

Newsletter

Biophysical Society

October

2012

DEADLINES

57th Annual Meeting

February 2–6, 2013
Philadelphia, Pennsylvania

December 1, 2012
Student Housing

December 21, 2012
Early Registration

January 3, 2013
Late Abstracts

January 4, 2013
Childcare Pre-Registration

January 6, 2013
Hotel Reservation in
Room Block

Membrane Protein Folding

May 19–22, 2013
Seoul, South Korea

February 19, 2013
Early Registration Deadline

Six Society Members Named 2013 Awardees

The Biophysical Society is proud to announce the recipients of five of the seven 2013 Society awards. These members will be honored at the Awards Symposium on Tuesday, February 5, 2013, in Philadelphia, Pennsylvania, where they will each give a presentation.



Carol Robinson, University of Oxford, United Kingdom, will receive the Anatrice Membrane Protein Award for pioneering the development of advanced mass spectrometry techniques for the study of integral membrane protein structure, assembly, and dynamics.



Joseph Zasadzinski, University of Minnesota, will be presented with the Avanti Award in Lipids for his careful, quantitative application of physical principles of self-assembly, directed assembly and bio-mimicry to create well-controlled lipid structures for biomedical applications.



Peter von Hippel, University of Oregon, will be honored with the Founders Award for establishing the principles which underlie the quantitative study of all protein-nucleic acid interactions.



Patricia Clark, University of Notre Dame, will be awarded the Michael and Kate Bárány Award for Young Investigators for her significant contributions to the biophysics of protein folding in the cell, which have provided new directions of research for both experimentalists and theoreticians.

Two Society members will share the 2013 Margaret Oakley Dayhoff Award.



Katherine Henzler-Wildman, Washington University, St. Louis, will receive the Award for her creative and unique studies that have influenced our understanding of the physical underlying principles of membrane transporters.



Jennifer Ross, University of Massachusetts, Amherst, will also receive the Award for her innovative and productive research in the field of molecular motors by using model systems to define how motors are regulated in the complex environment of the cell.

The Distinguished Service and Emily Gray award-ees will be announced in the November newsletter.

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Biophysicist in Profile

Crina Nimigea

If not for biophysics, *Crina Nimigea* might already be retired from her alternate career path as a ballet dancer. Instead, she chose to follow in the scientific footsteps set out by her role model and grandfather, who worked creating specialty hybrid grapes for winemaking for the Agronomical Institute of Bucharest. “He was incredibly smart and very well-respected in his field,” Nimigea remembered. “He was also able to travel extensively to conferences, which interested me because I always wanted to travel.”

“It was exhilarating—I realized that working in a lab could be exciting. I did not sit down at the table because I was hungry; rather the appetite came while I was already eating.”

– Crina Nimigea

Growing up in Bucharest, Nimigea was not particularly interested in biology or physics. She was a reader and a dreamer—hoping to travel the world, a difficult feat in the former Eastern Bloc countries—interested in foreign languages and spending time outdoors with her friends. With a mathematician mother and an engineer father it was no surprise that she discovered a natural ability for math and physics while she was a young student. Upon completing high school, Nimigea decided to pursue physics at the Faculty of Physics at the University of Bucharest. “In Romania, at that time, one chose early, after high school, what to do for the rest of one’s life,” reflected Nimigea.

A college experience almost singularly focused on math and physics—without much choice—led quickly to burnout for Nimigea. After three years of classes devoted to two subjects, “I was getting a bit bored of physics,” she admitted, “I did not think I could do that for the rest of my life.” So when the time came to specialize, Nimigea chose biophysics and never looked back.

Her last two years in college were strikingly different from the first three. “We had great theoretical courses, wet labs courses, and young, enthusiastic teachers,” she said. “It was much different from the physics track.” During her final year at the Faculty of Physics, Nimigea won a European Tempus Fellowship to spend three months working on her diploma thesis in a physical chemistry lab at the University of Coimbra in Portugal, one of the oldest continuously active universities in the world. For the first time, Nimigea was able to work by herself in the lab, on her own individual project. “It was exhilarating—I realized that working in a lab could be exciting,” she said. “I did not sit down at the table because I was hungry; rather the appetite came while I was already eating.”

After completing her diploma thesis in Portugal, Nimigea moved to *Karl Magleby’s* lab at the University of Miami to work on her PhD. Working in Magleby’s lab launched her into her current area of specialization, the structure and mechanism of ion channels. “I was working on my third rotation

in his lab and fell in love with real-time, single-channel recordings that the postdoc who was training me was recording,” she said. “It was fascinating to ‘see’ the work of a single ion channel!”

The benefits of attending the BPS Annual Meetings started early for Nimigean. “I have made a lot of connections at the Biophysical Society meetings,” she said, “The simple fact of going and presenting our science every year helps maintain our research in the eyes of the community.” No more so than in the eyes of *Christopher Miller*, who met Nimigean at the 1998 Annual Meeting in Kansas City, Missouri. “Crina came up to me at a poster session and asked to discuss the possibility of a postdoc in my lab,” Miller recalls. “But I blew her off, saying that the lab was full, which was true, and that my head was empty of any ideas for new projects—also true.” Nimigean left Miller, but was not deterred. “She returned about an hour later to suggest some new projects, in what I learned was her characteristically insistent manner,” said Miller. Having impressed Miller with her persistence, Nimigean ended up completing her postdoc with him at Brandeis University, working on ion channel permeation processes in KcsA and on a bacterial CNG-binding channel.

“Her persistence in everything is very impressive,” said Miller. “She’s a bulldog who goes after a goal and doesn’t let go, even in the face of disappointment.”

After completing her postdoc, Nimigean earned her first independent position as a PI at the University of California, Davis.

Today, Nimigean remains involved with the Society, having served as the 2011 Chair of the Permeation & Transport Subgroup, and regularly attending the Annual Meetings. “We prepare for the meeting heavily,” she said. “I always felt terrible if I did not have something to present.” The meeting also serves as a social event, “time to catch up with friends and acquaintances and find out what they are up to scientifically,” Nimigean said, adding, “It’s also nice to share our science with them.”

Dirk Gillespie of Rush University Medical Center, and the current Chair of the Permeation & Transport Subgroup, worked with Nimigean for several years organizing Subgroup events at the Annual Meeting. “Crina was instrumental in growing the Subgroup,” Gillespie said. “She helped expand the number of speakers, including adding student and postdoc presentations, and she single-handedly procured the first outside funding for the group.”

Balancing life outside of science—while still remaining competitive—has been a challenge for Nimigean. “I had to learn to be more efficient if I wanted to do things other than science,” she said. “Constantly applying for grants can be draining, and is an inefficient way to do science.” She currently works as an associate professor at Weill Cornell Medical College, and is learning the difficulties and rewards of managing people. “Understanding how different characters and minds work, and at the same time being mindful of the personal lives of colleagues is not easy,” Nimigean says. Her skill at managing individuals was frequently on display during her tenure as a Subgroup chair. “Crina was really fun and always smiling, but also productive and full of ideas. Her easy-going intensity set the tone for our meetings, having fun while maintaining focus and making progress,” said Gillespie. “Her thoughtfulness and preparedness is something I am currently trying to emulate in my tenure as chair.”

Despite these challenges, the exhilaration of lab work has not left her. “I want to do this forever,” she confesses. Nimigean hopes to continue to operate her own small lab, working with a few colleagues to understand how proteins work at the molecular level.

When not applying for grants, helping her colleagues, and participating in Biophysical Society activities, Nimigean likes to travel, read, and run. Her key advice for young biophysicists? “Science should be fun!” she says. “Like hanging out with friends—do your science and then go out and enjoy life with your friends and colleagues—talk about science and non-science!”



Crina visiting Notre Dame Cathedral in Paris.



Crina on a trip to the Grand Canyon.



Ask Professor Sarah Bellum

Professor Sarah Bellum answers your questions on navigating the often-uncharted waters of early career development. Professor Bellum is communicated by Patricia L. Clark, founder of the Early Careers Committee and a member of Council. Do you have a question for Professor Bellum? Send it to sarahbellum@biophysics.org. Your privacy is assured!

Getting the Research Rocks In

Q: I am a brand-new, tenure-track faculty member at a large research university. I have this first fall semester off from teaching so that I can set up my laboratory. After almost two months here, I thought I would have experiments up and running. But I don't, in part because it is taking longer than I expected for my equipment and supplies to arrive. During this delay, I have been planning out the graduate special topics course that I will teach next semester. I want to succeed as a teacher, and I know this course will provide me with a valuable opportunity to recruit graduate students to my lab. But frankly, the thought of lecturing for three hours a week for fourteen weeks straight, even in my area of expertise, is terrifying. Is this normal? And is it appropriate to get a jumpstart on my syllabus and lectures while waiting for my lab to get set up?

A: The transition into a tenure track faculty position will probably be the largest and most challenging transition of your professional career. You must learn to find your way through a maze of new procedures, forms, buildings and people, while simultaneously developing your capacity to manage an increasingly complex workload through a daily schedule that is more fractured and interrupted than ever before. Going forward, your opportunities to focus single-mindedly on your research, as you were probably accustomed to doing throughout your postdoctoral appointment, will be rare (a sabbatical, for example). Instead, getting everything done will require bal-

ancing competing demands on your time, with the first tension arising between the time you devote to research versus teaching. Hopefully, this will be your only major source of tension until tenure time. Most departments, recognizing that setting up a research program is both time consuming and essential for the success of new faculty, try very hard to protect assistant professors from major service responsibilities until after tenure. This is a very important point to keep in mind: your department wants you to succeed, and is willing to devote resources to protect your time and improve your chances for research success. But it expects you to figure out how to manage your time and get the work done.

Simply put, getting your research program up and running will be the single hardest and most time consuming thing that you will do as an assistant professor. This might not be initially obvious, because you have already accumulated years of experience working in a laboratory setting. But do not be deceived: while you might already excel at managing your own research progress, you have far less (perhaps zero) experience supervising the work of others. You might have experience writing fellowship proposals, but you probably have no experience putting together a research budget for a grant proposal. You might have experience drafting manuscripts, but you might find that a harsh review or manuscript rejection takes ego crushing to a whole new level now that you are out from under the protective wing of your postdoctoral advisor. Running a lab is a huge, multivariable job with competing priorities, stakeholders, working styles, deadlines, and short-, medium- and long-term objectives. It is not enough to keep your eye on the ball: running a lab means keeping your eyes on seven or eight (or more!) balls while simultaneously juggling them in the air. The size and complexity of this project will exhaust you. And the long time scales of some of the objectives, such as writing an NIH or NSF

proposal, make it very hard to track your progress on a day-to-day basis unless you intentionally break these big jobs down into smaller objectives.

In comparison to getting the lab up and running, teaching will be far easier, even if you initially feel far more like a fish out of water in the classroom than in the lab. Of course, “easier” is not equal to “easy.” No matter how smart you are, it will take time to learn how to convert your knowledge into an effective lecturing style that connects with students and facilitates learning. I have heard that there are many parallels between teaching and stand-up comedy, except that no comedian in their right mind would ever agree to delivering 42 completely different stand-up routines over a 14-week semester, each at 8:30 AM, on a topic that many undergraduates feared or hated in high school. For these very valid reasons, many new faculty find the idea of running out of things to say while teaching much more terrifying than getting a slow start in research. After all, to make a misstep with teaching is to risk humiliating yourself in front of an audience, whereas it is likely only you will notice a misstep made in your research. Additionally, with teaching the feedback is gratifyingly immediate—the same is unfortunately not true for experiment planning, grant proposal writing or manuscript submissions.

Precisely because teaching can be terrifying and provides immediate feedback, it is all too easy to fall into a trap of spending much more time than necessary preparing to teach. If you are not careful to set limits on the amount of time that you devote to teaching, it can undermine the development of your research program and, paradoxically, your development as a teacher. For example, studies have shown that most new faculty tend to pack too much material into a lecture in order to avoid the terror of running out of things to say [1]. In contrast, exemplary new teachers avoid overstuffed lectures and simultaneously reserve more time for their research. Fortunately, your colleagues can help with your development as a teacher: ask to see examples of syllabi and class notes for similarly structured courses, ask for teaching advice from your colleagues who have won teaching awards, and take advantage of semi-

nars and workshops that your university offers for new teachers.

In contrast, neither your colleagues nor your university can help you set up your first experiments, or outline your first grant proposal. Because of this, the single most important piece of advice I can give you is to put your research first, before teaching. Put research first in your heart, in your brain, and on every to-do list, productivity enhancement exercise and calendar-planning activity that you carry out. If you are not already, get familiar with *Stephen Covey's* concept of ‘big rocks’ [2] – research is your biggest rock, and you need to give it your highest priority every day.

Start by getting your first experiment up and running as soon as possible. Your department has provided you with a teaching leave specifically for this purpose. Unfortunately, everyone experiences delays with the ordering, installation and optimization of equipment and reagents. See if you can borrow a colleague’s equipment or a missing reagent, or visit a nearby university that might have whatever you are missing. Again, recall that your colleagues want to help you succeed – this includes loaning you bench space while your own lab renovations wrap up. Find a way to keep moving forward. The completion of your first experiment will be a powerful psychological step, even if it was carried out in a neighboring lab and even if it merely replicates an experiment that you already previously performed as a postdoc. From a practical perspective, actually setting up and running the experiment will likely reveal shortcomings—hopefully minor—in your lab space, equipment and/or supplies that you can start resolving, sooner rather than later. Of course, don’t just stop there: move on as quickly as possible to experiments two and three, and that first grant proposal—Good Luck!

References

- [1] Boice, R. (2000) *Advice for New Faculty Members*. Needham Heights, MA: Allyn & Bacon.
- [2] Covey, S.R. (1989) *The 7 Habits of Highly Effective People*. New York, NY: Simon and Schuster.

Public Affairs

Court Upholds Federally Funded Stem Cell Research

A federal appeals court ruled on August 24 that the federal government may continue to pay for human embryonic stem cell research. The three-judge panel ruled that the government has correctly interpreted a law banning the use of federal funding to destroy human embryos for research. Currently, federal funding can be used to conduct embryonic stem cell research as long as federal money is not used to derive the stem cells. The NIH has an advisory board that approves stem cell lines that can be used for federally funded research; that list currently has 178 eligible lines, with an additional 43 under review.

After the ruling, NIH Director *Francis Collins* released the following statement:

“Today’s ruling from the U.S. Court of Appeals is important news for patients. President Obama is committed to supporting responsible stem cell research and today’s ruling was another step in the right direction. NIH will continue to move forward, conducting and funding research in this very promising area of science. The ruling affirms our commitment to the patients afflicted by diseases that may one day be treatable using the results of this research.”

The plaintiffs in this case, *Sherly v. Sebelius*, have 45 days from the decision date to seek a rehearing. Sherly has stated in the past that he plans to take the case all the way to the Supreme Court.

Congressional Leaders Agree on Temporary Funding

Senate Majority Leader *Harry Reid* (D-NV) and Speaker *John Boehner* (R-OH) announced in July that they reached an agreement on a continuing resolution to fund the government through March 2013. The agreement was made

to prevent a government shutdown that would have occurred on October 1, when the new fiscal year started. The appropriations process has been on hold in both the House and Senate as members have turned their attention to the November elections and do not want to go on the record making tough funding decisions that may alienate some voters.

The details of the agreement were not made public by Reid and Boehner, but are reported to fund the federal government at \$4 billion in discretionary spending above FY 2012 levels. The plan was to draft and vote on the resolution in September after members returned to Washington from the August Congressional recess.

While the continuing resolution prevented the October closure of the government, it does not resolve the sequestration that will take place January 2, 2013. Sequestration refers to the automatic across-the-board cuts to the federal budget that will take place if Congress cannot agree on a way to limit spending as agreed to in the Budget Control Act of 2011. The White House Office of Management and Budget has announced that they have begun consulting with federal agencies to plan for those cuts if sequestration were to come to fruition. To learn more about sequestration go to <http://bit.ly/QLuvoW>.

Presidential Candidates Views on Science

Both President *Barack Obama* and Governor *Mitt Romney* have responded to a 14 question survey from ScienceDebate.org answering “Science Questions Facing America.”

The effort to get Presidential candidates to debate scientific-related issues or go on-the-record with their positions began before the 2008 election, when the founders of the initiative were frustrated that the candidates were not sharing their views on these topics. While no debate was held,

the initiative did lead then candidates Obama and *John McCain* to respond to 14 questions about science and science policy.

The questions have been updated for the 2012 election, with input from scientists and scientific organizations across the country. The questions cover a broad array of topics, including innovation, climate change, research, biosecurity, and science in public policy.

Take a moment to view Obama and Romney's responses and know where the candidates stand on science prior to the November 6 election! A side-by-side comparison of their answers can be found at <http://www.sciencedebate.org/debate12/>.

NIH Fully Adopts Special Council Review

After piloting a Special Council Review (SCR) process for well-funded applicants, NIH announced in August that they are fully adopting the process. Beginning with September 2012 Council meetings, new and renewal applications from well-supported investigators who currently receive more than \$1 million in direct costs from NIH will be reviewed by the Council. The policy does not cap the total amount of funds an investigator may receive from NIH, but rather is intended to "complement existing NIH policies that require monitoring all investigators' activities for overlapping support, and determining whether additional funds should be awarded to well-supported investigators," according to *Sally Rockey*, NIH director of Extramural Affairs, on her blog.

Some changes have been made from the piloted SCRs. The threshold for the SCR process has been lowered from \$1.5 million to \$1 million, and now only considers direct costs. Approximately 89 applications for the fall council round will undergo special review.

The full SCR policy is published in the NIH Guide and can be found at <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-12-140.html>.

NIH Office of Women's Health Gets New Leader

Janine Austin Clayton was named the director for the Office of Research on Women's Health (ORWH) and associate director for Research on Women's Health at the National Institutes of Health. Clayton has been serving as ORWH acting director since the retirement of *Vivian Pinn, M.D.*, in August 2011. Prior to her tenure as acting director, Clayton served as the ORWH deputy director for three years. Clayton currently co-chairs the NIH Working Group on Women in Biomedical Careers.

Before joining ORWH, Clayton was the deputy clinical director of the National Eye Institute, NIH. A board certified ophthalmologist, Clayton's research interests include autoimmune ocular diseases, and the role of sex and gender in health and disease. Clayton received her undergraduate degree with honors from the Johns Hopkins University and her medical degree from Howard University College of Medicine.

Members in the News



Julius Lucks of Cornell University and 2012 Society member was the recipient of the Defense Advanced Research Projects Agency (DARPA) Young Faculty Award.



Michael Sheetz (left, upper picture) of Columbia University and Society member since 1984 and *James Spudich* (left, lower picture) of Stanford University and Society member since 1981 were recipients of the 2012 Lasker Award for Medical Research along with non-member *Ron Vale*.



57th Annual Meeting

Philadelphia, Pennsylvania | February 2–6, 2013

Student Opportunities at the Annual Meeting

Calling all Students

The Society invites undergraduate and graduate students to volunteer their time at the Annual Meeting in exchange for complimentary meeting registration. Volunteers must be members of the Society with registration fully paid. Volunteer slots are limited and fill up quickly. For more information and to apply, visit www.biophysics.org/2013meeting and click on General Information/Student Volunteers.

In addition to the regularly-scheduled scientific sessions, the Biophysical Society provides student-specific programming to help students get the most out of their meeting experience. The activities highlighted here provide student attendees the opportunity to network with faculty members from around the world, discuss future career goals, and learn about the research other students are conducting.

Undergraduate Student Lounge

NEW All undergraduates are invited to swing by the new Undergraduate Student Lounge, a room set aside for students to get classwork done, chat with other undergrads studying biophysics, and to meet members of the Education Committee who will drop in throughout the Annual Meeting to answer questions and take students to poster and platform sessions.

**Graduate Student Breakfast****Monday, February 3, 7:30 AM–8:30 AM**

Calling all grad students! Looking to network with your peers and discuss the unique challenges you face in your current career stage?

The Early Careers Committee will host a breakfast for graduate student Society members to meet and discuss these issues. Members of the Early Careers Committee will be on hand to offer advice about funding opportunities, to answer questions about how the Committee serves graduate students in the biophysical community, and to recruit new Committee members. This event is limited to the first 100 attendees. Registration is not required.

**Undergraduate Student “Breakfast” at Noon****Monday, February 4, 11:30 AM–1:00 PM**

Join the Education Committee for a student-friendly pizza “breakfast” at noon! This unique networking event will feature the 2013 Emily M. Gray Awardee. Afterwards, have your questions answered about pursuing a graduate program, talk to an industry representative about different career paths, and meet other undergraduates interested in biophysics, all over a few slices of pizza! Space is limited to the first 100 attendees. Registration is not required.



Graduate & Postdoc Institution Fair

Monday, February 4, 1:00 PM–3:00 PM

Are you an undergraduate thinking about applying to a graduate program, or a graduate student looking for a research or fellowship opportunity? Check out more than 40 different institutions at the Biophysical Society Graduate & Postdoc Fair! Representatives from colleges and universities with graduate programs in biophysics will be on hand to answer questions, distribute literature, and talk about the different opportunities they have available for students and postdocs.

Attention: Program Directors

Looking to meet more than 1,500 undergraduates, graduates and postdocs? The Graduate & Postdoc Fair gives universities the opportunity to explain the unique features of their biophysics programs. Institutions interested in participating in the Fair should contact the Society Office for complete details and a registration form. Space is limited and available on a first-come, first-served basis.

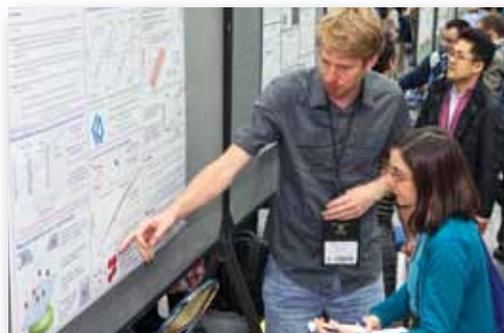
Student Housing

Deadline: December 1, 2012

The Biophysical Society has reserved rooms at special rates in numerous hotels in Philadelphia solely for undergraduate and graduate student members attending the Annual Meeting. Rooms are limited, so secure your reservations today to ensure the best rate possible. Go to <http://www.biophysics.org/2013meeting/AccommodationsTravel/StudentHousing/tabid/3625/Default.aspx> for complete information.

On Twitter?

Use the hashtag **#bps13** to share and follow information related to the 2013 Annual Meeting! You can follow us on Twitter: **@biophysicalsoc**.



For more information visit the Annual Meeting website: www.biophysics.org/2013meeting/Main/tabid/3523/Default.aspx

International Affairs

RCUK-Sponsored Research to Go Open Access

Research Councils UK (RCUK), a partnership of the United Kingdom's seven research Councils, has announced that beginning April 1, 2013, peer reviewed research papers resulting from research that received support from the United Kingdom government must be made freely available within six months of publication. In addition, the articles must be published in journals which are compliant with Research Council policy on Open Access, and must include details of the funding that supported the research, as well as a statement on how the underlying research materials such as data, samples or models can be accessed. The policy applies to both researchers in the United Kingdom and their international collaborators.

Criteria that journals must fulfill to be compliant with the Research Councils' Open Access policy are detailed within the policy, but include offering a "pay to publish" option or allowing deposit in a subject or institutional repository after a mandated maximum embargo period. In addition, the policy mandates use of the Creative Commons 'Attribution' license (CC-BY), when an Article Processing Charge (APC) is levied. The CC-BY license allows others to modify, build upon and/or distribute the licensed work (including for commercial purposes) as long as the original author is credited.

The Research Councils will provide block grants to eligible UK Higher Education Institutions, approved independent research organizations, and Research Council Institutes to cover open access publishing fees. In addition, David Willetts, Minister of State for Universities and Science, announced that his organization will provide £10 million to 30 research intensive universities to help in their transition to Open Access for research publications.

US State Department Launches New Science Diplomacy Efforts

On July 25, the State Department announced two new science outreach programs: the Networks of Diasporas in Engineering and Science (NODES) and the Science, Technology and Innovation Expert Partnership.

NODES is a collaborative effort of the State Department, the American Association for the Advancement of Science (AAAS), and the National Academy of Sciences to convene diasporas with skills in science disciplines to build their capacity to develop and influence effective policies and connect their talents with needs in their countries of origin. In an age of increased mobility and connectivity, these knowledge diaspora networks include scientists, students, innovators and entrepreneurs, as well science policy experts that are working outside of their country of birth, speaking a common language, and building partnerships.

The Science, Technology and Innovation Expert Partnership will introduce US science and technology experts to foreign audiences through US Embassy supported public diplomacy programs. The Partnership advances the Department's efforts to promote economic prosperity, democratic governance, social development, and global scientific knowledge and to share that information with foreign audiences. The State Department is working with 10 scientific societies on this initiative, including the American Institutes of Physics, of which the Biophysical Society is an affiliated society.

Need career advice?

Dear *Molly Cule* appears on the BPS Blog to answer your career-related questions. Visit <http://biophysicalsociety.wordpress.com/> to get the latest career advice, join in the conversation, or to submit your own career conundrum.



Molly Cule
Advice

2013 Thematic Meeting

Membrane Protein Folding

May 19-22, 2013, Seoul, South Korea

The Biophysical Society and the Korea Institute for Advanced Study (KIAS) are co-sponsoring a meeting on membrane protein folding that will take place at the Korea Institute for Advanced Study, May 19-22, 2013. This meeting, which is being organized by Society members *James Bowie*, UCLA, and *Karen Fleming*, Johns Hopkins University, will focus on fundamental aspects of how membrane proteins, fold ranging from physical chemistry (in vitro and in silico) to aspects of folding in the cell. In addition, the meeting will feature practical implications of protein folding such as protein design, stabilization, and misfolding in disease.

Abstract Submission Deadline: January 13, 2013
Registration Deadline: February 19, 2013

Speakers

Toby Allen, University of California, Davis, USA, and RMIT University, Australia

Patrick Barth, Baylor University, USA

Pil Seok Chae, Hanyang University, South Korea

Linda Columbus, University of Virginia, USA

Ron Dror, D. E. Shaw Research, USA

Donald Engelman, Yale University, USA

Heedeok Hong, University of California, Los Angeles, USA

Gerard Huysmans, Pasteur Institute, France

Wonpil Im, University of Kansas, USA

Koreaki Ito, Kyoto Sangyo University, Japan

Joy Kim, Seoul National University, South Korea

Sanguk Kim, Pohang University of Science and Technology, South Korea

Brian Krantz, University of California, Berkeley, USA

Andreas Kuhn, University of Stuttgart, Germany

Jennifer Lee, National Heart, Lung and Blood Institute, USA

Weontae Lee, Yonsei University, South Korea

Jie Liang, University of Illinois at Chicago, USA

Katsumi Matsuzaki, Kyoto University, Japan

Chiwook Park, Purdue University, USA

Andreas Pluckthun, Swiss Federal Institute of Technology, Zurich, Switzerland

Jean-Luc Popot, Institute of Physical-Chemical Biology, France

Janice Robertson, Brandeis University, USA

Charles Sanders, Vanderbilt University, USA

Mark Sansom, University of Oxford, United Kingdom

Takeshi Sato, Osaka University, Japan

William Skach, Oregon Health and Science University, USA

Yuji Sugita, RIKEN, Japan

Shoji Takada, Kyoto University, Japan

Peter Tieleman, University of Calgary, Canada

Jakob Ulmschneider, Shanghai University, China

Yinan Wei, University of Kentucky, USA

Steven White, University of California, Irvine, USA

Myunggi Yi, Pukyong National University, South Korea

Tae-Young Yoon, Korea Advanced Institute of Science and Technology, South Korea

Subgroups

Bioenergetics

Please find below the program overview of the two minisymposia, which will be held on February 2, 2013, during the BPS Annual Meeting. The final schedule and titles for the talks will be available on the Subgroup's website. We look forward to meeting you in Philadelphia, Pennsylvania for a stimulating gathering that explores exciting advancements in mitochondrial research.

Mitochondrial Calcium Signaling: New Insights after Molecular Identification of the Calcium Uniporter

With the cloning of the mitochondrial calcium uniporter in 2011 by the Mootha and Rizzuto groups, genetic approaches to manipulate the calcium uniporter have become available and revealed intricate regulation of this channel. Meanwhile, the existence of other mitochondrial calcium transport mechanisms in a cell type-specific manner has gained research attention. The minisymposium will highlight the new molecular mechanisms and their physiological functions.

Organizers:

Shen-Shing Sheu & György Hajnóczky

Speakers:

Vamsi K. Mootha, Harvard Medical School,
Massachusetts General Hospital
Rosario Rizzuto, University of Padova, Padua, Italy
György Hajnóczky, Thomas Jefferson University
Shen-Shing Sheu, Thomas Jefferson University
Brian O'Rourke, Johns Hopkins University
John Lederer, University of Maryland

Mitophagy and Mitochondrial Dynamics

In eukaryotic cells, mitochondria exist in a state of continuous remodeling and renewal modulated by fission, fusion and mitophagy. This

minisymposium will focus on recent advances concerning the cellular, molecular and biophysical mechanisms underlying mitophagy and mitochondria dynamics. The relation of these events to cell death and mitochondria-associated disease will also be highlighted.

Organizers:

John J. Lemasters and *Richard J. Youle*

Speakers:

Heidi M. McBride, McGill University
Mitochondrial Dynamics and Quality Control

Hiromi Sesaki, Johns Hopkins University
Mitochondrial Dynamics in Neurodegeneration

TBA, NIH, *Aging, Caloric Restriction and Mitochondrial Dynamics*

John J. Lemasters, Medical University of South Carolina, *Initiators of Type 1 and 2 Mitophagy*

Richard J. Youle, NIH, *PINK1- and Parkin-mediated Mitophagy*

—*György Hajnóczky & Jan Hoek*, Co-Chairs,
Bioenergetics Subgroup

IDP

Is Your Protein Intrinsically Disordered?

This is the second article in a series designed to guide biophysicists interested in exploring whether disorder contributes to the function or regulation of their protein. Proteins that fail to crystallize, are prone to proteolysis, are post-translationally modified, or have simple amino acid sequences may include intrinsically disordered regions. Identifying disordered regions

can substantially aid your research! Experimental approaches have been developed specifically for these proteins. Disordered proteins can mediate functional mechanisms not available to stable, structured proteins. There are several easy ways to initially test for disorder in proteins:

Run prediction analysis of your protein sequence online (<http://www.disprot.org/predictors.php>)

Use limited (also called native-state) proteolysis: Disordered regions are proteolyzed at faster rates than structured regions. N-terminal sequencing and mass-spectroscopy can identify the remaining stable fragments [Kostyukova et al. (2000) *Eur. J. Biochem.* 267: 6470-6475].

Measure the CD spectrum of your protein: disordered regions have a high percentage of random coil [Uversky et al. (2011) *JMR* 24: 647-655].

While none of these methods are sufficient by themselves to confirm the presence of disorder in a protein, they are quick approaches that will help determine whether you should approach your protein as a disordered polypeptide. If you suspect you have disordered regions, then more complex but higher resolution techniques – such as NMR, small angle X-ray scattering, analytical ultracentrifugation, and hydrogen exchange/mass spectrometry – can refine the boundaries of disordered regions, detect conformational changes in response to ligand binding, and identify changes in protein structure/function in response to post-translational modification. These and other methods are described elsewhere in detail [Uversky & Dunker (2012) *Analytical Chemistry* 84: 2096-2104; Keppel et al. (2011) *Biochemistry* 50, 8722-8732]. In addition, removing disordered regions may allow you to crystallize a folded domain, whereas adding a binding partner may promote folding of disordered regions permitting complex crystallization.

—*Alla Kostyukova & Sarah Bondos*, Councilors, IDP Subgroup

Grants and Opportunities

Name: Alan T. Waterman Award

Objective: The annual award recognizes an outstanding young researcher in any field of science or engineering supported by the National Science Foundation.

Who May Apply: US citizens or permanent residents, 35 years of age or younger or not more than seven years beyond receipt of their PhD degree by December 31 of the year in which they are nominated.

Submission Deadline: October 31, 2012

Website: <https://www.fastlane.nsf.gov/honawards/>

Name: AAUW International Fellowships

Objective: To award women who are not US citizens or permanent residents for full-time study or research in the United States.

Who May Apply: Applicants must have earned the equivalent of a US bachelor's degree by September 30, 2012 and must have applied to their proposed institutions of study by the time of the application.

Submission Deadline: December 1, 2012

Website: http://www.aauw.org/learn/fellowships_grants/international.cfm

Name: Ethics Education in Science and Engineering (ESEE)

Objective: This program funds research and educational projects that improve ethics education in all fields of science and engineering that NSF supports, with priority consideration given to interdisciplinary, inter-institutional, and international contexts. Although the primary focus is on improving ethics education for graduate students in NSF-funded fields, the proposed programs may benefit advanced undergraduates as well.

Submission Deadline: March 1, 2013

Website: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13338&org=ENG&sel_org=ENG&from=fund

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Postdoc Spotlight

Jeff Brender

University of Michigan
Ramamoorthy Lab

Q: What field is your PhD in? How did you specialize in biophysics?

My PhD is in biophysics. I originally focused on computational and theoretical chemistry as an undergraduate. As I matured, I realized my interest was more in the experimental side.

Q: What is your current research project?

Currently, most of our work focuses on misfolded proteins called amyloids. Amyloid proteins are a very hot topic now, as they are both poorly understood and linked to many common degenerative diseases such as Alzheimer's and Parkinson's. Our lab focuses on two in particular. IAPP, which is linked to loss of insulin producing beta-cells in type II diabetes, and SEVI, an amyloidogenic protein which has a role in HIV infection. Neither of these proteins has been intensively studied as the A β protein involved in Alzheimer's, and it is interesting to see how far we can generalize models specifically made for the A β protein to other proteins.

Q: What initially attracted you to the field?

The possibility of seeing hidden connections between seemingly unrelated phenomena. The amyloid proteins we are studying are a good example of this. We are finding that if they are looked at from the perspective typically used in polymer and soft matter physics, instead of the traditional biochemistry approach, many aspects that seemed unclear are suddenly illuminated.

Q: What skills and experiences have you gained from your postdoc position?

In my experience, the main difference between postdoc and graduate training is project management. After graduate school, you have many technical skills but have to learn what types of research

problems are feasible and how they may be best approached.

Q: Tell us about a great experience or opportunity you've had in the past year?

The Biophysical Society meeting was great. In my poster session the person after me did not show up, which was lucky, as I was able to take more questions from the audience than is normally allowed. We were also able to solve one of the first high-resolution structures of prefibrillar A β_{1-40} this year, which showed a very different structure than what was expected (Protein Databank number 2LFM).

Q: What do you hope the next step in your career path will be?

I'm currently applying for assistant professor positions.

Q: Why did you join the Biophysical Society?

The Annual Meeting is an important event for our group. It allows us to present our research to wider audience, some of whom may not be aware of our research otherwise. Similarly, the meeting makes us aware of much research we would not normally be aware of.

Q: If you were not a biophysicist, what would you be?

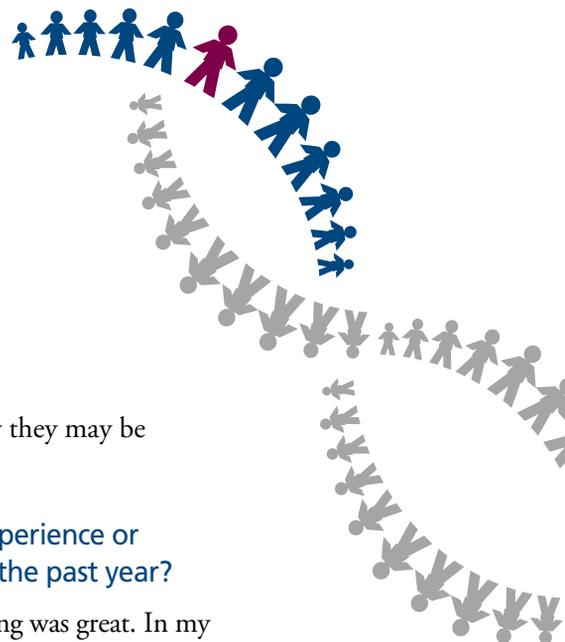
I can't imagine doing anything else.

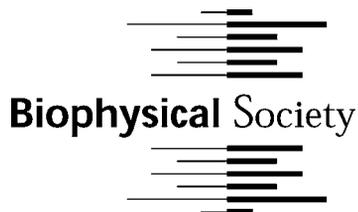
Ayyalusamy Ramamoorthy, Brender's PI says:

Jeff has been working in the biophysical aspects of misfolding of amyloid proteins and their implications in aging-related amyloid diseases. He has contributed significantly to this field and has published more than 30 peer-reviewed articles in top journals. He is also creative and dedicated to research.

Suggest a Student or Postdoc to Spotlight

Do you have a spotlight-worthy student or postdoc in your lab? Send his/her name to society@biophysics.org.





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UPCOMING EVENTS

BIOPHYSICAL SOCIETY NEWSLETTER OCTOBER 2012

December

December 2–5, 2012

The 36th Annual Conference of the Australian Society for Biophysics 2012, joint with the Australian Physiological Society and the Physiological Society of New Zealand
Sydney, Australia
<http://aups.org.au/Meetings/201212/>

December 9–12, 2012

Critical Assessment of Protein Structure Prediction
Gaeta, Italy
<http://www.predictioncenter.org/casp10/meeting.cgi>

January

January 13–18, 2013

Stochastic Physics in Biology
Ventura, California
<http://www.grc.org/programs.aspx?year=2013&program=stochastic>

January 20–25, 2013

Metals in Biology
Ventura, California
<http://www.grc.org/programs.aspx?year=2013&program=metalsbio>

February

February 2–6, 2013

Biophysical Society's 57th Annual Meeting
Philadelphia, Pennsylvania
<http://www.biophysics.org/2013meeting/Main/tabid/3523/Default.aspx>

February 10–15, 2013

Fibronectin, Integrins & Related Molecules
Ventura, California
<http://www.grc.org/programs.aspx?year=2013&program=fibronec>

March

March 3–7, 2013

Structural Analysis of Supramolecular Assemblies by Hybrid Methods
Tahoe City, California
<http://www.keystonesymposia.org/index.cfm?e=web.Meeting.Program&meetingid=1184>

March 3–8, 2013

DNA replication and Recombination
Alberta, Canada
<http://www.keystonesymposia.org/index.cfm?e=web.Meeting.Program&meetingid=1240>