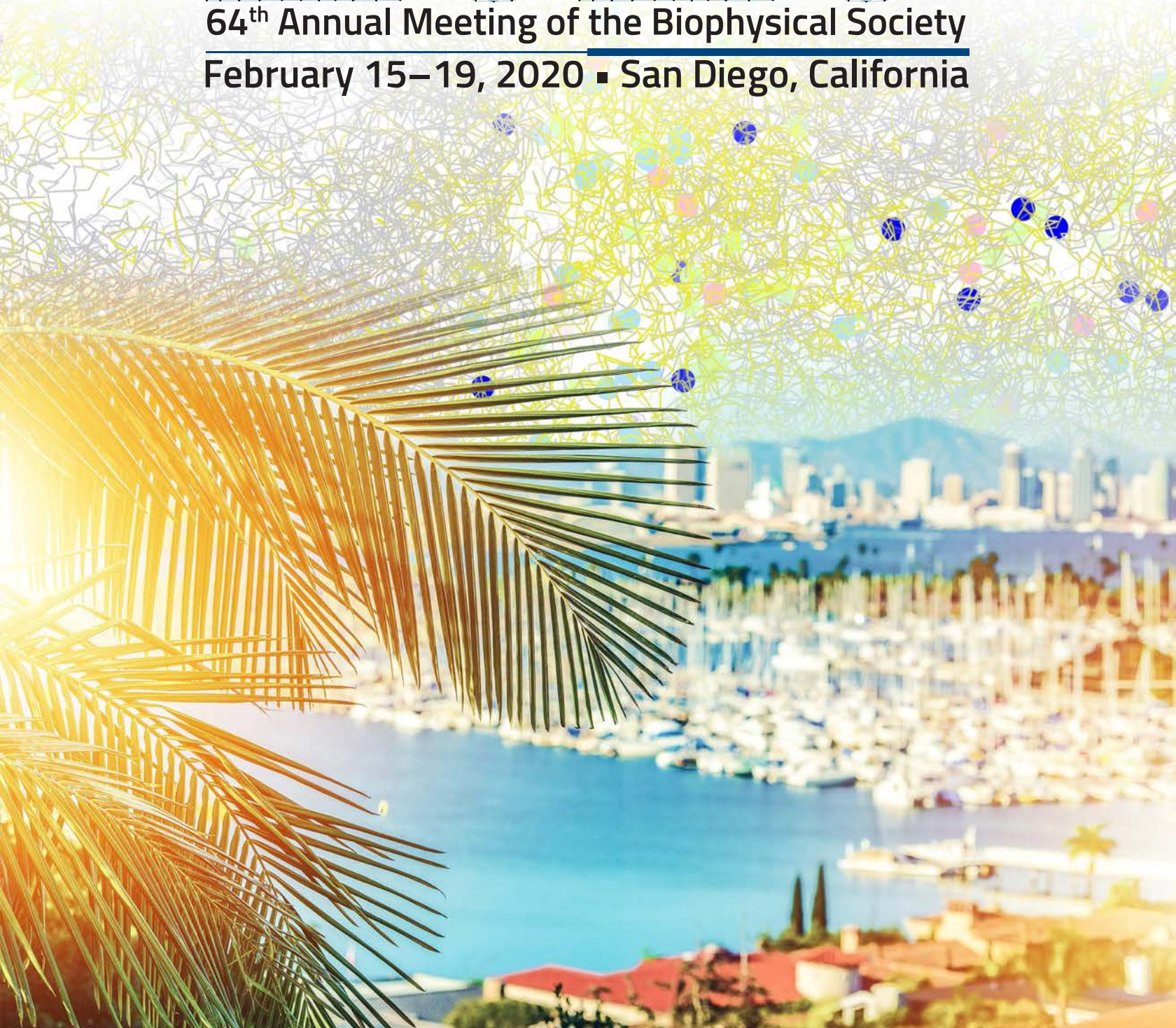
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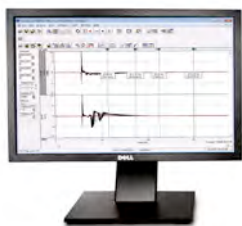


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