

# BPS 19

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

BALTIMORE, MARYLAND • MARCH 2–6, 2019

## SUBGROUP SATURDAY

*Delve deep into a subject area with symposia organized by these dynamic, focused communities.*

- **BIOENERGETICS, MITOCHONDRIA & METABOLISM**
- **BIOENGINEERING**
- **BIOLOGICAL FLUORESCENCE**
- **BIOPOLYMERS IN VIVO**
- **CELL BIOPHYSICS**
- **CRYO-EM**
- **EXOCYTOSIS & ENDOCYTOSIS**
- **INTRINSICALLY DISORDERED PROTEINS**
- **MECHANOBIOLOGY**
- **MEMBRANE BIOPHYSICS**
- **MEMBRANE STRUCTURE & FUNCTION**
- **MOLECULAR BIOPHYSICS**
- **MOTILITY & CYTOSKELETON**
- **NANOSCALE BIOPHYSICS**
- **PERMEATION & TRANSPORT**

## 2019 Program Committee

**Andrej Sali**, University of California, San Francisco, Co-Chair  
**Susan Marqusee**, University of California, Berkeley, Co-Chair  
**Ruben Gonzalez**, Columbia University  
**Joanna Swain**, Cogen Therapeutics  
**Michael Pusch**, CNR, Italy  
**Anne Kenworthy**, Vanderbilt University School of Medicine  
**Francesca Marassi**, Sanford Burnham Presby Medical Discovery Institute  
**Patricia Clark**, University of Notre Dame  
**Bill Kobertz**, University of Massachusetts

## SYMPOSIA

Discover the latest advances in biophysics.

### Proteins: Dynamics and Allostery

Rommie Amaro, University of California, San Diego, Chair  
Lewis Kay, University of Toronto, Canada  
Vincent Hilser, Johns Hopkins University  
Catherine A. Royer, Rensselaer Polytechnic Institute

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

Polly Fordyce, Stanford University, Chair  
Kim Reynolds, University of Texas Southwestern Medical Center  
Daniel Tawfik, Weizmann Institute of Science, Israel  
Eugene Koonin, NIH

### Large Macromolecular Machines in the Cell

Joachim Frank, Columbia University, Chair  
Emad Tajkhorshid, University of Illinois at Urbana-Champaign  
Michael Rout, Rockefeller University  
Titia Sixma, Netherlands Cancer Institute

### Biological Systems Single Molecule at the Time

Ben Schuler, University of Zürich, Switzerland, Chair  
Carlos Bustamante, University of California, Berkeley, HHMI  
Xiaowei Zhang, Harvard University  
Scott Blanchard, Cornell University

### Membrane Organization and Sculpting by Proteins

Jenny Hinshaw, NIH, Chair  
James Hurley, University of California, Berkeley  
Patricia Bassereau, Institut Curie, France  
Benoit Roux, University of Chicago

### Transporters and Channels

Diana Bautista, University of California, Berkeley, Chair  
Kaspar Locher, ETH Zürich, Switzerland  
Ildiko Szabo, University of Padova, Italy  
Nieng Yan, Princeton University

### Glutamate Receptors

Maria Kurnikova, Carnegie Mellon University, Chair  
Andrew Plested, FMP Berlin, Germany  
Shu-Jia Zhu, Chinese Academy of Science  
Lonnie Wollmuth, Stony Brook University

### Biological Membranes and Vesicles

John Briggs, MRC Laboratory of Molecular Biology, United Kingdom, Chair  
Kay Grünewald, University of Oxford, United Kingdom  
Julien Berro, Yale University  
Michael Feig, Michigan State University

### Function and Signaling at the Membrane

Mark McLean, University of Illinois at Urbana-Champaign, Chair  
Ana J. García-Sáez, University of Tübingen, Germany  
Jodi Nunnari, University of California, Davis  
Polina Lishko, University of California, Berkeley

### Molecular and Transcriptional Regulation of Cardiac E-C Coupling

Shi-Qiang Wang, Peking University, China, Chair  
Samantha Harris, University of Arizona  
Robin Shaw, Cedars-Sinai Medical Center  
Xander H.T. Wehrens, Baylor University

### Cytoskeleton

Sabine Petry, Princeton University, Chair  
James Spudich, Stanford University  
Claudia Veigel, Ludwig Maximilian University of München, Germany  
Leah Gheber, Ben-Gurion University of the Negev, Israel

### Regulation of Cardiomyocyte Beating

Beth L. Pruitt, Stanford University, Chair  
Litsa Kranias, University of Cincinnati  
Ohad Cohen, Weizmann Institute of Science, Israel  
Edward Lakatta, NIH

### Chromatin Organization and Regulation: From Physical Principles to Biological Phenomena

Karolin Luger, Colorado State University, Chair  
Lynn Zechiedrich, Baylor University  
Leonid Mirny, MIT  
Helmut Schiessel, Leiden University, The Netherlands

### RNA

Jody Puglisi, Stanford University, Chair  
Marina Rodnina, Max Planck Institute for Biophysical Chemistry, Germany  
Holger Stark, Max Planck Institute for Biophysical Chemistry, Germany  
Elizabeth Tran, Purdue University

### Proton-coupling Bioenergetics

Elizabeth Carpenter, University of Oxford, United Kingdom, Chair  
Robert Tampé, Goethe University Frankfurt, Germany  
Peter Rich, University College London, United Kingdom  
Todd P. Silverstein, Willamette University

### Determining Molecular Networks

Edward Marcotte, University of Texas at Austin, Chair  
Jonathan Weissman, University of California, San Francisco  
Olga Troyanskaya, Princeton University  
Trey Ideker, University of California, San Diego

### Synthetic Biology

Luis Serrano, Centre for Genomic Regulation, Spain, Chair  
Adam Cohen, Harvard University  
Elena G. Govorunova, University of Texas Health Science Center at Houston  
Michelle Chang, University of California, Berkeley

### Mapping the Cell

Raymond Stevens, University of Southern California, Chair  
Joseph DeRisi, University of California, San Francisco  
Markus Covert, Stanford University  
Rick Horwitz, Allen Institute for Cell Science

### Phase Separations in the Cell

Geeta Narlikar, University of California, San Francisco, Chair  
Julie Forman-Kay, University of Toronto, Canada  
Stephen Michnick, University of Montreal, Canada  
Rohit Pappu, Washington University in St. Louis

### Integrative Modeling from Macromolecules to Cell

Zaida Ann Luthey-Schulten, University of Illinois at Urbana-Champaign, Chair  
Frank Alber, University of Southern California  
Cecilia Clementi, Rice University  
Gerhard Hummer, Max Planck Institute of Biophysics, Germany

## 2019 BPS Lecturer



**Carol Robinson**  
University of Oxford  
United Kingdom

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

OVER 6,500  
ATTENDEES

MORE THAN  
4,000 ABSTRACT  
SUBMISSIONS

900 POSTER  
PRESENTATIONS  
DAILY

100 SCIENTIFIC  
SESSIONS

## WORKSHOPS

Learn from those leading the development of emerging techniques.

### The Role of Data Resources in Biophysics

Helen Berman, Rutgers University, Chair  
Stephen Burley, Rutgers University  
Henning Hermjakob, European Bioinformatics Institute, United Kingdom  
Alex Bateman, European Bioinformatics Institute, United Kingdom  
David Landsman, NIH

### Methods for Integrative Structure Modeling of Biomolecular Systems

Jens Meiler, Vanderbilt University, Chair  
Frank DiMaio, University of Washington  
Alexandre Bonvin, Utrecht University, The Netherlands  
Graham Johnson, Allen Institute for Cell Science  
Maya Topf, Birkbeck, University of London, United Kingdom

### Squeezing the Most out of Your Data – Bayesian Statistical Inference for Biophysics

Michael Nilges, Pasteur Institute, France, Chair  
Michael Habeck, Max Planck Institute for Biophysical Chemistry, Germany  
John Chodera, Memorial Sloan Kettering Cancer Center  
Massimiliano Bonomi, Cambridge University, United Kingdom  
Frank Noé, Freie Universität Berlin, Germany

### Methods for X-Ray Tomography and Electron Microscopy

Carolyn Larabell, Lawrence Berkeley National Laboratory, Chair  
John Rubinstein, University of Toronto, Canada  
Peijun Zhang, University of Oxford, United Kingdom  
Steven Ludtke, Baylor University  
Florence Tama, Nagoya University, Japan

### Single-Molecule Methods

Bo Huang, University of California, San Francisco, Chair  
Jie Xiao, Johns Hopkins University  
Michelle Wang, Cornell University  
Taekjip Ha, Johns Hopkins University  
William E. Moerner, Stanford University

## Abstract Topic Categories

- PROTEINS
- NUCLEIC ACIDS
- LIPID BILAYERS & MODEL MEMBRANES
- CELL PHYSIOLOGY & BIOPHYSICS
- CHANNELS
- CYTOSKELETON, MOTILITY & MOTORS
- BIOENERGETICS
- SYSTEMS BIOLOGY
- BIOPHYSICS OF NEUROSCIENCE
- NEW DEVELOPMENTS IN BIOPHYSICAL TECHNIQUES
- BIOENGINEERING & BIOMATERIALS
- BIOPHYSICS EDUCATION

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- Platform presentations highlight early career speakers

### Posters

- Over 900 scientific posters presented daily

Submit Your Abstract by October 1

[www.biophysics.org/2019meeting](http://www.biophysics.org/2019meeting)

## About the Biophysical Society

The Biophysical Society was formally founded in 1958 to lead the development and dissemination of knowledge in biophysics. It does so through its many programs, including meetings, publications, and committee outreach activities. The Society consists of over 9,000 members who work in academia, industry, and government agencies throughout the world.

In addition to Annual Meeting discounts and the right to sponsor an abstract, member benefits include:

- Online access to *Biophysical Journal*
- Lower page charges and free e-color when publishing in the Journal
- Career development webinars
- Access to members-only directory
- Monthly newsletter, *BPS Bulletin*
- Opportunities to join and network with subgroups
- Access to travel and meeting support funds

## Join the Biophysical Society

- Submit or sponsor an Annual Meeting abstract
- Pay reduced registration rates to the Annual Meeting
- Apply for Annual Meeting travel grants

MEMBERSHIP TYPE	2019 MEMBERSHIP FEE
Regular	\$190
Early Career	\$85
Student	\$25

To join, go to  
[www.biophysics.org/join](http://www.biophysics.org/join)

## A NOTE FROM THE PROGRAM CHAIRS

It is with great pleasure that we present the program for the 2019 Annual Meeting. Once again, the program accentuates the important role biophysics plays as the cornerstone of biology, physics, and chemistry, as well as its significance in linking basic scientific research with translational applications. The meeting will emphasize collaboration between experiment and modeling, including particularly the challenge to explicitly map and model the cell in an integrative and multiscale fashion. This year's Symposia and Workshops will span a wide range of topics that represent the core strengths of the Society, pushing the forefronts of biophysical theory, experiment, and technology. We look forward to seeing you in Baltimore!



**Susan Marqusee**  
University of California, Berkeley



**Andrej Sali**  
University of California, San Francisco

## REGISTRATION

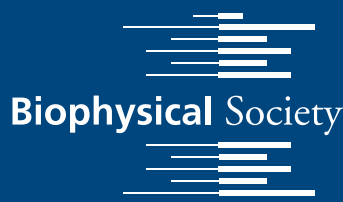
REGISTRATION TYPE	EARLY	AFTER JANUARY 28
BPS Regular Member*	\$280	\$350
Nonmember	\$510	\$610
BPS Early Career Member*	\$255	\$325
Early Career Nonmember	\$510	\$610
Student Member*	\$80	\$110
Student Nonmember	\$130	\$165
Emeritus Member	\$80	\$110
Guest (social events only)	\$65	\$65

\*2019 Society membership dues must be paid.

## Join the Conversation

#BPS19    

## Theory and Experiment to the Cell and Back



5515 Security Lane, Suite 1110  
Rockville, MD 20852  
[www.biophysics.org](http://www.biophysics.org)

## IMPORTANT DEADLINES

### Abstracts

Abstract Submission: October 1, 2018  
SRAA Poster Competition Applications: October 3, 2018  
Abstract Revision and Withdrawal: October 5, 2018

### Registration

Early Registration: July 1, 2018 – January 28, 2019  
Regular Registration: January 29 – March 6, 2019

### Housing

Student Housing Reservations: December 7, 2018  
General Housing Reservations: February 14, 2019

Travel Awards Application Submissions: October 3, 2018

- For researchers at all career levels

For complete details, visit [www.biophysics.org](http://www.biophysics.org) or contact the Biophysical Society at 240-290-5600 or [society@biophysics.org](mailto:society@biophysics.org).

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## Call for Papers