Newsletter
Biophysical Society DECEMBER 2016

DEADLINES

Meetings 2017

61st Annual Meeting
February 11–15
New Orleans, Louisiana

January 9
Late Abstract Submission

January 9
Early Registration

Single-Cell Biophysics: Measurement, Modulation, and Modeling
June 17–21
Taipei, Taiwan

March 1
Abstract Submission

March 24
Early Registration

Conformational Ensembles from Experimental Data and Computer Simulations
August 25–29
Berlin, Germany

April 3
Abstract Submission

May 1
Early Registration

Emerging Concepts in Ion Channel Biophysics
October **10–13**
Mexico City, Mexico

May 26
Abstract Submission

June 23
Early Registration

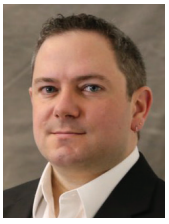
Future of Biophysics Burroughs Wellcome Fund Symposium Speakers


Nozomi Ando


Andreas Gahlmann


Irina Iachina


Allen Liu


Scott Showalter


Tim Stasevich

The 2017 Future of Biophysics Burroughs Wellcome Fund Symposium will highlight the work of six young researchers currently conducting cutting-edge research at the interface of the physical and life sciences.

The speakers selected for the 2017 Symposium are *Nozomi Ando*, Princeton University; *Andreas Gahlmann*, University of Virginia; *Irina Iachina*, University of Southern Denmark, Odense; *Allen Liu*, University of Michigan; *Scott Showalter*, Pennsylvania State University; and, *Tim Stasevich*, Colorado State University.

The symposium, in its eighth year, will be held on Monday, February 13, 10:45AM–12:45PM, at the Ernest N. Morial Convention Center.

Catherine A. Royer and *David W. Piston*, Program Co-Chairs for the 61st Annual Meeting, will co-chair the symposium.

Apply to be the 2017-2018 BPS Congressional Fellow!

Are you interested in working on Capitol Hill and learning more about science policy?

The BPS is now accepting applications for the 2017-2018 Fellowship year. All members who have obtained their PhD and are eligible to work in the United States may apply.

Application deadline: December 15, 2016

Visit www.biophysics.org for additional information.

CONTENTS

Biophysical Society

The *Biophysical Society Newsletter* (ISSN 0006-3495) is published twelve times per year, January-December, by the Biophysical Society, 11400 Rockville Pike, Suite 800, Rockville, Maryland 20852. Distributed to USA members and other countries at no cost. Canadian GST No. 898477062. Postmaster: Send address changes to Biophysical Society, 11400 Rockville Pike, Suite 800, Rockville, MD 20852.

Biophysicist in Profile

STEPHANI PAGE

Stephani Page

Stephani Page, postdoctoral research associate at the University of North Carolina at Chapel Hill (UNC), remembers her first exposure to science, doing experiments with family as a young child. "The first science experiment that I remember doing was with my mother. I was around four, and my brothers and I eagerly huddled around my mother as she lit a match, dropped it into a bottle with a tiny opening. There was sheer amazement as the large boiled egg she placed on top next was sucked into the bottle. I remember the way she would explain what was happening," she shares. "Much to my chagrin, I walked out of the private portion of my dissertation defense to the sound of my mother telling the best and worst of my at-home science experiments to an eager crowd."

Page was interested in science as a child, but planned an unconventional career. "I just knew that I was going to be a fashion designer. Not just any fashion designer, I was going to be a scientifically oriented fashion designer," she says. "I was going to develop new textiles. I was also going to use my fame and riches to fund my research efforts. Lofty."

Rather than pursuing that unique path, Page attended North Carolina Agricultural and Technical State University, where she earned her bachelor of science degree in chemical engineering and her master of science in biology. She then went on to pursue her PhD. "During my PhD recruitment weekend at UNC, a figure who can only be described as a slightly aged Indiana Jones called out my name and those of three other applicants. That day, I bonded with *Barry Lentz* over the fact that I called my great-grandfather 'PopPop' — a name that Barry's grandchildren had also lovingly bestowed upon Barry," she says. "As I learned more in that conversation about biophysics, I began to see my background meld together. It was as if puzzle pieces were coming together, revealing a bit more of what 'my science' would look like."

That summer, Page participated in the inaugural year of the Biophysical Society Summer Research Program, led by Lentz. The program had a powerful impact on her career. "It served as a transition into my PhD program. I met my dissertation advisor and the majority of my committee during the program," she says. "My personal support system includes people from my cohort and from the cohorts that followed. The power in the program is giving students who need it the ability to do research, take courses, and network at an R1 institution. It's one of the best designed summer programs for leveling the playing field."

Page continued on to her PhD studies at UNC, earning her degree in biochemistry and biophysics in 2016. "Under the guidance of *Robert Bourret* and *Ruth Silversmith*, I studied microbial signal transduction in my dissertation work. My research interests were centered around functional variation within a family of protein and my discovery of a small molecule analog for a component of pathways we were interested in," she explains. "Bob and

Ruth introduced me to signaling and thinking about it from a more mechanistic perspective. I knew that I wanted to continue that while expanding to a more systems biology view — this is what led me to *Henrik Dohlman's* lab and my current work."

Now a postdoctoral research associate in the Dohlman lab in the department of pharmacology at UNC, Page's primary focus is developing a method of simultaneously measuring different intracellular compounds. "I also have the pleasure of working with a graduate student and an undergraduate student who are doing biophysical analyses of G-proteins and studying pheromone-induced autophagy, respectively," she says.

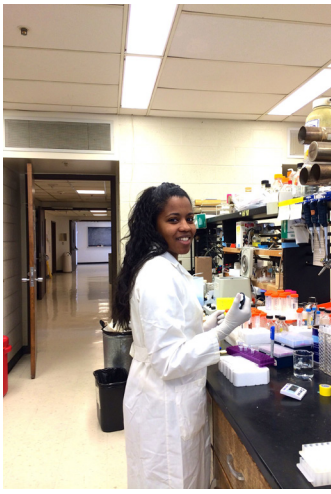
"I get mesmerized when I am sitting through biophysics talks," she says. "I think it's the way you get to see things. It's the way you can answer questions about the mechanisms that underlie the workings of the world around us. Tools are being developed because we find new ways to apply math and physics to answering biological questions. I love it."

In addition to spending her time in the lab and mentoring, Page has dedicated herself to fostering community for scientists and other STEM professionals of color. "I was partly inspired by the Initiative for Maximizing Student Diversity program at UNC. It made such a difference to have the community on campus. I also noticed that social media was being utilized to connect people of common interests and experiences. I wanted to connect and be a conduit for others to make connections around being black and navigating STEM fields," she explains. She initiated the hashtag #BLACKandSTEM on Twitter in hopes of connecting with others sharing experiences similar to her own. "BLACKandSTEM quickly exceeded my expectations in reach, in participation, and in its ability to be a platform to amplify different voices. It has been a very affirming experience." Through her online outreach, Page has also improved her own skillset and network. "A lot of the communication between science and society happens online. Communicating with 140 characters in a way that reaches people is not easy — but it is valuable," she says. "Maintaining and building new relationships is a skill in and of itself, and it is a helpful skill to have as science is very collaborative."

Michael Johnson, University of Arizona, was a mentor of Page's during her PhD studies. "She was my first scientific mentee. She made me appreciate mentoring in a way I hadn't before. This was very influential in my decision to pursue heading my own research group in an academic environment," he says. "With BLACKandSTEM, Stephani has organically created a community that has hundreds of scientists both current and aspiring. She is an amazing person. I am happy to know her and be inspired by her."

> "I wanted to connect and be a conduit for others to make connections around being black and navigating STEM fields"
>
> –Stephani Page

Page's engagement with the topic of diversity in STEM is also encouraged by the role she values most: motherhood. "Raising a black child has caused me to interact with the topic of diversity, inclusion, and equity very differently. My passion has become intensified as my son grows and imagines himself doing different things. When he says he wants to be a scientist, I am proud, humbled, conflicted, and frustrated — the institution of biomedical research has not been effective in making the necessary changes that reflect TRUE diversity, equity, and inclusion," she says. "As brilliant as my child is, I am not sure that his experience will be very different from mine or my colleagues who are from underrepresented groups. That's not good enough for me. That's not good enough for my son. It is, though, one reason for my continued work toward my goals. I love what I do. And I get to put forth my effort to see change for others like me. I get to make the way better for my son."



Page in the lab.

Profilee-at-a-Glance

Institution
University of North Carolina at Chapel Hill
Area of Research
Applying molecular biophysics to study G-protein signalling under nutrient stress

Public Affairs

Cancer Moonshot Plan Released

The Cancer Moonshot Task Force, led by Vice President Biden, submitted its implementation plan for the Cancer Moonshot Initiative to President Obama in mid-October. The initiative was first announced in the president's State of the Union address in February 2016; this report comes only eight months later. The implementation plan is broken into five strategic goals, with specific implementation timelines for each:

1. Catalyze New Scientific Breakthroughs;
2. Unleash the Power of Data;
3. Accelerate Bringing New Therapies to Patients;
4. Strengthen Prevention and Diagnosis;
5. and Improve Patient Access and Care.

While all five have significance to the biophysical research community, the first strategic goal is focused very much on research, and includes recommendations made by a Blue Ribbon Panel of scientific experts. That panel has made 10 recommendations to greatly accelerate the pace of cancer research over the next five years, and has included a focus on interdisciplinary and interagency collaborations and research. The report specifically suggests establishing partnerships between the National Cancer Institute and both the Department of Energy (DOE) and NASA. The former would allow cancer researchers to take advantage of DOE's supercomputing resources and the latter would allow cancer researchers to learn from NASA's expertise in radiation research.

The hope is that this implementation plan will serve as a guide for future administrations. The report can be read in its entirety at http://bit.ly/2e61cwM.

Door Opens to Research Collaborations between United States and Cuba

After years of limitations due to strained political relationships, the barriers have been lifted for Cuban and US scientists to collaborate. The US Department of Treasury announced in October that it was no longer necessary for US scientists to obtain a license from the Office of Foreign Assets Control to conduct research with Cuban colleagues. In addition, Cuban researchers can now receive US grants open to international applicants.

Four New Members Appointed to the National Science Board

President Obama may only have a month left in his presidency, but he is leaving his mark on the National Science Board. The White House announced on October 31 that President Barack

Obama is appointing *W. Kent Fuchs*, *Victor R. McCrary*, *Emilio F. Moran*, and *Julia M. Phillips* to the National Science Board (NSB). The 25-member NSB and the National Science Foundation (NSF) director establish NSF policies, identify issues critical to NSF's future, approve the agency's strategic budget directions and annual budget request to the president, and provide a biennial report on US progress in science and technology.

"I'm excited about the ideas and fresh perspective our new board members will bring as we continue to push the frontiers of science and innovation," said NSF Director *France Córdova*, in a press release.

Fuchs is president of the University of Florida and has a background in engineering. McCrary is vice president for research and economic development at Morgan State University and has extensive experience in technology investment strategies. Moran is a professor at the Center for Global Change and Earth Observations at Michigan State University, and has been an NSF grantee in cultural anthropology, geography, ecosystem science, and other disciplines. He provides an important interface with the physical and biological sciences through his research on human interactions with the environment under conditions of change. Phillips is director emeritus at Sandia National Laboratories and spent 14 years at AT&T Bell Laboratories.

The White House also reappointed *Arthur Bienenstock*, *W. Carl Lineberger*, and *Anneila Sargent* to each serve a second six-year term.

Every two years, eight members rotate off the NSB and a new class is appointed. Board membership will be complete when one more new member is appointed to the class of 2022.

By the Numbers

Each year, NIH awards more than 57,000 research and training grants, supporting approximately 300,000 researchers, at more than 2,500 universities and organizations, in every state.

Biophysical Journal

Know the Editors

Elizabeth Komives

Elizabeth Komives
University of California, San Diego

Editor, Proteins

Q. What has been your most exciting discovery as a biophysicist?

We discovered that IκBα, the inhibitor of the stress-response transcription factor, NFκB, actually enters the nucleus and takes the NFκB off the DNA. We have termed this process "molecular stripping." The ability of IκBα to do this relies on parts of the molecule being intrinsically disordered. We discovered the intrinsically disordered protein-like behavior of IκBα doing hydrogen–deuterium exchange in the late 1990s, and over the years, the functional importance has become clear. We recently introduced a mutant IκBα that binds NFκB nearly as well as wild type but doesn't strip as well into cells. The cells containing the mutant IκBα had a much slower rate of export of NFκB from the nucleus than the cells containing wild type IκBα. Peter Wolynes has developed theories that allow us to understand why IκBα must "strip" NFκB. It turns out that the DNA provides a large pool of decoy sequences for NFκB to bind to, and if IκBα were just supposed to compete for DNA binding, the turning-off of the NFκB stress response would be slow and incomplete. This project has required lots of different biophysical experiments to characterize exactly what the proteins are doing, and theory to understand it. Importantly, what we have shown in vitro actually translates to what is happening inside cells.

Q. How do you stay on top of all the latest developments in your field?

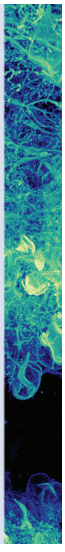
My career has taken me in lots of different directions because I stumble onto interesting problems and I don't stay in one field. As a result I am a "Jack of all trades and master of none." It is very challenging to stay on top of all of the developments in the different fields I work in (solution biophysics, repeat proteins, proteases, NMR, proteomics). I find that writing grants forces me to make sure I haven't missed important papers in the field that I am writing the grant about. Reviewing papers and other peoples' grants helps me keep on top of the latest developments. Being an editor for several journals exposes me to papers that are more outside my fields, and I enjoy that a lot. I especially like to attend the poster sessions at the BPS Annual Meeting because lots of really great new science is presented in there!

How to Get Your Scientific Paper Published

Monday, February 13, 2:15PM – 3:45PM

Starting your career in science? Working on the first paper you hope to see published? Building a publications record but want to improve your rate of success? Plan to attend this session, at the BPS 2017 Annual Meeting in New Orleans, Louisiana. The focus will be on practical issues of publishing a scientific paper. The panelists will discuss the dos and don'ts of submitting research manuscripts to journals. Strategies to avoid common pitfalls, how to prevent and fix problems before submission, and how to respond to critiques and even rejection of a paper will be addressed. Bring your questions for these panelists who have extensive experience in writing, reviewing, and editing papers and serve on numerous editorial boards.

Moderators: *Gail Robertson* and *Enrique De La Cruz*
Panelists: *Jane Dyson*, *Chris Yip*, and *Cynthia Czajkowski*



Biophysical *Journal*

Call for Papers

Brain Biophysics

Editors: Vasanthi Jayaraman, University of Texas Heath Science Center-Houston, and Larry B. Cohen, Yale University

Perspectives by: Larry Cohen, Yale University; Miriam Goodman, Stanford University; Mark Mayer, National Institutes of Health; Ryohei Yasuda, Max Planck Florida Institute for Neuroscience

For publication November 2017

Biophysical Journal will publish a special issue with a focus on brain biophysics. The Journal welcomes submissions that report on advances in the field of brain biophysics and its applications. Biophysical studies of the brain ranging from molecular- and cellular-level investigations such as those focusing on biophysics of channels and transporters, mechanisms involving secondary messengers and signaling, to large-scale biophysics of neural circuitry are invited. Research studies using computational techniques as well as experimental techniques such as structural, spectroscopic, electrophysiological, optogenetics, and imaging methods for investigating components of the neural systems are welcome.

The *Biophysical Journal* aims to publish the highest quality work and we expect that all the articles should have significance and appeal to a broad community of biophysicists.

To allow rigorous peer-review, the deadline for submission to this special issue on brain biophysics is May 1, 2017, and authors interested in having their work in this issue should include this information in their cover letter.

Deadline for submission: May 1, 2017

- All articles will be published online ahead of print following proof corrections.
- Instructions for authors can be found at: http://download.cell.com/ images/edimages/Biophys/Instructions_to_Authors.pdf
- Journal publication fees will apply
- Questions can be directed to the BJ Editorial Office at BJ@biophysics.org or (240) 290-5545.

To submit, visit **biophysj.msubmit.net**

Biophysical Society

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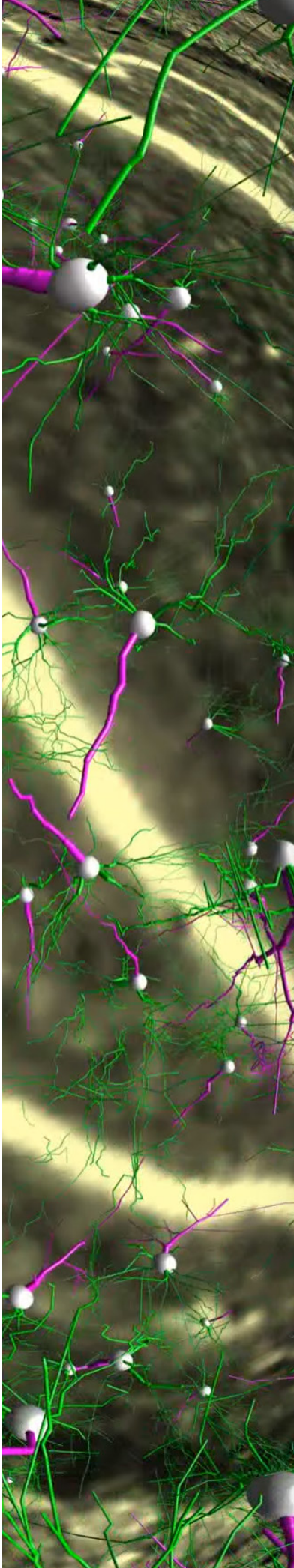


61ST Annual Meeting

February 11–15, 2017 • New Orleans, Louisiana

Late Abstract Deadline

Deadline: January 9

Late abstracts for the 2017 BPS Annual Meeting are now being accepted. All late abstracts will be online and searchable through the online itinerary planner and the meeting app. Late abstracts will be programmed for each day of the meeting and grouped by topic to correspond with the topic presentations of abstracts submitted by the October 3 abstract deadline.

Calling All Bloggers!

Deadline to apply: January 13

Interested in sharing your experiences at the Annual Meeting?

Enjoy writing or interested in expanding your writing experience?

BPS is looking for five to ten bloggers to share meeting tips, must-go-to events, the best local eateries, and how they are navigating the meeting, with the Society's blog readers. (Note: The blog has over 3,500 readers during the meeting!) Check out some of the latest entries, as well as posts from the 2016 meeting at https://biophysicalsociety.wordpress.com/category/annual-meeting-2016/. To learn more and submit your application, visit https://www.surveymonkey.com/r/bpsblog17.

Student Volunteers

The Biophysical Society invites undergraduate and graduate students to volunteer time at the Annual Meeting in exchange for complimentary meeting registration. Volunteers must be Society members with registration fully paid (those selected will have their registration refunded after the meeting) and must be willing to volunteer for six hours during the meeting. To apply, please send an email to meetings@biophysics.org by December 18, 2016, with the following information: full name, cell phone number, and complete list of dates/times available.

Poster Printing

Looking for an easy way to have your poster printed and delivered directly to the Ernest N. Morial Convention Center for onsite pickup? BPS is working with Tray Printing to simplify poster printing and allow you to pick up your poster onsite. Visit www.biophysics.org/2017meeting and click on "Abstracts," "Poster Guidelines" for more information. A discount is available to those who submit their printing request on or before February 8, 2017.

Graduate and Postdoc Institution Fair

Sunday, February 12, 1:00PM–3:00PM

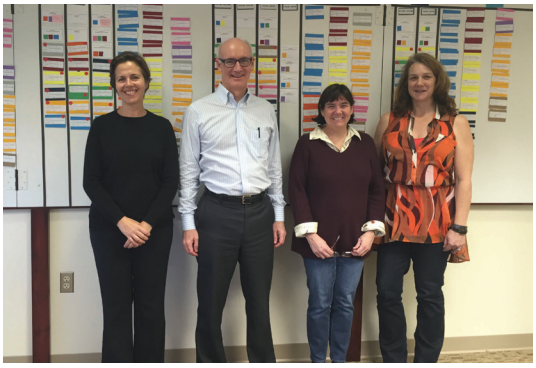
Does your institution have a biophysics program? Reserve a table today to showcase your program at the Graduate and Postdoctoral Institution Fair during the 2017 Annual Meeting. Representatives interested in reserving a table at this fair to display information about their institution's program(s) must complete a registration form and submit the registration fee by January 9. The institution registration form can be found online at http://www.biophysics.org/Portals/61/Grad-Postdoc--InstitutionFair-Registration--17.pdf.

Graduate and Postdoc Institution Fair, Los Angeles, California, 2016.

Late Abstract Submission Deadline: January 9, 2017

Abstracts Programmed

Following the October 3 regular abstract deadline, members of the Program Committee and Council reviewed and sorted submitted abstracts, which were programmed into 20 symposia, four workshops, 64 platforms, and 140 poster sessions. Over 650 posters will be presented each day of the meeting.



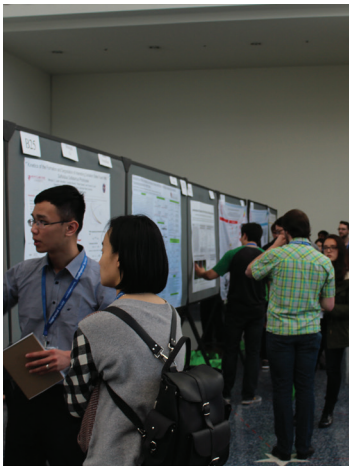
2017 Program Chairs, David Piston and Catherine Royer (center) and 2017 Program Chairs, Francesca Marassi (left) and Anne Kenworthy (right) finalize the programming of symposia, platforms, workshops, and poster sessions at the Society headquarters for the 2017 meeting in New Orleans.

The Society would like to thank the Program Committee, Council, and the many other Society members who participate in the planning, reviewing, sorting, and programming each year. Their work ensures that the final program reflects the breadth of research areas in biophysics with as few programming conflicts as possible given the volume and richness of the scientific program. The 2017 Annual Meeting Program Committee members are *David W. Piston*, *Catherine A. Royer*, *Olga Boudker*, *Samantha Harris*, *Vasanthi Jayaraman*, *E. Michael Ostap*, *Jon Sack*, and *Antoine van Oijen*. Society members *James Sellers* and *Josh Zimmerberg* also assisted with the programming this year.

Education Events

Undergrad Mixer and Poster Fest
Saturday, February 11, 4:00PM – 5:00PM

If you're an undergraduate student, plan on attending this social and scientific mixer. Come meet other undergraduates and learn about their research projects. Undergraduates listed as co-authors on posters are welcome to practice their poster presentation skills in a less formal setting, even if they are not listed as the presenting author. 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 sessions begin. Pre-registration is required to present, but not to attend. Registration is available on the Annual Meeting website.



Undergrad Mixer and Poster Fest, Los Angeles, California, 2016

Undergraduate Poster Award Competition

Undergrads participating in the Mixer and Poster Fest as a first or second author on a poster, will now have a chance to enter a competition and gain recognition for their work. Three students will be selected for awards based on the quality of their research, scientific merit, their knowledge of the research problem, contribution to the project, and overall presentation of the poster. Pre-registration is required to participate. Registration is available on the Annual Meeting website.

Colleges in the Community Day
Sunday, February 12, 11:30AM – 5:00PM

This full day of activities for local college students and their instructors kicks off with an undergraduate student pizza "breakfast" where participants will have an opportunity to network with their peers and members of the Biophysical Society's

Students attend demo during Colleges in the Community Day, Los Angeles, California, 2016.

Education Committee in a fun and relaxed environment. Next, students will have a chance to attend the Graduate and Postdoc Institution Fair to learn about programs from all over the country. Finally, students will have access to an exclusive tour of the exhibit hall where they will view special demonstrations featuring cutting-edge instrumentation producing breakthroughs in biophysics. Local undergraduate students and their PIs, residing within a 50-mile radius of the Ernest Morial Convention Center, who are not presenting an abstract or listed on an abstract being presented at this meeting may register for this event and gain FREE access to all Annual Meeting sessions on Sunday, February 12, 2017. Space is limited to the first 50 registrants who register by Sunday, January 29, 2017. There will be no onsite registration for this event. Registration is available on the Annual Meeting website.

Teaching Science like We Do Science

Sunday, February 12, 2:00PM – 3:30PM

This interactive workshop will provide participants with practical tools, tips, and Discipline-based Education Research (DBER) recommendations for bringing biophysics topics in the lab and in the classroom to life for undergraduate and graduate students. Through collaborative group discussions, attendees will design an interdisciplinary-focused classroom plan and receive feedback on implementation and assessment. Opportunities to share attendees' own classroom practices are encouraged.

Biophysics 101: Cryo-electron Microscopy (Cryo-EM)

Monday, February 13, 1:30PM – 3:00PM

Cryo-electron microscopy is booming, with new atomic structures appearing every week and new facilities being installed at research centers across the globe. This unprecedented growth has been stimulated by the availability of new imaging detectors that dramatically increase the acuity of images, but also reflects advances in electron microscopes and image analysis software. These technologies are being employed for two main applications, known as single-particle analysis and tomography, which can be used to produce structures of a wide range of biomolecular assemblies, from isolated molecules to cells and tissues. This year's Biophysics 101 will discuss both the technologies and the applications to provide insight into why cryo-EM has become such a powerful and essential tool in structural biology.

Career Opportunities at Primarily Undergraduate Institutions: Finding a Job and Finding Success

Tuesday, February 14, 12:00 PM – 1:30PM

This session provides graduate students, postdocs, and current faculty with information and resources on career options at PUIs. Panelists are faculty members at PUIs who have been successful in their positions.

2016 Annual Meeting attendees check out job opportunities and attend a workshop in the Career Development Center.

Career Development Center

Joe Tringali and *Andrew Green* will lead workshops throughout the Annual Meeting and provide one-on-one career counseling sessions in the Career Development Center from Saturday, February 11, through Tuesday, February 14.

Registration is required for the limited number of one-on-one career counseling sessions. Please sign up for these appointments onsite at the meeting beginning Saturday morning, February 11. These signups are on a first-come, first-served basis, one session per person. Please come to your appointment prepared with resumes, CVs, and any other appropriate material.

Registration is not required for the workshops, but please show up on time!

CAREER DEVELOPMENT CENTER SCHEDULE AT A GLANCE:

Saturday, February 11

One-on-One Resume and Career Counseling
12:40PM – 1:40PM | 2:00PM – 5:30PM

Workshop:

3:00PM – 4:00PM *Networking: Optimizing Your Time at BPS 2017 (Joe Tringali)*

Sunday, February 12

8:00AM – 8:30AM *Career Q&A with Joe Tringali*

Workshops:

9:00AM – 10:00AM *Selling Yourself to the Life Sciences Industry (Joe Tringali)*

10:30AM – 11:30AM *Looking Beyond Academia: Identifying Your Career Options Using MyIDP, LinkedIn & More (Andrew Green)*

12:00PM – 1:00PM *Networking: Optimizing Your Time at BPS 2017 (Joe Tringali)*

2:30PM – 3:30PM *Demystifying the Academic Job Search I: Understanding the Search Process from the Perspective of Search Committees and Decoding Job Announcements (Andrew Green)*

4:00 PM – 5:00PM *Ten Tough Industrial Interview Questions (and Ten Pretty Good Responses) Joe Tringali)*

One-on-One Resume and Career Counseling
8:30AM – 1:00PM | 2:30PM – 6:00PM

Monday, February 13

8:00AM – 8:30AM *Career Q&A with Joe Tringali*

Workshops:

10:00 AM – 11:00AM *Ten Tough Industrial Interview Questions (and Ten Pretty Good Responses) (Joe Tringali)*

11:30AM – 12:30AM *Demystifying the Academic Job Search II: Preparing Your Written Application Materials: CV, Cover Letter, and Research Statement (Andrew Green)*

2:30PM – 3:30PM *Beyond the Bench: Preparing for Your Career Transition in the Life Sciences (Joe Tringali)*

4:00PM – 5:00PM *The Strategic Postdoc: How to Find & Leverage Your Postdoc Experience (Andrew Green)*

One-on-One Resume and Career Counseling
8:30AM –12:00PM | 2:00PM – 5:20PM

Tuesday, February 14

8:00AM – 8:30AM *Career Q&A with Joe Tringali*

Workshops:

9:30AM – 10:30AM *Demystifying the Academic Job Search II: Preparing Your Written Application Materials: CV, Cover Letter, and Research Statement (Andrew Green)*

11:30PM – 12:30PM *Selling Yourself to the Life Sciences Industry (Joe Tringali)*

2:30PM – 3:30PM *Looking Beyond Academia: Identifying Your Career Options Using MyIDP, LinkedIn & More (Andrew Green)*

One-on-One Resume and Career Counseling
8:00AM – 12:00PM | 1:30PM – 5:00PM

Molly Cule

How to get an interview in academia

Getting an interview in academia is a lot of hard work and a little bit of luck, but there are things that you can do to improve your odds. First of all, you need to remember what the search committee is looking for — they are looking for their next colleague. As such they are looking for a person who is collegial, well-rounded, autonomous, doing research either in an area that complements or strengthens the department, and is on an upward scientific trajectory.

Because of this, getting an academic interview starts long before you start submitting applications. First and foremost, you need to be hard at work on your science. Being a productive scientist is what helps to pay the bills in the long run, so having a successful track record, both in publishing your work and funding (apply for fellowships until you get one!) cannot be overemphasized. Second, but almost as important, is building personal connections. To do this, I recommend speaking as often as you can (there are likely many schools in your area that would love to have a guest speaker), collaborate, go to conferences, share reagents, and be interested in other people's science. You are much more likely to get an interview from a search committee if someone on the committee has met you and had a good impression. This also gives you the potential to get several strong reference letters for your application.

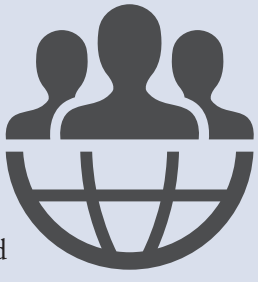
When it comes time to submit your application, there are several signifiers the committee will be looking for that will show them that you are on an upward trajectory: a publishing record, a clearly articulated research plan, funding (past, present, and a clear path to future funding), and a strong, clear vision for your work. Because of this, it is imperative that you spend some serious time putting together your research proposal. Once you think you have it done, send it out to everyone and their mother to give you feedback. You do not want any errors in your application.

Finally, before you send your application to a particular school, try to talk to someone in the department. If you already know someone through your connections, that makes it easy. If not, look through the website and see who your potential collaborators could be. Send some emails and see if any of them would be interested in talking. If the conversation goes well, you could have a strong advocate on the search committee, if it doesn't, then that may be a sign that you wouldn't want to be at the school anyway.

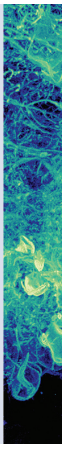
In the end, there is still some stochasticity in the interviewing process, but you definitely can control how you present yourself to the committee. Good luck!

Speed Networking

Monday, February 13, 2:30PM – 3:30PM



Want to connect with a large number of biophysicists in a short amount of time? Graduate students can meet prospective postdoc mentors and faculty might find a postdoc. Early career scientists could meet new contacts to discuss career goals and challenges. Mid-career and more experienced scientists could learn how to get more involved in the Society or network for possible reviewers for papers. By the end of this 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! See the Annual Meeting website for pre-registration.



Student Center


Georg Krainer

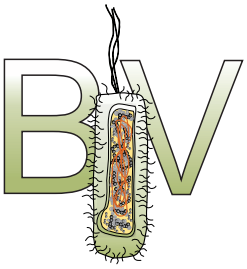
Georg Krainer
B CUBE – Center for Molecular Bioengineering, TU Dresden, Germany, and Molecular Biophysics, TU Kaiserslautern, Germany

Q: What made you decide to study biophysics?

It was the interdisciplinary character combining various natural science disciplines that got me fascinated with biophysics. In school, I was passionate about all different kinds of science subjects and I have always had the idea of transferring concepts between them. When I first heard of biophysics during my undergraduate studies in biochemistry, I knew that this was exactly the cross-border science I was looking for: a playground on the interface of biology, physics, and chemistry and many other disciplines. I sought every opportunity to develop towards this field by attending specialized classes on diverse aspects of molecular biophysics ranging from structural biology to physical chemistry. I soon joined the biophysics labs of Dr. *Sandro Keller* and Dr. *Michael Schlierf* who I am very grateful to for their continuous support during my PhD, particularly for being great mentors in developing my own research ideas combining the beauties of both protein folding and single-molecule biophysics. I am continuously fascinated by how biophysics—with its rapidly advancing technical toolbox— allows me to ask new biological questions and enables new types of experiments to glimpse into nature's best kept secrets.

Calling All Students! Want to Be featured in Student Center? Answer the question: As a student of biophysics, what has been your favorite course and why? Send a photo and your answer to bstaehle@biophysics.org. Yes, it's that simple!

Subgroups



BIV

Keeping up with the Crowd

The Biopolymers in Vivo (BIV) Subgroup champions the idea that studying biological macromolecules in their native environment is of paramount importance, because key physiologically relevant multi-protein assemblies and interactions may be overlooked in vitro.

An example of such an assembly has been revealed in structural cryo-electron microscopy studies by two groups (Gu et al. The architecture of the mammalian respirasome, *Nature*. 2016 Sep 21; 537(7622):639–643; Letts et al. The architecture of respiratory supercomplexes, *Nature*. 2016 Sep 21; 537(7622):644–648). The groups solved the structures of mitochondrial respiratory supercomplexes that involve interaction between three proteins in the mammalian mitochondrial electron transfer chain: CI, CIII, and CIV. These transmembrane proteins facilitate cellular respiration by acting as proton pumps in the process of ATP synthesis. The authors purified the multi-enzyme complex from porcine and ovine hearts and used cryo-electron microscopy to solve the structures of the complex with a resolution range of 5.4 – 7.8 Å.

Why do supercomplexes occur in vivo? Clustering of enzymes can affect the kinetics of biochemical pathways if substrates are channeled between active sites before they get a chance to diffuse away or if the individual complexes within the supercomplex are more or less active. Although the authors did not discover distinct channels between active sites of enzymes in purified supercomplexes, they did discover that CI is rigidified by interactions with CIII and CIV. These complexes are known to exhibit slower catalysis rates when associated with partners within the supercomplex. Stabilization of CI may limit the production of toxic reactive oxygen species.

Strings of higher order oligomers of the respirasome have been proposed, but they remain to be discovered. The *Nature* articles exemplify how the complexity of biopolymers in the cell is being continuously unraveled using state-of-the-art technology.

If these kinds of subjects interest you, join our subgroup, and for the true BIV experience make sure to sign up for the symposium dinner when you join.

—*Maxim B. Prigozhin,* Postdoc Representative
—*Gary J. Pielak,* 2017 Chair

Exocytosis and Endocytosis

The Exocytosis and Endocytosis Subgroup will hold its annual meeting during the afternoon of February 11, 2017, in the Ernest N. Morial Convention Center in New Orleans, beginning at 1:00 PM. We have organized a very exciting program including *Tom Kirchhausen*, Harvard University, speaking on cellular dynamics imaged in real time and in 3D using a lattice light sheet microscope; *Erwin Neher*, Max Planck Institute for Biophysical Chemistry, Göttingen, speaking on superpriming: a slow process, which enhances the rate of exocytosis and may mediate synaptic augmentation and posttetanic potentiation; *Amy Lee*, University of Iowa, speaking about how voltage-gated Cav1 L-type Ca2+ channels meet the needs of the ribbon synapse; and *Xuelin Lou*, University of Wisconsin, discussing presynaptic membrane turnover and transmitter release at the calyx of Held. The afternoon program will conclude with the conferral of the Sir Bernard Katz Award on *Robert S. (Bob) Zucker*, University of California, Berkeley, who will then deliver the Sir Bernard Katz Lecture. The subgroup dinner will be held at the Acme Oyster House, 724 Iberville Street, New Orleans, beginning at 6:45 PM.

—*Brian M. Salzberg*, 2017 Chair

From the BPS Blog

http://biophysicalsociety.wordpress.com

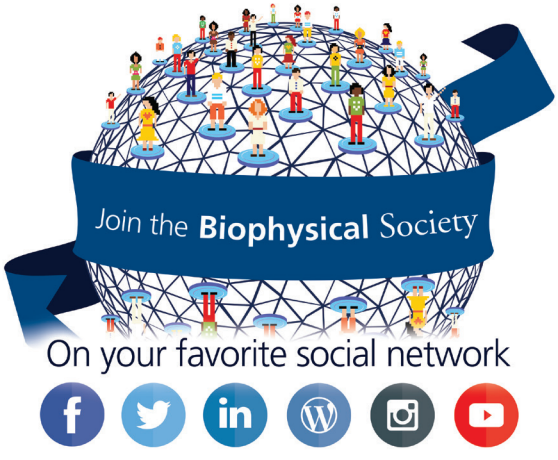
A Young Scientist's Guide to the Annual Meeting

Satchal Erramilli

In a blog post written prior to the 2016 Annual Meeting, PhD candidate *Satchal Erramilli* provides a guide for first-time attendees and other young scientists at the Annual Meeting. He shares advice on how to navigate the meeting and make the most of your time and interactions while you're there. https://biophysicalsociety.wordpress.com/2015/09/29/a-young-scientists-guide-to-the-annual-meeting/.

What Makes Neurons Contract to Generate Tension?

The research of *Alireza Tofangchi*, *Anthony Fan*, and *Taher Saif* was featured on the cover of the October 4 issue of *Biophysical Journal*. They discuss their cover image and research in this blog post. https://biophysicalsociety.wordpress.com/2016/10/04/what-makes-neurons-contract-to-generate-tension/.



Grants and Opportunities

York CVR-VISTA Vision Science Summer School

Objective: To give undergraduate students who are interested in pursuing a career in scientific research exposure to current research topics in vision science through a one-week, all-expenses-paid undergraduate summer school.

Who may apply: Undergraduate students who are interested in pursuing a career in scientific research. Citizens of all countries are eligible.

Deadline: February 15, 2017

Program dates: June 5–9, 2017

Website: www.yorku.ca/cvrss

Centers for HIV/AIDS-Related Structural Biology (P50)

Objective: The National Institute of General Medical Sciences invites applications for centers that will support structure and functional characterization of macromolecular complexes among and between components of the human immunodeficiency virus and components of host cells. The goal is to attract the best scientists in relevant fields to attack the problem of characterizing HIV-related macromolecular complexes. The research being proposed is expected to push the boundaries of what is feasible. As such, it is recognized that aspects of the plan necessarily will be of high risk.

Who may apply: US higher education institutions, nonprofits other than institutions of higher education, for-profit organizations, governments, and foreign components as defined in the NIH Grants Policy Statement

Deadline: January 9, 2017

Website: http://grants.nih.gov/grants/guide/rfa-files/RFA-GM-17-003.html

Be a Biophysics Ambassador at Your Local Science Fair

Zubin Carvalho, winner of the Biophysics Award at the 2016 Inland Science and Engineering Fair held in Riverside, California.

For the ninth year in a row, the Society will sponsor awards in biophysics at state and regional science fairs. The initiative raises awareness of the field of biophysics among high school students and teachers, while recognizing scientific excellence at the local level.

Since 2010, the Biophysical Society has given 179 awards at science fairs, to deserving middle and high school students. The Society is pleased to be able to provide awards at state and regional fairs where members are interested in serving as a judge. Consider giving a biophysics award at your local fair!

Visit http://www.biophysics.org/AwardsOpportunities/Volunteer/ScienceFairs/tabid/2284/Default.aspx for instructions on how to have BPS sponsor the award. You must register the fair with the Society by January 31, so don't delay!

A great many science fairs will need scientists to serve as judges. If you are interested in judging, please visit https://www.surveymonkey.com/r/2017VolunteerJudges and complete the volunteer form. This is a great opportunity to make students aware of the field of biophysics and for them to meet and interact with practicing scientists.

2017 Summer Research Program in Biophysics

See what past students have to say...

"...this has been the most useful and wonderful summer of my college career. Not only have I learned academically, I have built multiple bridges that can only benefit me in the future."

"I learned new lab techniques as well as worked on the project independently. I was able to complete my own experiments and when I had questions or hit a snag, my mentor was available to help."

May 9 – July 28, 2017

University of North Carolina at Chapel Hill

Priority Application Deadline: February 15, 2017

To apply and for more information visit the program webpage at www.biophysics.org.
For questions, email Daniel McNulty at dmcnulty@biophysics.org, or call 240-290-5611.

Give the **Biophysical** Society

Gift of Membership

To give the gift of BPS membership, visit: biophysics.org/giftmembership.

Once the application and payment are processed, a letter will be sent to your recipients, letting them know that they've received the membership gift from you.

Biophysical Society Thematic Meeting

Emerging Concepts in Ion Channel Biophysics

Mexico City, Mexico | October 10–13, 2017

This meeting will cover recent discoveries pertaining to the study of the structure and the function of ion channels and transporters and will bring together a diverse group of experts who use precise techniques to study an assortment of ion channels. Themes that will be addressed include leading knowledge on the function of voltage-, ligand- and mechanically gated ion channels and transporters, as well as the use of structural, optical, electrophysiological, biochemical, and modeling techniques to delimit fine structural interactions within ion channels as well as to study their regulation by different molecules.

The meeting will provide a positive environment for feedback and discussion between leaders in the field and junior researchers and students using different approaches to study the physiology of ion channels and transporters, stimulating interactions and collaborations among them.

Abstract Submission Deadline:
May 26, 2017

Early Registration Deadline:
June 23, 2017

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SPEAKERS

Richard Aldrich, University of Texas, Austin, United States
Andrea Alessandrini, CNR-Institute of Nanoscience, Italy
Francisco Bezanilla, University of Chicago, United States
Cecilia Bouzat, Instituto de Investigaciones Bioquímicas de Bahía Blanca, Argentina
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For more information, visit www.biophysics.org

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January

January 2–13

NECSI Winter School
Cambridge, MA
http://www.necsi.edu/education/school.html

January 15–18

1st Biology for Physics Conference: Is there new Physics in Living Matter?
Barcelona, Spain
http://www.bioforphys.org/

February

February 21–23

8th International Conference on Bioinformatics: Models, Methods and Algorithms
Porto, Portugal
http://www.bioinformatics.biostec.org/

February 29–March 2

Course:Time-resolved Microscopy and Correlation Spectroscopy
Berlin, Germany
http://www.picoquant.com/events/details/microscopy-course

March

March 15–17

Annual Conference on Cardiology
London, UK
http://heartcongress.conferenceseries.com/europe/

March 23–26

11th World Conference on Controversies in Neurology
Athens, Greece
http://www.comtecmed.com/cony/2017/default.aspx

April

April 23–26

Chemical Tools for Complex Biological Systems
Asburn, TN
https://www.janelia.org/you-janelia/conferences/chemical-tools-complex-biological-systems

Please visit www.biophysics.org for a complete list of upcoming events.