

Biophysical Society

Newsletter

September/October 2007 Issue

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Annual Meeting Deadlines

Student Housing Reservations
November 9

Early Registration
December 7

Childcare Registration
November 9

General Housing
January 11

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<http://www.biophysics.org>

Lester Elected President-Elect Seven Society Members Elected to Council



Henry A. Lester

Henry Lester, of the California Institute of Technology, was elected President-Elect of the Biophysical Society. He will assume that office at the 2008 Annual Meeting in Long Beach. His term as President will begin at the 2009 Business Meeting.

Seven Society members were elected to council, with each serving a three-year term beginning at the 2008 Annual Meeting. Elected were *Olaf S. Andersen*, Weill Medical College of Cornell University; *Michael D. Cahalan*, University of California, Irvine; *Laura Finzi*, Emory University; *Susan P. Gilbert*, University of

Pittsburgh; *Donald W. Hilgemann*, University of Texas Southwestern Medical Center; *Steven Rosenfeld*, Columbia University; and *Catherine Royer*, French National Centre for Scientific Research, and the University of Montpellier 1 & 2.

All three bylaw changes were approved in this year's election.

Twenty-eight percent of eligible members cast their ballots this year. Thanks to all members who participated in the elections.



Olaf S. Andersen



Michael D. Cahalan



Laura Finzi



Susan P. Gilbert



Donald W. Hilgemann



Steven Rosenfeld



Catherine Royer

Biophysical Society

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Biophysicist in Profile



Elizabeth Komives

Someone might have guessed when eight-year-old Elizabeth Komives tested at a seventh-grade reading level that her academic talents would pay off. A decade later, a challenge-hungry Komives went on to attend MIT because it was the only school that did not actively pursue her. Fortunately, when the Biophysical Society did, Komives agreed to serve and bring her skills to the Society Council and to the Molecular Biophysics subgroup.

Born in East Lansing, Michigan, in 1960, Komives was the second of four girls. Her father, John, then a graduate student at the University of Michigan, and mother, Margaret, who taught tailoring at a technical college, had their hands full, with a mere five years separating the youngest Komives sister from the oldest. Elizabeth, Genie, Monica and Clair spent their childhood amid dolls and

A self-professed “goofball,” Komives admits she was the family troublemaker.

tea sets and learned to sew under their mother’s tutelage. A self-professed “goofball,” Komives admits she was the family troublemaker.

In ’68, the Komiveses moved to a small town in Wisconsin. It was here that the ambitious siblings found expression for what seemed a hereditary competitive

streak in racing their small sailboat out of the Milwaukee Yacht Club – and habitually winning, Komives hastens to add.

Meanwhile, Komives pursued her studies with the same drive and spirit. A straight-A student with a dream of working in the medical field, she had no tolerance for poor teachers. “I was mean to them when they didn’t know what they were talking about,” she confesses. In her town’s only high school, Komives was one among about a third of the student body that was college-bound and elected to take more math and science classes. It was in this setting that Komives got her first taste of “phenomenal science teachers,” as a student in Mr. Hugdaal’s two-year chemistry sequence, the latter half of which roughly approximated the University of Wisconsin’s freshman chemistry curriculum, and Mr. Lindberg’s Bio and Anatomy & Physiology classes. “I still have never met anybody who had the kind of science teachers we had,” Komives gushes.

When Komives returned from a visit to the University of Wisconsin, Madison, where her older sister and everyone else from her high school who attended college had gone, she knew that the hard partying lifestyle was not up her alley. Breaking with town tradition, she looked elsewhere for a school that would promise “fewer temptations” and settled finally on MIT after batting away other suitors. “I didn’t want to be the one that they recruited,” she scoffs.

In a nod to Mr. Hugdaal, Komives describes how she breezed through chemistry at MIT, though she concedes that “everything else was really hard.” This difficulty had much to do with the load she was carrying: in four years she earned a Bachelor’s degree as well as a Master’s degree. “It wasn’t really a program,” Komives explains, but simply an effort to get her senior year paid for by acquiring graduate student classification. She lost no time and began doing undergraduate research in genetic toxicology while still in her freshman year.

During her time at MIT, Komives volunteered at a local hospital. Her aspirations to practice medicine dissipated

when she was exposed first-hand to the depressing nature of the work. “I realized I really needed to be on the positive side, developing cures.” Shifting her career goals, Komives told her mentor in the fall of her

“I realized I really needed to be on the positive side, developing cures.”

fourth year that she wanted to switch to a different MIT professor’s lab for the rest of graduate school. It didn’t seem to go over well, but it was not until January—decidedly past the admission deadlines for most other universities—that Komives learned the extent to which this announcement had angered her mentor: abruptly, she was notified that she was not welcome to continue in MIT’s graduate program. One school still accepting applications was the University of California, San Francisco (UCSF). Komives applied and, once accepted, packed up her work and moved across the country.

At UCSF, Komives found not simply a new mentor, but a new culture. Discouraged after MIT, she began working with Paul Ortiz de Montellano. “I know,” she jokes, “it sounds like he ought to be slashing dragons or something.” Though not a dragon-slayer, de Montellano was nonetheless something of a heroic figure whom Komives credits as “single-handedly rehabilitating me after my MIT experience.”

Under Ortiz de Montellano, Komives investigated how compounds with carbon:carbon triple bonds inactivate cytochrome P450. “She was a very strong positive force in the laboratory, helping to establish a cult of hard work and at the same time helping to socialize the research group,” de Montellano recalls. “Her enthusiasm, extroverted personality, and keen interest in science were infective.”

Throughout her time in Ortiz de Montellano’s lab, Komives never knew quite where she stood with him. “Amazing mentors don’t neces-

sarily have to be people who praise you a lot,” she explains. “It was a fun challenge to go into his office to talk to him about what you were working on, because he was always five steps ahead of you, and the idea was that

you should eventually get to where you were as far ahead as he was.” When the time came to pick a postdoctoral fellowship, Komives made a list that was testament to her uncertainty. It contained three tiers, each with three names of molecular biologists. Timidly, she asked Ortiz de Montellano which tier she should aim for. He pointed to the top of the paper.

Grateful for the opportunity to apply early this time, Komives immediately sent out letters and applications to the three top-tier scientists, among them Harvard’s Jeremy Knowles. At a Gordon Research Conference a few weeks later, Knowles spoke with UCSF faculty members about Komives. Next thing she knew, he was on the phone offering her a position.

Knowles, whom Komives retroactively dubs her “scientific father,” encouraged her to take risks—to find a new question she wanted to answer, pursue people who could help her

“You just have to try out. You have to volunteer in a lab, you have to volunteer in a hospital, and you have to find out what it is that you like.”

tackle it, and embrace novel methods of research. Using crystallography and infrared spectroscopy to examine site-directed mutants, Komives studied how triphosphate catalyzes its reaction, seeking to elucidate more thoroughly the interactions between the enzyme and the substrate.

When Komives decided it was time to look for a job, she covered all her bases, applying to every academic

job advertised that year. As circumstances would have it, her application followed right on the heels of *Chemical & Engineering News*’ publication of a blacklist of all-male chemistry departments. “By the time I had gone through my fifth or sixth interview knowing I was being considered as ‘the token woman,’ it was refreshing to get to the University of California, San Diego (UCSD),” where there were already women on the faculty. At all her interviews, Komives had proposed two research projects – one conservative, the other “fascinating but crazy.” At UCSD, the latter proposal was taken up with enthusiasm. Komives knew then that there was “an excitement about cutting edge science” here that was unique among universities. When the UCSD faculty members expressed completely uncharacteristic accord about Komives, the deal was sealed on both ends.

Since joining the UCSD faculty in 1990, Komives has upheld a strong commitment both to outstanding science and to her students. Colleagues Susan Taylor and Andy McCammon both emphasize how Komives combines “high standards for quality of research and rigorous quantitative thinking” with “legendary enthusiasm and generosity” and indefatiga-

ble “energy, energy, energy.” As a member of the Steering Committee for UCSD’s Molecular Biophysics Training Grant, Komives has collaborated with Taylor to build up the biophysics community on campus. A pioneer of new techniques in mass spectrometry, Komives is currently working on three projects, all pertaining to the biophysics of protein:

(Continued on page 23.)

Symposia**Sunday, February 3**

8:15 AM-10:15 AM

Symposium 1: The Biophysics of the Immune Response.*E. Yvonne Jones*, University of Oxford, United Kingdom, Chair.*Michael Cahalan*, University of California, Irvine.*Arup Chakraborty*, Massachusetts Institute of Technology.*Abraham Kupfer*, Johns Hopkins University.**Symposium 2: Mechanoenzymes.***Susan P. Gilbert*, University of Pittsburgh, Chair.*Michael Boersch*, University of Stuttgart, Germany.*Erika Holzbaur*, University of Pennsylvania.*Peter Knight*, University of Leeds, United Kingdom.

10:45 AM- 12:45 PM

Symposium 3: Membrane Protein Structure: Freed from the Lattice.*Marc Baldus*, Max Planck Institute of Biophysical Chemistry, Germany, Chair.*John Bushweller*, University of Virginia.*Roland Riek*, The Salk Institute.*Gerhard Wagner*, Harvard University.**Symposium 4: Putting the Move on Myosin.***Piotr Fajer*, Florida State University, Chair.*Anne Houdusse*, Institute Curie, France.*Raul Padron*, Venezuelan Institute for Scientific Research (IVIC).*Ronald Rock*, University of Chicago.

4:00 PM - 6:00 PM

Symposium 5: Driving Forces in Macromolecular Binding.*Anthony Kossiakoff*, University of Chicago, Chair.*Elizabeth Komives*, University of California, San Diego.*John Ladbury*, University College London, United Kingdom.*Johan Aqvist*, University of Uppsala, Sweden.**Symposium 6: EGF Receptor Signaling and Networks.***Kate Ferguson*, University of Pennsylvania, Chair.*Michael Eck*, Dana-Farber Cancer Center Institute, Harvard Medical School*Stuart McLaughlin*, SUNY Stony Brook.

Additional speaker to be confirmed.

Monday, February 4

8:15 AM - 10:15 PM

Symposium 7: Translation and the Translocon.*Arthur Johnson*, Texas A&M University System Health Science Center, Chair.*Richard Wagner*, University Osnabrueck, Germany.*William Skach*, Oregon Health & Sciences University.*Klaus Schulten*, University of Illinois, Urbana.**Symposium 8: Imaging and Controlling Cellular Dynamics *in vivo* Using Light.***Mark Schmitzer*, Stanford University, Chair.*Alexander Gottschalk*, University of Frankfurt, Germany.*Stefan Herlitze*, Case Western Reserve University.*David Piston*, Vanderbilt University.

10:45 AM - 12:45 PM

Symposium 9: RNA in Action.*Joseph Piccirilli*, University of Chicago, Chair.*Philip Bevilacqua*, Pennsylvania State University.*Harry Noller*, University of California, Santa Cruz.*Olke Uhlenbeck*, Northwestern University.**Symposium 10: Ca⁺⁺ Signaling: From the Plasma Membrane to the Nucleus.***Barbara Ehrlich*, Yale University, Chair.*Hilmar Bading*, University of Heidelberg, Germany.*Fatima Leite*, Federal University of Minas Gerais, Brazil.*David Clapham*, Children's Hospital, Boston.

4:00 PM - 6:00 PM

Symposium 11: Collective Motor Dynamics in Cell Division.*Fred MacKintosh*, Free University, Amsterdam, Chair.*Ted Salmon*, University of North Carolina.*Julie Theriot*, Stanford University.*Tarun Kapoor*, Rockefeller University.**Symposium 12: Non-conducting Functions of Ion Channels.***Federico Sesti*, UMDNJ Robert Wood Johnson Medical School, Chair.*Lori Isom*, University of Michigan.*Irwin Levitan*, University of Pennsylvania.*Ming Zhou*, Columbia University.**Tuesday, February 5**

8:15 AM - 10:15 AM

Symposium 13: Voltage-dependent Proton Channels Come of Age.*Thomas DeCoursey*, Rush University, Chair.

Nicolas Demaurex, University of Geneva, Switzerland.
Yasushi Okamura, Okazaki Institute, Japan.
Kenton Swartz, NINDS, National Institutes of Health.

Symposium 14: Mechanisms of Exo- and Endocytosis.

Timothy Ryan, Cornell University, Chair.
Jenny Hinshaw, NIDDK, National Institutes of Health.
Tao Xu, Chinese Academy of Sciences.
Yeon-Kyun Shin, Iowa State University.

10:45 AM – 1:30 PM

Symposium 15: Awards Symposium/Engstrom Lecture

Joseph Falke, University of Colorado at Boulder, Chair.

Biophysical Society Awardees

U.S Genomics Award for Outstanding Investigator in the Field of Single Molecule Biology

Steven M. Block, Stanford University.

Anatrace Membrane Protein Award

H. Ronald Kaback, University of California, Los Angeles.

Margaret Oakley Dayhoff Award

Judith Klein-Seetharaman, University of Pittsburgh School of Medicine.

Avanti Award in Lipids

Ben de Kruijff, Utrecht University, The Netherlands.

Michael & Kate Barany Award for Young Investigators

Sergei Sukharev, University of Maryland, College Park.

Founders Award

Peter Wolynes, University of California, San Diego.

IUPAB Awardee

Arne Engstrom Lecture

Ueli Aebi, University of Basel, Switzerland.

4:00 PM -6:00 PM

Symposium 16: New and Notable.

Chair and Speakers to be announced.

Symposium 17: From Protein Crystals to Amyloid Fibrils: Condensed Colloidal Phases in Biology.

(Symposium co-sponsored by the American Physical Society)

Martin Muschol, University of South Florida, Chair.

Aleksey Lomakin, Massachusetts Institute of Technology.

David Weitz, Harvard University.

H. Eugene Stanley, Boston University.

7:00 PM – 8:00 PM

IUPAB Lecture

G.N. Ramachandran Award Lecture

Girjesh Govil, Tata Institute of Fundamental Research, India.

Wednesday, February 6

8:15 AM – 10:15 AM

Symposium 18: Damaged Proteins – Structural and Biological Consequences.

Phoebe Stewart, Vanderbilt University, Chair.

Robert Beynon, University of Liverpool.

Louise Serpell, University of Sussex, United Kingdom.

David Smith, Harvard Medical School.

Symposium 19: Allostery and Dynamics in Protein Function.

Anthony Auerbach, SUNY, Buffalo, Chair.

Thomas Alber, University of California, Berkeley.

Dorothee Kern, Brandeis University.

James Wells, University of California, San Francisco.

10:45 AM – 12:45 PM

Symposium 20: ABC Transporters: Molecular Structures and Mechanisms.

Hassane Mchaourab, Vanderbilt University, Chair.

Amy Davidson, Purdue University.

John Hunt, Columbia University.

Bert Poolman, University of Groningen.

Symposium 21: Nucleic Acid-based Motors.

Antoine van Oijen, Harvard University, Chair.

Steven M. Block, Stanford University.

Andres Leschziner, Harvard University.

Keir Neuman, Ecole Normale Supérieure, France.

Workshops

Workshops will be held Sunday evening, 7:30 PM– 9:30 PM

Sunday, February 3

7:30 PM – 9:30 PM

Workshop 1: Modeling the Membrane.

Peter Tieleman, University of Calgary, Chair.

Doug Tobias, University of California, Irvine.

Antoinette Killian, University of Utrecht, The Netherlands.

Ilpo Vattulainen, Helsinki University of Technology, Finland.

Workshop 2: Single Molecule Biophysics.

Lori Goldner, NIST, Chair.

Giovanni Cappello, Institute Curie, France.

Marileen Dogterom, FOM Institute for Atomic and Molecular Physics, The Netherlands.

Jens Michaelis, Ludwigs Maximilians University, Germany.

Workshop 3: Structural Genomics: A Discussion.

Andrzej Joachimiak, Argonne National Science Lab, Chair.
Cheryl Arrowsmith, University of Toronto, Canada.
Helen Berman, Rutgers University.
Timothy Cross, Florida State University.
Herman van Tilbeurgh, University of Paris, France.

Minisymposia

Minisymposia will be held Sunday – Wednesday, running concurrently with platform sessions.

Structure-Function of Oxidative Pathway Proteins.

Inactivation and Desensitization Mechanisms in Ion Channels.

The Physics of Protein Folding/Unfolding.

Structural Refinement and Modeling Guided by Low-Resolution Experimental Data.

Subgroups

All subgroup meetings will be held on Saturday, February 2.

Bioenergetics

Lawrence Prochaska, Wright State University School of Medicine, Subgroup Chair.

Morning Symposium: Mechanism of Ion Pumps by Time-resolved Measurements.

Robert B. Gennis, University of Illinois, and *Renate L.C. Naumann*, Max Planck Institute for Polymer Research, Germany, Session Co-Chairs.
Shinya Yoshikawa, University of Hyogo, Japan.
Frank Millett, University of Arkansas.

Michael I. Verkhovsky, University of Helsinki, Finland.

Klaus Gerwert, Ruhr-Universität Bochum, Germany.

Constantinos Varotsis, University of Crete, Greece.

Michael Börsch, University of Stuttgart, Germany.

Afternoon Symposium: Mitochondrial Bioenergetics in Disease and Therapeutics.

Paolo Bernardi, University of Padova, Italy, and *Shey-Shing Sheu*, University of Rochester, Session Co-Chairs.

Young Investigator Award and Presentation

Luca Scorrano, Venetian Institute of Molecular Medicine, Italy.

Shey-Shing Sheu, University of Rochester.

Douglas Wallace, University of California, Irvine.

Barbara Cannon, Stockholm University, Sweden.

Paolo Bernardi, University of Padova, Italy.

Biological Fluorescence

Ari Gafni, University of Michigan, Subgroup Chair.
 Program to be announced.

Exocytosis & Endocytosis

Guillermo Alvarez de Toledo, University of Seville School of Medicine, Spain, Subgroup Chair.

Yuki Goda, University College London, United Kingdom.

Edward Stuenkel, University of Michigan.

Sandra Schmid, The Scripps Research Institute.

Josh Zimmerberg, National Institutes of Health.
Fifth Annual Sir Bernard Katz Award for Excellence in Research in Exocytosis and Endocytosis.

Thomas Sudhof, Southwestern Medical Center, Dallas;

Reinhard Jahn, Max Planck Institute for Biophysical Chemistry, Germany.

Intrinsically Disordered Proteins

Keith Dunker, Indiana University, Subgroup Chair.

Intrinsic Disorder and Human Disease

Rohit Pappu, Washington University, and *David Eliezer*, Weill Medical College of Cornell University, Co-Chairs.

Session I

Rohit Pappu, Washington University, St. Louis, Session Chair.

Michele Vendruscolo, Cambridge University.

Lila Gierasch, University of Massachusetts.

Ashok Deniz, The Scripps Research Institute.

David Eliezer, Weill Medical College of Cornell University.

Session II

David Eliezer, Weill Medical College of Cornell University, Chair.

Alan Fersht, Cambridge University, United Kingdom.

Alexander Sigalov, University of Massachusetts Medical School.

Rohit Pappu, Washington University, St. Louis.

Elisar Barbar, Oregon State University.

Vladimir Uversky, Indiana University School of Medicine.

Membrane Biophysics

Eitan Reuveny, Weizmann Institute of Science, Israel, Subgroup Chair.

Channel Gating Modifiers and Modulators.

John P. Adelman, Vollum Institute, Oregon Health Sciences University.

Diomedes E. Logothetis, Mount Sinai School of Medicine.

Jeffrey R. Martens, University of Michigan.

Daniel L. Minor, University of California, San Francisco.

Eitan Reuveny, Weizmann Institute, Israel.

Membrane Structure & Assembly

Scott Feller, Wabash College,
Subgroup Chair.

Klaus Gawrisch, National Institute
of Alcohol Abuse and Alcoholism.

Ka Yee Lee, University of Chicago.

Alexandra Newton, University of
California, San Diego.

Toby Allen, University of
California, Davis.

Keith Miller, Harvard University
Medical School.

Stephen White, University of
California, Irvine.

Molecular Biophysics

Elizabeth Komives, University
of California, San Diego,
Subgroup Chair.

Dorothy Beckett, University of
Maryland, College Park.

Leor Weinberger, Princeton
University.

Gioacchino Natoli, European
Institute of Oncology, Italy.

Alexander Hoffmann, University of
California, San Diego.

Sandra Greive, University of Oregon.

Doug Barrick, Johns
Hopkins University.

Speaker to be announced.

Motility

Piotr Fajer, Florida State University,
CIMAR, and *Roger Craig*, University
of Massachusetts Medical School,
Subgroup Co-Chairs.

Yuichiro Maeda, Nagoya
University, Japan.

Andras Malnasi-Csizmadia, Eotvos
Lorand University, Hungary.

Samantha Harris, University
of Washington.

Maria-Elena Zoghbi, University of
Massachusetts Medical School.

Kevin Facemyer, University of
Nevada School of Medicine.

Rob Cross, Marie Curie Research
Institute, United Kingdom.

Charles Sindelar, Lawrence Berkeley
National Laboratory.

Evening Talk:

A Random Walk through the Field
of Motor Proteins.

Roger Cooke, University of
California, San Francisco.

Permeation & Transport

Wolfgang Nonner, University of
Miami Medical School,
Subgroup Chair.
Program to be announced.

The Annual Meeting schedule is subject to change. Please visit www.biophysics.org for updates.

Annual Meeting Travel Discounts

American Airlines and United Airlines are the co-official airlines for the 2008 Biophysical Society/IUPAB Annual Meeting and will offer meeting attendees special rates. To receive discount travel on American Airlines please visit www.aa.com and use authorization #A7218AH. To receive discount travel from United Airlines please call 1-800-521-4041 and cite meeting ID#557NE. Please note United Airlines discount reservations can only be made by telephone.

AVIS and Hertz are the co-official car rental companies for the 2008 Biophysical Society/IUPAB Annual Meeting. To receive a discount on your car rental from AVIS please visit <http://tinyurl.com/2ojuhe> or call 1-888-754-8878, and cite discount code D757101. To receive a discount on your car rental from Hertz please visit www.hertz.com or call 1-800-654-2210, and cite both CDP# 1681372 and promotional code #105173.

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and Promotional Code #105173

IUPAB Award Lectures

The joint Biophysical Society 52nd Annual Meeting and 16th IUPAB International Biophysics Congress will feature three IUPAB award lectures. The awards and 2008 recipients are described below.

Katchalsky Lecture



Roger Kornberg

Established in honor of Aharon Katzir-Katchalsky, a founder of IUPAB and former president and member of its council, the Katchalsky Lecture is given as a way to honor a particularly distinguished biophysicist. Katchalsky's scientific contributions covered a number of key topics, including irreversible thermodynamics, theories of polyelectrolytes solutions, and synthetic polymers.

IUPAB has selected Roger D. Kornberg as the 2008 Katchalsky lecturer, an exclusive honor as this award is not given at every Congress. Kornberg's main topic is the molecular basis of eukaryotic transcription. However, he is often cited for his more recent work on RNA Polymerase II, X-ray structure alone and with elongation factor, its interaction with mediator complexes, and its implication for the transcriptional mechanism.

Engström Lecture

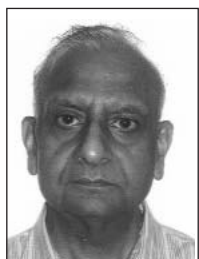


Ueli Aebi

The Engstrom Lecture was created in recognition of Arne Engström's role in starting IUPAB, in conjunction with the Royal Swedish Academy.

IUPAB has chosen Ueli Aebi to be the 2008 Engström lecturer. Aebi is the head of the Structural Biology & Biophysics group at the Biozentrum of the University of Basel. Interested in structure-based functional analysis of proteins and their supramolecular assemblies, Aebi is currently investigating actin, actin-binding proteins and the actin cytoskeleton, intermediate filament (IF) proteins and the IF cytoskeleton, the nuclear pore complex and nucleocytoplasmic transport, and amyloid structure, formation, and disruption.

Ramachandran Lecture



Girjesh Govil

The Ramachandran Lecture was founded in memory of the pioneering work of G.N. Ramachandran in biophysics. An illustration of Ramachandran's ability to recognize significant patterns was the triple helical model of collagen. A special fund dedicated by the Indian Academy of Sciences is used to support this lecture.

IUPAB has selected Professor Girjesh Govil as the 2008 Ramachandran lecturer. Govil has made an exceptional contribution to the biophysical and medical applications of NMR spectroscopy, both in research and education.

Graduate Student Volunteers Needed

If English is your second language and you are willing to help in the registration area in exchange for free meeting registration, visit www.biophysics.org for information on how to volunteer.

Visa Information

Interview requirements for obtaining a visa may now be more stringent than in years past, and visas may take longer to approve. All international attendees who need to obtain a visa to enter the United States are urged to contact the nearest US Embassy or Consulate and begin the application process as soon as possible, but no later than three months before the meeting.

- For official information on the visa application process please visit <http://travel.state.gov/visa> or <http://www.nationalacademies.org/visas>.
- Visa wait times can be found at http://travel.state.gov/visa/temp/wait/tempvisitors_wait.php.
- A listing of US Embassies and Consulates worldwide may be found at <http://usembassy.state.gov/>.

Visa Waiver Program

International attendees who are nationals of countries listed in the Visa Waiver Program (VWP) may be able to travel to the United States for 90 days or less without obtaining a visa. To find out if you are eligible to participate in the Visa Waiver Program please visit: http://travel.state.gov/visa/temp/without/without_1990.html.

Please note: All VWP travelers from the 27 eligible countries, regardless of age or type of passport used, must present individual machine-readable passports to enter the United States.

Visa Problems

If the status of your visa application is pending for more than 20 days, please report your case to the National Academies, which will help your process. You will be asked to complete an online questionnaire. To help the National Academies identify you as a participant of this meeting please include the name of the conference in the "Purpose of Visit" field on the questionnaire. The questionnaire may be found at: http://www7.nationalacademies.org/visas/Visa_Questionnaire.html.

Onsite Childcare Services

Childcare services will be offered by KiddieCorp for attendees to the joint 52nd Annual Meeting of the Biophysical Society and the 16th IUPAB International Biophysics Congress. The program is for children ages six months through twelve years and will be located in the Hyatt Regency Long Beach, headquarters hotel for the Meeting, connected to the convention center by air walk. Snacks and beverages will be provided. Full meals may be supplied by parents or purchased when checking in each day. The service is available to all meeting attendees, but pre-registration is required. The cost is \$15 per hour per child for regular attendees, \$10 per hour per child for postdoc attendees, and \$6 per hour per child for student attendees. There is a two-hour minimum required. The dates/hours of the childcare program are as follows:

Saturday, February 2	8AM-6PM
Sunday, February 3	8AM-6PM
Monday, February 4	8AM-6PM 7:30PM-12AM
Tuesday, February 5	8AM-6PM
Wednesday, February 6	8AM-3PM

To access the pre-registration form visit: <https://www.kiddiecorp.com/bpskids.htm>.

Pre-registration deadline is January 4, 2008.

Exhibits

In addition to the exciting program of symposia and workshops, we encourage all attendees to take advantage of the Exhibits at the Long Beach Meeting. Exhibits will be open Sunday, February 3 through Tuesday, February 5, from 10:00 AM -5:00 PM. Over 150 companies will showcase their newest products and will offer one-on-one demonstrations in the Exhibit Hall. Attendees can view and interact with new products and will also have the opportunity to meet company representatives to receive product information and answers to any questions. With giveaways and snack breaks throughout the day, visiting the Exhibit Hall is worthwhile, interesting and very informative. Exhibits are an important educational component of the Meeting, and income from exhibits allows the Society to maintain low registration rates for everyone, including students.

We look forward to seeing you on the exhibits floor at the 2008 joint meeting of the Biophysical Society and IUPAB's International Biophysics Congress!

Long Beach Tours

Bestway Sightseeing Tours will offer meeting attendees the opportunity to make the most of their travel to Long Beach, California. Three tour options are offered to view the sights and attractions of southern California before and after the meeting. Tour reservations will be taken on a first-come, first-serve basis. Each tour will pick up from and return to the Hyatt Regency Long Beach hotel. All prices include transportation, tour guide, and entrance to attractions. To make your tour reservation please visit <http://www.biophysics.org/meetings/2008/biophysregister08.asp>.

L.A.'s Best Tour - \$57.50

Friday, February 1, 2008

9:00 AM-1:00 PM

The L.A.'s Best Tour offers a fabulous excursion through downtown Los Angeles. Enjoy a panoramic view of L.A., see the Hollywood Sign and Hollywood Bowl, and experience the Hollywood Walk of Fame. Other sights and stops include Sunset Strip, Beverly Hills, Grauman's Chinese Theater, Bel Air Movie Stars' Homes, and Rodeo Drive, where you can shop where the rich and famous shop.

Pacific Scenic and Getty Center Tour - \$77.50

Wednesday, February 6, 2008

9:00 AM-2:00 PM

If you are looking for an art and cultural heritage destination, then the Pacific Scenic and Getty Center Tour is the tour for you. The J. Paul Getty Museum site has breathtaking views of the entire Los Angeles area. With over 700 acres of beautiful gardens, art of ancient Greece, Rome, and Etruria, and a variety of places to dine, award-winning architect Richard Meier has created a luxurious and captivating retreat that also makes a terrific place for a picnic.

Disneyland Tour - \$97.50

Thursday, February 7, 2008

9:00 AM- 7:00 PM

Travel inside Disneyland and spend a day exploring all of the magical attractions, exciting rides, and enchanting entertainment Disneyland has to offer. Tickets to Disneyland included with tour.

Early Career Events

Postdoctoral Breakfast

Are you a postdoc interested in networking with other postdocs to discuss career development? Then don't miss the Postdoctoral Breakfast! The Early Careers Committee will host this annual breakfast, where discussion will focus on the career development activities of postdocs in the field of biophysics. Members of the Early Careers Committee will also be present to discuss plans for future postdoctoral events and other issues facing the Early Career members of the Society.

Negotiating the Transition in Academia

Organized by the Early Careers Committee, this popular panel series will discuss the pathway from postdoc to an independent position in academia. Speakers will come from different styles of academic institutions, including a large university, a teaching-oriented college, and an European institution.

Student Activities

Student Research Achievement Awards (SRAA) Poster Competition

This poster competition, taking place on Sunday, February 3, will feature students who at the time of abstract submission indicated that they wished to have their posters included in the SRAA competition. During the Sunday evening competition, students will have five to ten minutes to present their posters verbally to designated judges from the Society subgroups. Winners will be honored at Monday night's Awards Ceremony.

Undergraduate Student Symposium

College undergraduates wanting to learn more about research and career opportunities in biophysics will find what they are looking for at the Undergraduate Student Symposium, sponsored by the Education Committee. With a seminar on emerging issues in biophysics and the Emily M. Gray Award lecture, this Symposium is an excellent way to get acquainted with the field of biophysics. Afterwards, undergraduates can attend the Graduate Institution Fair, where they will be introduced to leading graduate biophysics programs.

Graduate Institution Fair

If you are interested in learning about some of the best graduate programs in biophysics, visit the Graduate Institution Fair taking place on Sunday, February 3, in Long Beach during the 2008 Meeting. Representatives from colleges and universities throughout the world will be onsite to provide undergraduates information about the opportunities awaiting at their respective graduate biophysics programs. Get to know these institutions and interact with representatives to find out more about graduate programs in biophysics.

Graduate Student Breakfast

Interested in meeting other graduate students in the field of biophysics to discuss the issues you face? The Early Careers Committee is hosting a Graduate Student Breakfast on Monday, February 4. This gathering is the perfect opportunity for graduate students in biophysics programs to discuss the specific issues they're facing, with other graduate students who are in similar positions. Career development and making the transition from graduate student to postdoc are just some of the topics that will be discussed at the Breakfast. Attendance will be limited to the first 100 attendees so plan to arrive early to this event!

STUDENT HOUSING RESERVATION FORM

February 2-6, 2008 Long Beach, California
 Student Housing Hotel: The Coast Long Beach Hotel, Garden View Rooms
 \$112 Single/Double occupancy, \$122 Triple occupancy, \$132 Quad occupancy per room/per night plus tax
Housing Opens: August 1, 2007 Student Housing Deadline: November 9, 2007

IMPORTANT INFORMATION

The Biophysical Society has secured housing at The Coast Long Beach Hotel. All forms should be submitted directly to BPS and the BPS staff will forward this form and deposit to the Long Beach Area Convention & Visitors bureau (LBACVB). All student housing reservation requests must be received by November 9, 2007. There is a standard deposit of \$175 per room. This amount will be credited to your stay. The deposit amount is payable by credit card (Visa, MasterCard, Discover, American Express and Diner's Club) or check (mail only). Book early for best availability. **STUDENT HOUSING RESERVATIONS CANNOT BE COMPLETED ONLINE. PLEASE MAIL OR FAX THIS FORM TO THE BIOPHYSICAL SOCIETY.**

1. To Make Reservations

YOU MUST COMPLETE YOUR STUDENT PRE-REGISTRATION FIRST.

All Student Housing requests must be sent by mail to:
 Student Housing
 Biophysical Society
 9650 Rockville Pike
 Bethesda, MD 20814-3998

Please include:
 This completed form
 Check for \$175 or credit card information
 Annual Meeting student registration receipt
 Acknowledgements will be sent to the individual indicated in part 2 via email, if provided.

2. General Information

SEND ACKNOWLEDGEMENT TO:

First Name: _____ Last Name: _____
 Company: _____
 Address: _____
 City: _____ State/Province: _____
 Postal Code/Country: _____ Email Address: _____
 Daytime Phone: _____ Fax: _____
 (If the number is not within the US, please provide the entire number the US will need to dial to reach you.)

3. Hotel Information
 (see Hotel Rates and Amenities)

Occupant's Name(s)	Occupancy (circle one)	Arrival Date: _____
_____	Single - 1 Person	Departure Date: _____
_____	Double - 2 People	Number of beds requested in room: _____
_____	Triple - 3 People	
_____	Quad - 4 People	

Special needs request: _____

4. Deposit Information

All hotels require a room deposit of \$175.

Make checks payable to LBACVB, drawn on US bank.

Please bill (circle one): Visa MasterCard Discover Amex Diner's Club
 (Credit card must be valid through February 2008.)

PLEASE PRINT:

Credit Card Number: _____ Exp. Date _____
 Name as it appears on card: _____
 Authorized signature: _____

Room Rates & Taxes: To take advantage of the special BPS student housing rates, please submit this form, payment, and annual meeting registration receipt by November 9, 2007. All rates are per room/per night and are based upon the number of occupants in room. Rates are also subject to local state and occupancy taxes (subject to change).

Changes and Cancellations: All changes and cancellations must be made with the Long Beach CVB through January 18, 2008. After January 18, cancellations or changes must be made with the The Coast Long Beach Hotel. Reservations canceled within 72 hours of arrival date must be canceled with the The Coast Long Beach Hotel and individuals forfeit the full deposit amount of \$175. Penalties for early departures are enforced and vary by hotel. Rooms are subject to availability.

Does your institution have a graduate training program in biophysics? Then register for the GRADUATE INSTITUTION FAIR!

Sunday, February 3, 1:00-3:00 PM
Long Beach Convention Center

The Education Committee will host this session to highlight graduate training programs in biophysics. Don't miss your opportunity to reach the largest gathering of undergraduates interested in pursuing careers in the field of biophysics!

Each registered institution will be provided with a skirted table and two chairs. Representatives may bring fliers, information booklets, and other materials to hand out to students attending this session. Please complete the form below to register your institution and graduate biophysics program for this session.

Reservation fee is \$65.

Representative(s) Name(s): _____

Institution: _____

Please list fliers, handouts, and other materials you plan to bring for display:

Method of Payment (check one):

Check – check enclosed

Credit Card (circle one): AMEX MC VISA DISCOVER

Card Number: _____ Exp Date: _____

Name on Card: _____

Address: _____

Signature: _____

Please return this form to the Biophysical Society Office (attn: Yvonne Butters; fax 301-634-7133; email ybutters@biophysics.org).

Registration Deadline: Friday, January 18, 2008

Subgroups

Bioenergetics

2007 Election Results

Below are the results of the spring 2007 Bioenergetics Subgroup elections.

- Chair, *Lawrence Prochaska*, Wright State University.
- Council Members, *Paolo Bernardi*, University of Padova; *Shelagh Ferguson-Miller*, Michigan State University; and *Tatiana Rostovtseva*, National Institutes of Health.
- Continuing to serve on the council are *Petra Fromme*, Arizona State University; *Ed Berry*, Lawrence Berkeley Laboratory, University of California at Berkeley; and *Ron Kaplan*, Rosalind Franklin University of Medicine and Science.

All subgroup members are encouraged to nominate colleagues for election to the subgroup council in 2008. Please send nominations to *Lawrence Prochaska* (lawrence.prochaska@wright.edu).

2008 Symposia

The subgroup symposia for 2008 in Long Beach, California have been finalized. The morning symposium will be *Mechanism of Ion Pumps by Time-Resolved Measurements*, co-chaired by *Robert Gennis*, University of Illinois, and *Renate Naumann*, Max Planck Institute for Polymer Research. This will be followed by the afternoon symposium entitled *Mitochondrial Bioenergetics in Disease and Therapeutics*, co-chaired by *Paolo Bernardi*, University of Padova, and *Shey-Shing Sheu*, University of Rochester.

—*Lawrence Prochaska*,
Subgroup Chair

Intrinsically Disordered Proteins (IDP)

Subgroup Elections

Each year the IDP Subgroup has several open positions for officers and council members. We encourage our members to nominate appropriate people for these positions or to nominate themselves. Whether self-nominated or nominated by another, each candidate/nominator should send a letter to *Trevor Creamer* (Trevor.Creamer@uky.edu) as soon as possible indicating the candidate's interest and qualifications, and provide a statement of his or her intentions and goals. Nominations from the floor will also be accepted. We hope that all nominees will attend the Long Beach meeting, if possible, to stand for election in person.

The open positions are:

- Chair-Elect (one-year term as chair-elect, followed by one-year term as chair, and a third year as immediate past chair).
- Program Co-Chairs: two open positions (one-year term).
- Council: one open position (three-year term).

—*Keith Dunker*, Subgroup Chair

Disorder Comes Out in London

The 6th EBSA European Biophysics Congress, which was held from July 14-July 18 at the Imperial College of London, United Kingdom, hosted for the first time a two-hour session devoted to Disordered and Aggregated Proteins. The session, which was chaired by *Peter Tompa* from Budapest, Hungary, and *Gordon Roberts* from London, UK, assembled six speakers who highlighted the functional role of disorder and the different "flavors" of disorder. The IDP

Subgroup was well represented in London, with two officers, *Keith Dunker* from Indianapolis, USA, and *Sonia Longhi* from Marseille, France, presenting a lecture and a poster, respectively. The session, which was attended by approximately 100 people, began with Peter Tompa addressing the promiscuity of IDPs and their ability to behave both as inhibitors and activators of their partners. *Colin Kleantous* from York, UK, followed with a talk on "competitive recruitment," i.e., the ability of a short disordered region in Colicin E9 to compete out a much larger globular protein (Pal) in binding to the E. coli periplasmic protein TolB. This molecular mimicry arises from the ability of the IDP to mimic the key interactions established with the globular partner. *Véronique Receveur-Bréchet* from Marseille, France, presented SAXS and CD data showing that the transcription activator TAT of HIV-1 is in the twilight zone between a random coil and a premolten globule. These data provide evidence for the existence of a continuum of conformational states ranging from fully disordered with no residual interactions (random coil) to a molten globule state with more persistent secondary and tertiary interactions. *David Jones* from London, UK, addressed the potential contribution of protein disorder in predicting protein function using standard gene ontology (GO) categories. Ontology categories enriched in disorder could be identified, and functions of IDPs were shown to be dependent from both the length and the position of disorder. Prediction accuracies for GO categories related to signaling and molecular recognition turned out to be improved by using disorder features. The session also featured a talk by *Andras Szilagy* from Budapest, Hungary, who addressed the issue of the prediction of disorder in the twi-

light zone between order and disorder. Charge-hydrophobicity plots exhibit a twilight zone, both the width and the position of which depend on protein length. Keith Dunker closed the section with a talk on the bioinformatic approaches to predicting protein intrinsic disorder developed in his group and on the relationships between disorder and cell signaling processes.

The hosting of a session on disorder within the EBSA Congress and its large attendance witness the increasing interest towards structural disorder within the European biophysical community, an interest already proven by the organization of a session devoted to IDPs within the Congress of the French Biophysical Society held at Anglet, France, last October, and by the recent organization of the EMBO/SPINE2-sponsored meeting on *Intrinsically Unfolded Proteins: Biophysical Characterization & Biological Significance* in Budapest last May.

—*Sonia Longhi*

Upcoming Meetings of Interest

2nd Annual Symposium and Business Meeting of the Intrinsically Disordered Proteins Subgroup, February 2nd, 2008, Long Beach, CA.

INSERM Workshop on Intrinsically disordered proteins and associated diseases: prediction, characterization and function. May 19-20, 2008, La Londe Les Maures, Toulon, France.

Subgroup Dinner 2008

The IDP Subgroup will hold a dinner on February 2 in Long Beach, California, after its second Annual Meeting. You have the ability to sign

up and pay for this dinner when you renew your membership or join the IDP Subgroup. The cost will be \$40 (includes dinner and tip, but not drinks). We will issue a call for dinner reservations from those who did not sign up with their Subgroup membership as the meeting draws closer.

Join the IDP Subgroup

Have an intrinsically disordered protein or are interested in them? Join the IDP Subgroup. Download the application form from <http://www.biophysics.org/subgroups/idp.htm>.

—*Trevor Creamer*,
Secretary/Treasurer

Membrane Biophysics

Call for Nominations for the Kenneth S. Cole Award

The Membrane Biophysics Subgroup is soliciting nominations for the Kenneth S. Cole Award. This award is given annually to an investigator who has made a substantial contribution to our understanding of membrane biophysics. The award will be presented at the subgroup dinner following the Saturday afternoon symposium. Please note that any member of the Membrane Biophysics Subgroup may nominate someone. The recipient will be selected by the Group Chair and the Advisory Committee. Nominations, containing a brief statement of the qualifications of the nominee, should be received by November 1, 2007.

Nominations may be sent to the Chair (*Eitan Reuveny*), members of the Advisory Committee (*Nael A. McCarty*, *David T. Yue*, *Criss Hartzell*), or subgroup Secretary/Treasurer (*Carol L. Beck*).

2008 Symposium

Join us at the annual subgroup symposium in Long Beach on the afternoon of February 2, 2007! The topic of this year's symposium is *Channel Gating Modifiers and Modulators*. The speakers will include *John P. Adelman*, *Diomedes E. Logothetis*, *Jeffrey R. Martens*, *Daniel L. Minor*, *Ardem Patapoutian*, and *Eitan Reuveny*.

Cole Award Dinner

The Cole Award Dinner will be the evening of Saturday, February 2, following the annual symposium. The cost of the dinner is \$45. Subgroup members can pre-pay for the dinner when paying annual dues. Details will be announced in the fall. Watch for an email, check the subgroup website, or email [Carol Beck](mailto:Carol.Beck@jefferson.edu).

Student Tickets to the Cole Award Dinner

To encourage participation in the subgroup, any student member of the Biophysical Society entering the student poster competition can receive a free ticket to the Cole award dinner. Additional free tickets may be available on a lottery basis to student members who do not enter the poster competition. The deadline for requesting student tickets is January 15, 2008 (send requests to [Carol Beck](mailto:Carol.Beck@jefferson.edu)).

Please note that dinner reservation deadlines will be earlier this year because of the early February meeting date.

—*Eitan Reuveny*, Chair and
—*Carol L. Beck*, Secretary/Treasurer
(Carol.Beck@jefferson.edu)

Public Affairs

NIH Program to Fund Exceptionally Innovative Research

In late July, the National Institutes of Health announced a new program to fund exceptionally innovative research that, if successful, will have an unusually high impact.

The program, called EUREKA (for Exceptional, Unconventional Research Enabling Knowledge Acceleration), targets investigators who are testing novel, unconventional hypotheses or are pursuing major methodological or technical challenges. The potential impact of the proposed research must be substantial in terms of both the size of the scientific community affected and the magnitude of its impact on the community.

Features of the EUREKA program include direct costs of up to \$800,000 over four years and a specialized R01 application focusing on significance and innovation.

The National Institute of General Medical Sciences (NIGMS) anticipates making between 13-17 awards under this program in Fiscal Year 2008. The National Institute of Neurological Disorders and Stroke, the National Institute of Mental Health, the National

Institute on Drug Abuse, and the National Institute of Allergy and Infectious Diseases plan to fund additional awards.

The application receipt date for the EUREKA program is October 24, 2007. To view the full funding opportunity announcement, see <http://grants1.nih.gov/grants/guide/rfa-files/RFA-GM-08-002.html>.

The Bridging the Sciences Coalition worked very closely with NIGMS on the development of the EUREKA program. NIGMS discontinued its R21 grant mechanism in 2006 and has created EUREKA to replace that program. The NIH can only fund innovative research through EUREKA if applicants submit innovative research proposals. Please send in your proposals and alert your colleagues to this funding opportunity.

Law Aims to Make America More Competitive

On August 9, President Bush signed into law H.R. 2272, The America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education and Science Act. The bill, called the COMPETES Act, is Congress' response to widespread concern that the United States is losing its technological edge and must bolster its commitment to research and education. The publica-

tion of the National Academies *Gathering Storm* report in 2005, the President's American Competitiveness Initiative, a technology plan put forth by House Democratic leadership, and efforts by science, technology, academic, and industrial organizations helped enable the passage of this legislation.

The COMPETES Act incorporates many prior bills, including the comprehensive Senate competitiveness bill, the House-passed NSF and NIST reauthorizations, and several bills introduced by House Science and Technology Committee Chairman Bart Gordon (D-TN) to expand NSF programs for science education and workforce development.

H.R. 2272 was passed in the House by a wide margin and in the Senate by unanimous consent. The bill authorizes \$43.3 billion in federal spending in FY 2008, 2009, and 2010 in science, engineering, mathematics and technology research, and in education programs.

Bridging Demonstration Program at NIH Gets Underway

The NIH has put together an implementation plan for the Bridging Demonstration Program authorized

The COMPETES Act in Brief

- Authorizes significant funding increases for research programs at the National Science Foundation (NSF), National Institute of Standards and Technology (NIST), and the Department of Energy (DOE) Office of Science, placing these agencies on a path to doubling their current budgets within the next 5-7 years
- Authorizes a total of \$33.6 billion over fiscal years 2008-2010 for science, technology, engineering and mathematics education programs across the federal agencies, dramatically expanding NSF's education programs and authorizing several new educational initiatives at the Department of Education
- Establishes large-scale grant programs to recruit and retain highly qualified teachers in the areas of science and math education
- Establishes the Advanced Research Projects Agency – Energy (ARPA-E), designed to engage in high-risk, high-reward energy research under the Department of Energy

in the National Institutes of Health Reform Act of 2006. The Bridging the Sciences Coalition, spearheaded by BPS Public Affairs co-chairs Ken Dill and Mary Barkley, was instrumental in getting this new authority authorized by Congress.

Since the program was created by law, the Bridging the Sciences Coalition has met with The NIH Director and other key NIH leaders to explain the type of research the Coalition intended the program to fund. As part of this process, the Coalition submitted examples of research at the interface of the life and physical, mathematical and computational sciences for which it is currently difficult to get funding.

While the details of the program are yet to be announced, the NIH has informed the Biophysical Society that the Bridging the Sciences activity will be managed by a Demonstration Oversight Group, chaired by the Directors of the National Institute of General Medical Sciences and the National Institute of Biomedical Imaging and Bioengineering. Other members of the Demonstration Oversight Group will include the Directors of the Division of Program Coordination, Planning and Strategic Initiatives, at the National Center for Research Resources, the National Human Genome Research Institute and the National Library of Medicine. The chairs of the Bioengineering Consortium and the Biomedical Information Science and Technology Initiative Consortium will serve as ex officio members.

This Oversight Group will be responsible for identifying potential demonstration projects and overseeing their solicitation, funding and management. The Oversight Group will consult with the National Science Foundation, the Department of Energy, and other agencies when necessary. They will advise the Director of NIH on potential projects and oversee the interagency coordination, solicitation, funding and evaluation of Bridging the Sciences activity.

Bridging Coalition members will meet with Roderic Pettigrew, the

Director of the National Institute of Biomedical Imaging and Bioengineering and one of the Oversight Group Co-Chairs in late September to learn more about the program.

BPS Submits Comments on NCCR Strategic Plan

The National Center for Research Resources (NCRR) is currently working on their strategic plan for 2009-2013. In order to guide discussion during a forum to be held in December, NCRR's leaders asked the scientific community for input. The Biophysical Society Public Affairs submitted the following:

1. What are the most significant trends, developments, and/or needs in biomedical research that are likely to materialize over the next five years, and what can NCRR do to be prepared to respond to them?

When looking at areas of support, NCRR should recognize that new and emerging areas may need different levels of support than typical projects required in the past. NCRR should also recognize that in some cases, new and emerging areas may require additional support for facilities that are well established, but expensive to individual grantees. In other cases, to launch new and emerging areas, support may be needed for new, ground breaking developments that would enable entire fields of biomedical research. Reviewers of grants in new and emerging areas should be instructed to give special attention to the appropriateness of the budget and of the science and make explicit recommendations with respect to these different kinds of needs.

NCRR should give priority to innovative new approaches that would have the greatest impact. New ideas, including those that result from bringing multiple fields of science together, may have exceptional potential for transforming science. Priority also should be given to truly

shared and sharable resources for interdisciplinary research. This requires careful consideration of criteria for review of requested support that differ significantly from R01 evaluations, and appropriate reviewing mechanisms should be considered to avoid routine approaches.

When funding research, NCRR must also consider the rising costs faced by PI's. For example, the biomedical research inflation index must be taken into consideration in continued funding of a project. High throughput and massive data handling challenges presented by current biomedical research often outstrip even the biomedical research inflation index. NIH mandates such as the requirement to increase compensation to the postdoctoral fellows must be considered carefully while the NIH budget remains flat, as in recent years. Graduate student tuition often increases at 2 to 3 times the allowed inflation rate.

Given the continuing development of quantitative methods in biology, much more emphasis should be put on mathematical and computational approaches that can sustain and foster such developments. Scalability of tools and approaches should be considered as important criteria for supporting the development of new hardware and software tools. Similarly, the NCRR should pay more attention to the development of quantitative experimental approaches that go beyond the current limits of scale and time. Most likely, such developments will come from disciplines outside the biological sciences (physics, engineering, mathematics, computer science), and the NCRR should take a leading role in this bridging of sciences in support of biomedical research.

Advanced instrumentation will play an increasingly important role in many fields of research. In recent years, the state-of-the-art instrumentation supported by NCRR's Shared Instrumentation Grant program has generated a wide array of break-

throughs in biophysics, structural biology, and cell biology. Future advances in these and other fields will depend even more heavily on newly developed instrumentation and technologies. In addition, the High End Instrumentation Program is important for maintaining the instrumentation infrastructure in the US. These facilities must be made available to a broad community of scientists and maintained by highly-skilled engineers and technicians.

2. From the standpoint of achieving the broadest impact among investigators, what new or expanded research resources and/or animal models should be developed over the next five to eight years?

NCCR plays a major role in ensuring that new resources developed in other disciplines are available to biomedical researchers. For the reasons described above, the strategic planning should include significant efforts to recruit allied disciplines – physics, math, computer science, engineering, even some areas of non-medical biology. This requires new programs, long-term stable funding, deep efforts to attract scientists from outside the usual biomedical disciplines, and lowering of any non-scientific barriers for the entry of newcomers.

In addition, a wide variety of chip technologies for miniaturization are needed for high through-put research on the genomic or proteomic scale to study complex biological systems. New chemical synthetic methods are needed to produce designer drugs, including environmentally friendly methods. Understanding how cells work at the molecular level, and how tissues and organs work at the cellular level are needed to achieve the goals of molecular medicine, and these are the focus of pioneering research in systems biology that includes both experimental and theoretical/computational approaches. The NCCR should be at the forefront of supporting the beta testing, scaling

upwards and dissemination of such approaches.

The Biophysical Society also believes NCCR can have a broad impact on investigators by increasing its support for instrumentation and shared facilities. These include nuclear magnetic resonance spectrometers, electron microscopes, and computer resources beyond small lab clusters. To take full and efficient advantage of these instruments, it is essential to support the development of methodology and protocols, the hardening and fine tuning of algorithms, and the facilitation of use of complex software and hardware along with technology. The NCCR strategic plan must include specific considerations of such items that have not received sufficient attention in the recent past.

3. The recently-introduced CTSA (Clinical and Translational Science Award) Program seeks to transform the local, regional and national environment for clinical and translational science, thereby increasing the efficiency and speed of clinical and translational research. What considerations will be most crucial to the long-term success of this initiative?

In order for the CTSA program to be successful, it must maintain a proper balance between clinical and basic biomedical research. We see basic science as the key to quality research within the CTSA, and to the success the NCCR is seeking through them. NCCR must make every effort to ensure a seamless continuity in the organizational and funding structure of the CTSA grants. While this continuity has traditionally been a hallmark of the Comprehensive Cancer Centers, it was not well established in the General Clinical Research Centers, and the CTSA Program should be designed, mandated and monitored to ensure basic research remains a vital part of the program. Moreover, in the broader NIH portfolio, it is critical that NIH support the basic science that underpins and powers translational research.

The Biophysical Society recognizes that differences between the

“two cultures” of basic scientists and clinical researchers are a major barrier to translational research. One experiment that NCCR might consider for Center, Resource, and CTSA grants is to require some part of the grant be devoted explicitly to “Pathways to Medicine.” Grantees would be required to make clear efforts to engage basic with clinical researchers (and vice versa) in possible applications of the trials, technology and basic science around which the Center/Resource is built.

4. Despite significant progress, research institutions serving predominantly minority and underserved populations face stiff challenges. What can NCCR do to most effectively support the long-term advancement of these institutions?

In order to promote and encourage greater diversity in the biomedical research workforce, NCCR must maintain a commitment to fund both graduate training in the form of institutional training grants as well as researchers early in their careers at institutions serving predominantly minority and underserved populations. The allowed and rapidly escalating tuition fees for graduate students are reducing the number of early career scientists that can be supported by normal investigator initiated research proposals.

Summer research fellowships for faculty in minority serving institutions can be a cost-effective way for the resources of NCCR Centers and Resources to be used to disseminate opportunity. When these work well, and especially if they are followed with an ongoing collaboration that involves the students at the minority serving institution as well as the faculty member, they can provide opportunity and motivation for students in those institutions. Summer courses built around the mission of the NCCR Center/Resource are also good.

Many minority institutions are scientifically isolated. The quality of

graduate education and postdoctoral training at these institutions is often sub-par. Efforts to connect faculty, postdocs, and students at minority institutions with those at forefront institutions would be a significant step forward for mainstreaming the graduates from predominantly minority institutions.

5. *NCRR has worked with many federal and private sector institutions, agencies, and organizations and will continue to do so as we move forward. What organizations should NCRR seek out for future partnerships to most effectively support, expand, and advance its programs and services?*

One relationship that specifically needs repairing is between NIH and the National Science Foundation's supercomputing program. Given NCRR's mission, it would be advisable for it to take the lead and ensure that resources that NIH investigators are not shortchanged and ignored in the use of these national resources.

As with the broad base of support for synchrotrons, other expensive instrumentation facilities need inter-institutional support at NIH and interagency support, especially from the National Science Foundation and Department of Energy.

There will be another chance for the Society and individuals to submit comments in early 2008 when NCRR releases a draft plan.

Roundup:

NSF: In August, the National Science Foundation released a report addressing ways "to improve NSF's program announcement and solicitation processes in ways that achieve appropriate balances between proposal funding rates, award sizes and award durations." The report, requested by the National Science Board (Board), was done to provide evidence of "the trends, impacts, and casual factors associated with the recent declines in proposal funding rates and the simultaneous growth in proposal submission rates." The Board will discuss the report and its directional implications at its October meeting. The report can be read at http://www.nsf.gov/news/newsmdia/IPAMM_Report_Final.pdf.

State Department: On August 6, *Nina V. Federoff*, a plant biologist, assumed the role of Science and Technology Adviser at the State Department. Federoff, the first woman to hold the position, is taking a three-year leave from her faculty position at Penn State. The position was created in 2000 to provide a way to offer scientific input into the State Department's policymaking process. Federoff was also a recipient of this year's National Medal of Science.

NIGMS, NIH: *Karin Remington*, Ph.D., a leader in genomics research and the development of computational tools, was named the director of the Center for Bioinformatics and Computational Biology (CBCB) at

the National Institute of General Medical Sciences (NIGMS), a component of the National Institutes of Health (NIH). Remington will oversee more than 250 research and training grants totaling about \$92 million to support projects that join biology with computer sciences, engineering, mathematics, and physics. Before joining NIH, Remington served as the project manager for the National Ecological Observatory Network, or NEON, Inc., an NSF-supported initiative to construct ecological data collection facilities across the United States. Remington received a doctorate in mathematics from the University of Kentucky.

Congress: When Congress left for its month-long recess at the beginning of August, the House of Representatives had approved all 12 of its FY 2008 appropriations bills, while the Senate, as a whole, had passed only one—the bill for the Department of Homeland Security. The Senate Appropriations Committee drafted 11 of its 12 bills (all except Department of Defense (DOD) appropriations. As has become standard practice, Congress will most likely only be able to complete one or two bills prior to the start of the 2008 fiscal year on October 1. To keep government programs running, Congress will have to pass a continuing resolution, which keeps government agencies operating at last year's funding levels for a set period of time, while it works to complete the remaining appropriations bills.

Members in the News



Nynke Dekker

Nynke Dekker, from the Technische Universiteit Delft and Society member since 2001, was selected to receive the 2007 EURYI Award sponsored by ESF and EuroHORCS.



Susan P. Gilbert

Susan P. Gilbert, from University of Pittsburgh and Society member since 1995, joined the Rensselaer Polytechnic Institute as the head of the Biology Department on September 1.

Lubert Stryer (not pictured), of Stanford University and Society member since 1979, was awarded the 2006 National Medal of Science sponsored by the National Science Foundation.

Grant-Writing Tips

At the 2007 Biophysical Society Annual Meeting, the Committee for Professional Opportunities for Women (CPOW) sponsored a roundtable discussion luncheon. One of the topics covered was that of “grant-writing.” Following several moderator-led, small-group discussions on the topic, suggestions and tips for improved grant-writing skills were presented to the other luncheon attendees. Below, we share some of the highlights. More detailed information regarding grantsmanship, from the NIH, private foundations and other sources, is available on the internet (see the last paragraph for helpful links).

It is generally agreed that writing a competitive grant application is an acquired skill that comes with practice and experience. Many faculty members who have moved up the ranks into their first academic positions have not had the opportunity to acquire such skills, yet they are expected to successfully compete for funding. In some respects, this is a drawback of the training: young faculty are expected to learn, and learn quickly, how to do many things that were not required or expected of them in their prior positions as trainees. Therefore, grant-writing is a skill that few have honed prior to the actual need for the skill. This article is slanted more towards senior postdoctoral fellows and new faculty; however, the ideas presented here are applicable to all. In all honesty, most of the recommendations are fairly sensible, and as we compiled the information that came out of the roundtable luncheon, many of the ideas were “of course” concepts (now is when you place the palm of your hand to your forehead and roll your eyes). Actually putting

those “of course” concepts into practice, though, is not quite as easy as it sounds.

To start, we begin with the “of course” concepts.

- Keep it simple and clear. When preparing any grant application, and especially the Specific Aims and the Abstract sections, a good rule of thumb is to keep it simple and clear. Think about how you would pitch your ideas and experimental design in a five-minute conversation with a bright, but non-scientific individual in an elevator, and then keep the tone conversational. It is a good idea to avoid laboratory lingo, vocabulary understood only by those who are intimately familiar with the field of research, and abbreviations so that the grant doesn't read like an army manual. As Einstein once said, “most of the fundamental ideas of science are essentially simple, and may, as a rule, be expressed in language comprehensible to everyone.” Or to put it another way, paraphrasing Kafka, “everything you say is boring and incomprehensible, but that alone doesn't make it true.”

- The Specific Aims page may well be the most important page of an application. Use this page to engage the reviewers and help them understand and appreciate the purpose of your intended work so that they look forward to reading the rest of your application. Your Specific Aims should address the questions of “why?” and “so what?” List the broad, long-term objectives and what the specific research proposed in the application is intended to accomplish. State your hypotheses to be tested. Limit the Specific Aims to one page. Finally, because of its importance, get feedback on your Specific Aims page

from colleagues outside your immediate research area.

- Write early and often. What does this mean? Start thinking about your proposed project long before a submission deadline so that you can make sure that all your ducks are properly lined up. You may discover you need additional data or would benefit from a collaboration. By thinking and planning ahead, you stand a better chance of achieving these goals. If there is an opportunity to practice honing those grant-writing skills, take it, even if it is for internal grant competitions, smaller foundation grants, or funds for less time than an NIH RO1 mechanism.

- You should be able to perform the entire scope of work that you are proposing. To establish this in the mind of the reviewers, cite your publications and/or provide preliminary data and figures that demonstrate that you have the required expertise. If there is any technical aspect of the proposed work that you cannot do on your own, provide proof that you have experts in the field who will help you with this particular aspect. Such proof can be in the form of a letter of collaboration or consultation or a letter from an expert who agrees to otherwise assist you in your worthy endeavor.

- Keep each section of the application appropriate for what it is designed to discuss. That is, Methods should contain methods, and Preliminary Data should have the preliminary data to support the experimental design.

In addition to these concepts in writing grants, there are additional ideas that are not always obvious or known to newcomers who are learning to write grant applications. For instance, when preparing the applica-

tion, it is important to identify the best study section to evaluate its merits. This requires digging into websites and among web pages for descriptions of the research that each study section will review. Then, talk to the program officer (PO) of the study section. Send the PO your well-developed Specific Aims page to be certain that the work that you are proposing and perceive to fit the study section actually does. Frequently, study sections change their mission and scope of research that is reviewed. Just because your last application went to a particular study section, doesn't necessarily mean each grant application should go to that study section. Also, check the study section roster to see if it contains the expertise that you require for a fair and informed review. Get to know your study section members, and not by calling them on the phone or emailing them. Instead, read their publications, know their field of study, invite them for seminars to your department, and interact with them at meetings. In this way, your study section members know who you are and what your research entails. This may help a potential reviewer understand something in your application that may not have been as clearly stated as it should have been.

When you receive the reviews of your grant application (after taking a week to rant and rave), it is important that responses to reviewers' comments and criticisms not become argumentative. Keep in mind that the reviewers work very hard to select the best applications from the many that they read. Each of the reviewers' points should be addressed in a respectful manner similar to the one used to address a reviewer's comments about a manuscript. Additional experiments

should be performed if requested and reasonable, and if not reasonable, a thorough explanation should be included in the rebuttal. Your role is to provide a calm, intelligent and convincing rationale for your viewpoint. It is highly recommended that you finish a good draft of the revised proposal about two weeks ahead of the resubmission deadline. This will allow two additional people time to read the revised proposal and make recommendations. The first person should be a scientist who is not intimately familiar with either the work or with the field of research. This person can point out the areas that remain unclear and poorly explained, and reveal the 'holes' in the science that you, as the writer, have missed. The second person, a non-scientist, should be bright and brutally honest. If a smart, non-scientist can understand the proposed experiments and how you would do the work, much like the five-minute conversation in the elevator, then you have really done your job as a grant writer, and any reviewer should be able to understand the work proposed.

Finally, anyone who has served as a reviewer has also learned a great deal about what makes a good grant proposal, why some are better than others, and importantly, how the study section system actually works. This experience as reviewer comes highly recommended for learning and honing grant-writing skills. Frequently, study sections need ad hoc reviewers. Ad-hocing is an excellent opportunity for a new faculty member to learn the process without the large time commitment of a permanent member.

A major source of grant information, general and specific, can be found at the Careers section of the

AAAS website (<http://sciencecareers.sciencemag.org>). Recently, the Science Career editors have also written an extensive NIH RO1 Tool Kit article that will be updated regularly to accommodate the changing face of the NIH and this highly regarded award mechanism. The article can be found at the Career Development section dated July 27, 2007. (http://sciencecareers.sciencemag.org/career_development/previous_issue/articles/2007_07_27/caredit_a070016/#25). A primary source of new information can be found at GrantsNet, which provides a host of tips, tools and search engines for different funding mechanisms.

Other useful resources include:

<http://www.hhmi.org/catalog/main?action=product&itemId=313>

http://grants.nih.gov/grants/grant_tips.htm

http://research.unc.edu/grantsource/proposal_writing.php

<http://healthlinks.washington.edu/rfs/gw/>

<http://www.cvm.umn.edu/researchandgradprog/research/writing2.html>

It is our hope that these suggestions and resources for writing grants will enable individuals who are new to the grant writing arena to learn a few tips and find additional ways to improve their chances of obtaining funding.

—*Ruth Heidelberg* and
Amy Harkins, CPOW Members

Message from the Editor-in-Chief

(Reprinted from the 93-1 issue of the *Biophysical Journal*)

Prolegomena to Any Future Biophysics (with apologies to I. Kant)

The *Biophysical Journal* has had an impressive history over the last 47 years, serving as the main organ of the Biophysical Society as well as one of the main outlets in the world for the publication of biophysical research. Faced with the daunting task of detailing an agenda for the next five years of *Biophysical Journal*, it is tempting to write some trite platitudes about how I will strive to raise the standards for publication, increase the impact of the Journal, and broaden the base of those who publish in and read the Journal. While I hope that these ambitions will be realized (and I have outlined some specific initiatives toward achieving these goals at the end of this essay), I have decided to take a broader and more philosophical view in this editorial inaugurating my term as Editor-in-Chief.

Kant and Physics

When Immanuel Kant published the *Prolegomena to any Future Metaphysics* in 1783, he attempted to answer fundamental questions such as how a science of nature was possible at a time when scientific thinking was beginning to completely change both human perception of the natural world as well as allow for an unprecedented human transformation of the natural world. The birth of science meant that mystical views of the world could be replaced by testable naturalistic theories. It is hard for us to appreciate today how the development of mechanics had such a profound effect on human thought, since mechanics explained phenomena as diverse as the movement of the planets and the trajectory of cannon balls. The motion of "heavenly" bodies could now be reduced to natural

law. The concept that the Earth is not the center of the universe was bitterly opposed, as acceptance of this notion appeared to lessen human significance within the universe.

It is ironic that when Kant surveyed the principles of a universal physics he separated out the principles that he maintained were truly universal and which must therefore exist a priori to empirical observation. One of these universals was the notion that "substance is permanent," shown by Einstein 122 years later to be not true (rather, what is conserved or permanent is a sum involving both energy and matter). Another universal was that "every event is determined by a cause according to constant laws," shown by quantum mechanics almost 150 years later to be less than universal when dealing with atoms and subatomic particles.

The Defeat of Vitalism

While physics made enormous advances in the century after the *Prolegomena* was published, biology suffered from a vitalistic outlook. Vitalism held that biological entities, whether cells or organisms, differed from nonliving objects by the presence of "vital" forces. Thus, life could not be reduced to the laws of physics and chemistry. Nevertheless, the basic principles of evolution were emerging during this period, even at a time when there was complete ignorance about the mechanism of heredity. The development of molecular biology over the past half century, which is the application of chemistry and physics to understanding the molecules responsible for living cells, may have an impact on human thought almost as profound as mechanics had 200 years ago. Biophysical approaches to studying molecules and cells continue to flourish. While it is difficult to quantify knowledge, it might be fair to say that most of our knowledge of biology has actually come from research conducted within the past 10 years. Hopefully, that statement captures the excitement of working in a field that is so rapidly developing that fundamental discov-

eries are continuously being made.

But science is not done in a vacuum. The cost of basic biomedical research must be shouldered by taxpayers, and we cannot expect that biophysical research will be funded without justification. The arguments in support of such research, from the treatment and cure of diseases to the engine of biotechnology driving a significant component of the U.S. economy in the future, must be widely disseminated. Unfortunately, the current climate poses challenges for biophysical science. In the face of overwhelming scientific evidence, why is there still such a refusal to accept the common origins of all existing life forms on the earth? In a study published in 2006 (1), it was found from surveys of people in 34 countries that only in Turkey was the acceptance of evolution lower than in the U.S. More troubling is the fact that the acceptance of evolution among adults has actually declined in the U.S. according to several studies. In response to the question posed in a survey by the NSF, "human beings are developed from earlier species of animals," only 44% of adults said yes in 2004 while 53% of adults said yes in 2001. An NSF survey also revealed that 52% of U.S. adults believe that humans coexisted with dinosaurs (2). Just as the rejection of a geocentric view of the universe had a profound effect on the perception of humans' role in the world, the recognition of human evolution from primitive organisms such as bacteria is similarly disturbing to a large sector of society. This is the reality that we must recognize, and we must make efforts to reach out to the nonscientific population to explain the firm foundations of molecular biology.

The Coming Period for BJ

The publication of all scientific journals continues to undergo a metamorphosis from print-based to electronic. This poses both problems and opportunities. The problem is that many scientific societies (including the Biophysical Society) relied upon selling hard copies of their journals

and reprints as a significant source of revenue. The opportunities in moving more and more toward web-based publishing are still emerging. One of the greatest advantages of electronic publishing is that animations, movies, and very high-resolution figures can now be linked to articles, and we will try to do this routinely in the future. Supplementary material is available from many journals, but accessing it can be a deterrent for the normal reader. Links within BJ articles (either online or in a PDF) to supplementary figures will make these figures a much more integral part of the article. We will continue to explore ways in which electronic publishing will enhance the presentation of scientific results.

Another direction that we will pursue is publishing more minireviews that briefly summarize recent advances and emerging areas. These reviews will complement the original research articles that have been the main basis for BJ. We also want to have more structural articles published in BJ, so that BJ better represents biophysics overall. Tools such as x-ray crystallography, NMR spectroscopy, and three-dimensional electron microscopy have been powerful developments to emerge from biophysics, but articles employing these techniques are currently underrepresented within BJ.

Last, but certainly not least, I want to personally thank Bob Callender for his exemplary service to both the Biophysical Society and *Biophysical Journal* over the past five years. It is only by assuming his responsibilities that I realize how great his effort has been over the previous period.

1. Miller, J. D., E. C. Scott, and S. Okamoto. 2006. Science communication. Public acceptance of evolution. *Science*. 313:765–766. [Abstract/Free Full Text]

2. Science and Engineering Indicators. 2002. National Science Foundation, Division of Science Resources Statistics. <http://www.nsf.gov/statistics/seind02>.

—*Edward H. Egelman*, Editor-in-Chief

Profile (Continued from page 3.)

protein interactions. The longest running of these projects focuses on how thrombin interacts with thrombomodulin, which alters the substrate specificity of thrombin, turning it into an anticoagulant. The second project spotlights the LDL receptor-related protein, an “absolute nightmare” at over six hundred kilodaltons. Komives’ group is working steadily to pick it apart, to learn what interactions take place and the reasons behind them. This protein is involved in Alzheimer’s, which gives Komives heart: “I think it’s really worth studying—even though it’s really hard!” The group’s newest project, which has taken off running, is concerned with the interactions of the transcription factor NF- κ B with I κ B, one of its inhibitors. “What I’m working on now has nothing to do with what I did as a postdoc or as a graduate student,” Komives laughs, stressing again the importance of not feeling confined to one’s previous areas of focus.

Komives’ introduction to the Biophysical Society might be called a fortuitous accident. Trained more as a bioorganic chemist than as a biophysicist, she had been drifting gradually towards the biophysical element for some years through her work on protein:protein interactions. But it was not until 2000, when Andrew McCammon nominated her for the Barany Award, and she was selected, that she saw the Society up-close. Komives came to the Annual Meeting for the first time solely to receive the award, and “it was like a Eureka experience. Here are all the people that

I’ve always wanted to interact with....they’re all here at this meeting, and... oh! I’m a biophysicist, I never realized that!” She has been an active member of the Society every since.

Komives is involved most heavily with the Molecular Biophysics subgroup, and is also a member of the Intrinsically Disordered Proteins subgroup. She was elected to Council after being urged to run for the office by then-Society Secretary Jill Trehwella. “You can’t really say no to Jill,” Komives explains fondly.

In her free time, Komives enjoys helping out with church-related activities, something she’s been doing since she was a teenager. She volunteers with a youth group for high school girls and advises a summer camp. Her passion for social justice issues is also manifest in much she does, from her travels to institutions to recruit under-represented students and familiarize them with opportunities available at UCSD, to her completely independent initiatives. She has been working for some time on developing a school in a poor neighborhood in Tijuana. “It started about ten years ago now,” she explains hopefully, “and they built it floor by floor and grade by grade. It started with one room and the first grade, and now it’s four floors and eight grades.” What time remains Komives spends with her family, which now includes four nieces and nephews. She looks forward to a visit to Wisconsin next summer for her parents’ 50th wedding anniversary.

Komives’ varied experience in multiple areas of science, spanning multiple states, has reinforced in her a conviction she tries to impart these days to her students: “You just have to try out. You have to volunteer in a lab, you have to volunteer in a hospital, and you have to find out what it is that you like.” It is certainly safe to say that using her own life as an example, Komives makes a convincing case.

December 9-13, 2007

Second International Conference on Mechanics of Biomaterials & Tissues

Kaua'i, Hawaii

<http://www.icmobt.elsevier.com/>

January 4-8, 2008

Multiscale Modeling and Simulation: From Molecules to Cells to Organisms

The Big Island, Hawaii

<http://psb.stanford.edu/cfp-multiscale.html>

January 6-11, 2008

6th NCCR Practical Course on Biomolecular Modelling

Kandersteg, Switzerland

<http://www.structuralbiology.unizh.ch/course2008.asp>

January 14-17, 2008

Computational Biophysics with Chemical Accuracy

Bolans Village, Antigua and Barbuda

<http://www.zingconferences.com/index.cfm?page=conference&intConferenceID=12>

January 28-31, 2008

BIOSTEC 2008 — International Joint Conference on Biomedical Engineering Systems and Technologies

Funchal Madeira, Portugal

<http://www.biostec.org>

March 12-16, 2008

4th International Conference on Structural Analysis of Supramolecular Assemblies by Hybrid Methods

Lake Tahoe, California

<http://www.hybridmethods2008.com>

Please visit <http://www.biophysics.org/> for a complete list of upcoming events.

