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2005 Annual Meeting Summary

The California torrential rains held off just long enough for nearly 6,000 biophysicists to meet in Long Beach during the Biophysical Society's 2005 Annual Meeting. Judging from the questionnaires completed by meeting attendees, the scientific symposia and workshops, committee and subgroup programs, and the warm weather all received rave reviews.

Board and Council Activities

Reports from the Society Committees and Subgroups about their activities at the Annual Meeting are included within this newsletter. Below is a summary of the major actions taken by the Society's Executive Board and Council, which also met during the Annual Meeting in Long Beach.

◆ Two members of Council were elected to serve two-year terms on the Executive Board. *Linda Kenney*, of the University of Illinois, Chicago, and *Frederick Sachs*, of SUNY, Buffalo, were elected to succeed outgoing Board members *Ligia Toro de Stefani* and *Eva Nogales*.

◆ *David Millar*, of Scripps Research Institute, was elected Chair of the 2006 Nominating Committee. Also elected to the Committee were *Taekjip Ha*, of the University of Illinois, Urbana; *Suzanne*



Linda Kenney
University of Illinois,
Chicago



Frederick Sachs
SUNY, Buffalo



David Millar
Scripps Research
Institute

Scarлата, of SUNY, Stony Brook; and *R. John Solaro*, of the University of Illinois, Chicago. The Committee is charged with developing the slate of candidates for President-Elect and Council for the 2006 elections. The slate will be presented to Council for approval when it meets in Salt Lake City in February 2006.

◆ *Suzanne Scarlata* was elected to serve a three-year term on the Annual Meeting Program Committee. She will serve on committees planning the 2007, 2008, and 2009 annual meetings.

◆ *Molecular Motors: Point Counterpoint*, organized by *Sharyn Endow* and *Steven S. Rosenfeld*, was selected as the topic of the 2006 Biophysical Discussions.

(Continued on page 2.)

Biophysical Society's 50th Annual Meeting

Mark your calendars to join the celebration in Salt Lake City, Utah, February 18–22, 2006, for the Biophysical Society's 50th Annual Meeting.



2005 National Lecture

The 2005 National Lecture, given by Joachim Frank at the Annual Meeting in Long Beach, is now available in video online. To view the lecture visit:

<http://www.netbriefings.com/event/biophysics/Archives/awards2005/>



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Suzanne Scarlata
SUNY, Stony Brook

- ◆ The Board approved San Francisco for the 2010 Annual Meeting site.
- ◆ Council agreed to continue subsidizing onsite child-care services at the Annual Meeting. The CPOW agreed to seek outside funding to reduce the Society's financial exposure.
- ◆ The Board approved and Council ratified the decision to take all meeting management in-house by the Society Office.
- ◆ Council approved the Board decision to give the Federation of American Societies for Experimental Biology (FASEB) the required 12-month notice that the Society plans on withdrawing its membership in FASEB.
- ◆ Council approved the Education Committee's recommendation to begin offering undergraduate student travel awards.
- ◆ The International Relations Committee's requests to offer a one-year complimentary membership to travel grant awardees and to create a collaboration website with the Minority Affairs Committee were approved.
- ◆ Society President *Steve Block* was entrusted with naming the chair of a committee charged with developing a proposal for the publication of landmark papers in biophysics.
- ◆ The Board decisions to raise membership rates and extend the eligibility for early careers rates were approved by Council and presented at the Business Meeting. Early career rates will be available for five years beginning in 2006 and six years beginning in 2007. The regular member rate will increase by \$10 in 2006, to \$160. The Early Career rate will increase by \$5 in 2006, to \$55. Student rates will remain unchanged at \$25.

Member in the News



Antonio Scarpa, of Case Western Research School of Medicine and Society member since 1979, has been named Director of the National Institutes of Health Center for Scientific Review (NIH/CSR).

President's Message



Steven M. Block

Biophysical Society Reconsiders Its Membership in FASEB

The Biophysical Society (BPS) joined the Federation of American Societies for Experimental Biology (FASEB) in 1992. At the time, FASEB consisted of seven societies, and the BPS had 4,200 members and a staff of four. The Executive Board and Council believed that the Society would benefit from joining an organization that had just restructured itself to focus on public advocacy services for its constituent societies. That restructuring included a lowering of FASEB dues, which were nearly \$70 per society member, to \$10 per member. The motivation for lowering the dues was to keep existing society members, attract new ones like our own and the American Society for Cell Biology (ASCB), and eliminate the financial barrier to joining for larger societies like the Society for Neuroscience (SfN) and the American Society for Microbiology (ASM). The

FASEB services, including printing, meetings management, IT, and mailing, which all societies had been required to use, were to become self-sufficient. Profits from those services, coupled with dues from constituent societies, were to fully support FASEB administration and public affairs efforts.

Starting in 1999, however, our Society began expressing concerns about FASEB's management, governance, and services. We felt that services were deteriorating, with little attention given to customer service, while fees were consistently increased by 6% per year. Our concerns and suggestions for changes and improvements were largely ignored.

This resulted in many societies, including our own, using better, less costly services. Additionally, some societies, like our own, grew enough in membership, staff, and technological capabilities to realize efficiencies by bringing services in-house.

Throughout these years, on several occasions FASEB mid-year budget projections appeared dire, resulting in fee increases for services to societies. Once the year-end budgets were complete, however, the crises appeared to have been overestimated, yet no commensurate decrease in fees to societies were realized.

A few years ago, FASEB initiated plans to build a new addition to the FASEB building, at a projected \$12,000,000 cost. At the time, our representatives to the FASEB Board and Finance Committee expressed concern that the decision was being made without accurate financial data. One of our concerns was that projected revenues were based on rental rates far higher than com-

parable market rates, while resident societies were being told that those rates were substantially below market rates. Over BPS objections, the building was built.

This past year, FASEB found that its debt/service ratio was in breach of its building loan agreement. Analysis showed that FASEB services had been losing customers, its budget projections had been based on unrealistic numbers, its operations had been relying on income from reserves, and its administration and governance had not been functioning well.

Although the number of FASEB member societies has now grown to 22, none of the new societies are large ones, and total representation remains at approximately the same 69,000 members as in 1992 (the ASCB left FASEB in 1999). With membership dues revenues stagnant, the BPS and other FASEB building resident societies have borne the brunt of the financial burden. In addition to paying dues to FASEB, resident societies also have been paying high rents and increased costs for incidental and contracted services to pay for the increased costs of administration and public affairs.

To address its business, governance, and communication problems, FASEB undertook a strategic planning process this past year. In the interim, faced with increasing rental rates, the BPS Office looked for comparable space and discovered that by moving to another building it could realize substantial savings. We provided FASEB with our findings;

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(Continued from page 3.)

FASEB agreed to prepare a counter proposal.

In October 2004, in an effort to address its financial problems, FASEB raised its dues for 2005, four months into our own FYE 2005 budget. As a member of FASEB, we were forced to pay the additional 2005 dues for which we had not budgeted.

At the October 2004 BPS Executive Board meeting, the Board received the draft FASEB strategic plan. Although the plan included five goals, one of which was financial stability, it provided no implementation plan other than increased revenue through increases in dues. Absent a business plan that provided both a decrease in expenses and sustainable increases in revenues, the Executive Board felt that it was in the best interest of the Society to give FASEB the requisite 12-month notice to withdraw its membership. The Society Board did not want to find itself again next year forced to pay substantial increased dues mid-way through our own fiscal year. A copy of the letter sent to FASEB can be found on the adjacent page. The letter states that the Society is willing to consider rejoining if FASEB develops a sustainable business model.

The Board's decision was not taken without significant thought and discussion over many years. Many BPS members, serving as representatives to the FASEB Board and committees, have invested considerable personal time in trying to address FASEB's problems and have been frustrated by FASEB's lack of responsiveness. The Biophysical Society,

now nearly 8,000 members strong, has grown into one of the larger FASEB societies. Although it would have been easier to remain silent, the Board felt that it was in a good position to make a strong statement and, perhaps, force FASEB to reassess its relationship and responsiveness to all its member societies. If FASEB is to survive, it must fundamentally change how it does business, how it responds to its members, how it is governed, and how its administration and departments are held accountable.

FASEB has taken several positive steps. It has hired a capable Chief Financial Officer. Finally realizing that its rental rates are not competitive, FASEB has undertaken a reevaluation of its rates and is preparing new proposals for all resident societies. The Office of Public Affairs' new Director of Legislative Relations has been very willing to share information and work with the societies. Some efforts have been made to cut costs. Much, much more needs to be done, however, before a real systemic change can take place.

Several other FASEB societies have subsequently written letters to the FASEB administration expressing the same concerns we articulated, particularly the current reliance on dues increases, which would place many of the smaller societies in financial jeopardy. It is clear that FASEB can only be as strong as its members, the societies. FASEB cannot survive at the expense of the societies.

At the recent meeting of the BPS Council in Long Beach, the full Council discussed this issue at length. Council voted unanimously to support the Executive Board in its decision and in its ongoing efforts to help FASEB make

effective changes, with the understanding that a reversal of our decision will only take place if changes are made to the Board's satisfaction.

The BPS leadership is committed to maintaining open communication with the Society membership, which it represents, on all issues. We will keep you informed of what happens with regard to FASEB throughout this coming year and welcome your comments.

Annual Meeting Visa Workshop

Individuals interested in the US visa policy post-9/11 were treated to an excellent presentation by Wendy White, Director of the Board on International Scientific Organizations at the National Academies of Science. White explained the visa process for scientists visiting or studying in the United States, the shortcomings of the system since the terror attack of September 2001, and the steps the National Academies have taken on behalf of scientists. She also was able to report the newly announced change that security clearances will now be valid for the length of a student's studies in the United States. This change will allow students to travel to and from their home country during their studies with more ease. White's slide presentation can be viewed on the Biophysical Society website at www.biophysics.org/visa-workshop.pdf.



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Paul Kincade, PhD
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 825 NE 13th St
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November 11, 2004

Dear Dr. Kincade,

At its October meeting, the Biophysical Society Executive Board discussed its relationship with FASEB. Everyone agreed that FASEB has been quite successful in its public affairs activities and achieved wide recognition as an advocate for the basic biomedical scientist. Unfortunately, the Board also agreed that there have been and continue to be serious problems with how FASEB is managed and how it interacts with and serves its member societies.

The two major problems are interrelated. First, FASEB has not been managed in a business-like manner. Second, there have been problems with the transparency of the decision-making process.

Let me expand briefly on these concerns. Up until very recently, FASEB budgets did not reflect actual income and expenditures in the various cost centers. This has made it difficult to manage FASEB in a responsible manner, resulting in deficits that had to be covered by reserves. Also historically, votes have often been taken at Board meetings on proposals that have not been circulated far enough in advance to permit our representatives to discuss them with the Biophysical Society leadership. While some progress has been made on these issues, real solutions are not yet in place.

The draft strategic plan recommendations, which we received several days before our Board meeting, did nothing to assuage our concerns that the problems would be addressed. It contains generalities, rather than proposing specific solutions.

The management and fiscal problems facing FASEB over the last six years have also required substantial investment of time and effort from our representatives to the various FASEB committees and Board, as well as from our executive officer. Based on the communications we've received from FASEB and the draft strategic plan recommendations, our Board remains unconvinced that any viable business plan has been developed or that less time, effort, or financial support will be required from the societies in the future. The recommendations do not address the basic issue: the current FASEB cost structure is not sustainable without continued increased costs to the societies. Our Board cannot support an increase in FASEB dues in the absence of a sound business plan, and we have asked our representatives to FASEB to vote against the proposed dues increase.

FASEB exists to do collectively what individual societies cannot easily do alone. The Biophysical Society joined FASEB in 1992 for its advocacy efforts. The doubling of the NIH budget, championed by FASEB, was a great accomplishment. More recently, some advocacy efforts have dispersed into areas that are not high priorities for our members, while some that have been important to us have been either given minor attention or no attention at all. Biophysical Society and other member societies have not been sufficiently involved in the decisions on the focus areas of FASEB's public policy efforts. This has forced us to invest in our own public affairs efforts.

For these reasons, our Board has voted to terminate the Biophysical Society's membership in FASEB. In accordance with Article V, Section I, of the FASEB Constitution and Bylaws, please consider this letter formal notification that our membership to FASEB will end effective December 2005. If at anytime FASEB does develop a viable and comprehensive business plan, we would be happy to reconsider our membership in FASEB. Every member of the Biophysical Society Board expressed the hope that this can be accomplished soon enough that we will be able to reverse our decision on withdrawing at the end of 2005.

We wish FASEB to succeed, and we will continue in good faith during the next twelve months to work at helping FASEB address the many issues it faces.

Sincerely,

A handwritten signature in black ink that reads "Stephen C. Harvey".

Stephen C. Harvey
 Biophysical Society President

Biophysicist in Profile



Clare Woodward

After growing up in a segregated southern city, *Clare Woodward* arrived in 1959 at Smith College, a place she describes as 'liberating'. "It was so refreshing to be surrounded by women who had intellectual aspirations," she explains, "and by faculty who encouraged us to achieve."

Smith provided a rich cultural mix that included teachers like *Leonard Baskin* and *Mary Ellen Chase*, and heated discussions of the writings of Smith alumnae *Betty Friedan* and *Sylvia Plath*. Just as important, Woodward met with social diversity and consciousness. The campus was abuzz with analyses of the Holocaust, and many drew parallels to civil rights issues. Woodward notes that "this was the first time I was introduced to social history and its relationship to the contemporary scene."

After her mother's death during her senior year, Woodward returned to her home in Houston and began graduate school at Rice University. The cultural shock couldn't have been more startling. "Universities and other institutions were polarized and changing fast," Woodward says, "and the overriding controversy was

integration." Rice was still segregated, and Woodward felt she had plunged into a "cauldron of divisiveness and racism." After three different advisors, Woodward finished her PhD degree in the lab of the department chair, *Clark Reed*, a proponent of integration who faced burning crosses in his front yard. Through Reed, Woodward met *Val Woodward*, who later became her husband, and who was also engaged in civil rights and the integration of Rice.

Woodward was born in Houston, Texas, a few days after the attack on Pearl Harbor. One of five children, she was encouraged by her mother, *Bernice Keating*, to embrace cultural and intellectual pursuits. Her mother, who had been the youngest graduate of Baylor College in Waco in the 1920s, taught Biology and English. Woodward's father, *Carl*, was an entrepreneur and salesman. Woodward describes her mother as having many of the same traits she later admired in her husband, namely, their "social outlook and respect for scholarship and teaching. They both cared about the disenfranchised," she says, "and saw themselves as agents of social change and social justice."

Colleague and friend *Mary Barkley*, of Case Western University, sees those traits in Clare as well. "Clare has incredibly insightful perspectives and good judgment," Barkley notes, "her integrity and courage, plus the patience of Job, make her a very effective change agent."

Woodward developed an interest in science and academic achievement early in life, an interest that was fostered in large part by her mother. Graduating from high school at age 17 — in a class of about 100, of which a small percentage went on to college — Woodward received

a partial scholarship to Smith College. Although she started as a pre-med major, she graduated with a degree in chemistry.

After completing her PhD at Rice, Clare married *Val Woodward*, a biology professor at Rice, and promptly moved to the University of Minnesota (UM) where Val had accepted a professorship. There, she worked without pay for a year and a half because of anti-nepotism policies. After completing a postdoc in chemistry, she took a non-tenure track position in the medical school at UM. In 1972, she became the first woman at that institution hired for a tenure track position. She remained in the Biological Sciences department at UM for her entire professional career. Although the tenure-track appointment of a woman was met with opposition by some older faculty in her department, the support from younger faculty was heartening.

Clare Woodward's research is in the area of hydrogen exchange and its relationship to protein fluctuation and folding, an interest she developed as a postdoc. She initially used a tritium exchange method, and in the mid-seventies switched to Nuclear Magnetic Resonance (NMR) to measure deuterium-hydrogen exchange at atomic level resolution.

Her research involves study of the kinetics of hydrogen-deuterium isotope exchange of backbone NH hydrogens in proteins. As Woodward describes it, "of particular interest are amide hydrogens that are buried in a folded protein, and that undergo slow isotope exchange with solvent hydrogens on the hour-to-day time scale at neutral pH and room temperature. Slow exchange immediately implies the existence of internal motions of the folded state that expose buried amide NH groups to solvent and thereby to isotope exchange. Although exchange is a result of protein internal motility, the hydrogen exchange experiment does not usually yield the frequency or amplitude of a motion, but rather a probability that

"Universities and other institutions were polarized and changing fast," Woodward says, "and the overriding controversy was integration."

a given NH will exchange with solvent hydrogens. This deceptively simple measurement of protein behavior opens a window on complex dynamical properties and associated biological functions, and monitors a subset of these. Woodward and her associates think that the internal fluctuations of folded proteins responsible for slow exchange of buried amides most likely involve rapid, small motions (tenths of angstroms) that occasionally allow transient access, or penetration, of solvent to buried regions of the protein.

Jannette Carey, Professor of Chemistry, Princeton University, characterizes other aspects of Woodward's research, "Based on her abundant and sound evidence collected by NMR, Clare proposed that faster amides exchange independently of the global unfolding of the protein, while, in the same experiment, the slowest amides usually mark secondary structure elements that exchange only by cooperative unfolding of the entire chain. Clare's proposal, known as the 'two process model', has become a founding concept in our current understanding of protein hydrogen exchange and folding."



Clare and Val Woodward met at Rice University during the socially turbulent 1960s.

"Clare's proposal, known as the 'two process model', has become a founding concept in our current understanding of protein hydrogen exchange and folding"

Woodward and her associates also conclude that their results and analyses indicate that the part of the protein that is least susceptible to exchange when the protein is folded is also the part to become organized first during folding. This is embodied in the hypothesis that the slow exchange core is the folding core, sometimes nicknamed last out, first in. The mutually packed elements of secondary structure that contain the slowest exchanging protons are the elements of secondary structure that are most likely to sample native configurations during folding.

Woodward's work has had far-reaching impact. *Bertrand Garcia-Moreno*, Professor of Biophysics at John Hopkins University, says that "the work in our laboratory (and in many others!) has been influenced significantly by some of the concepts that emerged from Clare's research on hydrogen exchange and protein dynamics and folding. Clare was one of the pioneers of hydrogen exchange studies with proteins by NMR. This was very exciting work at a very exciting time when protein chemists had to come to terms with the fact that proteins were highly dynamic molecules."

In addition to her mother and the support and encouragement of her husband, Woodward credits a number of others with having had a lasting impact on her science. Among them are *Rufus Lumry*, emeritus professor at the University of Minnesota and a Fellow of the Biophysical Society; the late *Gregorio Weber*, who was very influential in protein dynamics; and the late *Linderstrom-Lang* and his associate, *Aase Hvidt*. And

from afar, she was encouraged by the esteemed *John Edsall*, whom she refers to as a "Great Grandfather" of the field.

Have things changed since she first started science? "I think professional doors opened up somewhat for women and underrepresented minorities and then closed again", Woodward says. She has worked hard to ensure that diversity in science is fostered. "It's better for science to have diverse perspectives," Woodward notes, "the way a question is framed and the way data are interpreted, are significantly influenced by the researcher's overview of the field. When a scientific field is primarily a white, male dominated club, it is constrained by a uniform overview promulgated by a rigid hierarchy, and that's not good for science."

Woodward has won national and UM awards for her work in teaching and mentoring young people. In fact she says that she is most proud of the work she has done to help identify, mentor, encourage, coach, and open doors for younger people,

"her integrity and courage, plus the patience of Job, make her a very effective change agent."

women, and underrepresented minorities at the undergraduate and graduate level. A former undergraduate advisee of Clare's, *Valerie Copié*, Professor of Chemistry at Montana State University, notes that "I do not think I would ever have gone to graduate school, or obtained a PhD in chemistry at MIT, if not for the crucial role Clare played in my education and in my career."

Wayne Bolen, Professor of Structural Biology/Biophysical Chemistry, University of Texas Medical Branch, first met Clare when he joined the laboratory of Rufus Lumry in 1970. Bolen says that "Her enthusiasm for science is engaging and contagious, so she always has people

(Continued on page 26.)

Permeation and Transport

Symposium

The Permeation and Transport Subgroup, which is dedicated to biophysical analysis of molecular transport across cell membranes, held its third annual meeting with another short (one hour) meeting at noon on Saturday, February 12. The two speakers, *H. Ronald Kabach* and *Robert Stroud*, presented crystallographic descriptions of two important membrane transporters from bacteria, lactose permease and the ammonia transporter. These crystal structures, which were published last year, provide challenges to the computational and experimental communities. The lactose permease is a 12-helix bundle that appears to oscillate between inward and outward facing binding-site conformations. The ammonia transporter structure contains crystallographic ammonia positions in an apparently otherwise vacant pore. Fluorescent dye experiments indicate that vesicles are basified by uptake, ruling out previous cation transport theories. A set of Trp and His residues near the entryway are postulated to strip ammonium of a proton as it enters.

Governance

The meeting was attended by about 300 people. Next year's subgroup leadership was announced to be *David Busath*, Chair, *Benoit Roux*, Vice-Chair and Chair Elect, and *Wolfgang Nonner*, Treasurer and Vice-Chair Elect.

SRAA Competition

The subgroup also presented one SRAA Poster Competition award to *Veronica Segarra*, Yale University, for her work on the molecular topology of the *The Topology of Vcx1p, a vacuolar H⁺/Ca²⁺ Exchanger in Saccharomyces cerevisiar*

Transporter. The judging process has been quite tedious for the students (and judges) the past few years, and better judging mechanisms are being implemented for next year's SRAA competition. Graduate students doing work on ion channel permeation or membrane transport biophysics are strongly encouraged to enter their posters for the competition in Salt Lake City at the time of abstract submission next October.

—*David D. Busath*, Chair

Membrane Structure and Assembly

Symposium

The 2005 Membrane Structure and Assembly Subgroup meeting, *Relevance of Lipid Bilayer Structure and Dynamics for Biological Function*, was held on Saturday, February 12, and was attended by a standing-room-only audience of over 400.

All seven speakers described investigations that probed the relationship between the physical properties of the underlying lipid bilayer to cell membrane function. The talks focused on the bilayer properties of membrane ordering, hydrophobic matching, lateral pressure profile, lipid shape and membrane curvature. The motivation for much of the research in this session was to understand the structural and dynamical differences between different lipids in order to account for the enormous lipid diversity in cell membranes. The old paradigm of the fluid mosaic model from the 70s is gradually being replaced by a membrane model where lipid-lipid, lipid-protein and protein-protein interactions play dominant roles.

The first two talks presented evidence for gel phase lipids in biomembranes; *Jenifer Thewalt* used deuterated

lipids and NMR to show that ceramide-rich gel phases are present in POPC membranes at 37 °C even at low concentrations of ceramide. *Joke Bouwstra* used x-ray and electron diffraction and FTIR to explore the structure of stratum corneum (skin) lipids. By systematically omitting, or varying the chain length of the ceramides, Bouwstra revealed that the signature double periodicity in the gel phase skin structure depends on CER 1 and CER 9 in her sandwich model.

In the third talk, the property of hydrophobic matching of the lipid thickness to several peptides was presented by *Huey Huang*, using x-ray and neutron diffraction and oriented circular dichroism. While longer and shorter lipids generally deform to match the thickness of the peptide channels gramicidin and alamethicin, this was not the case for the synthetic WALP peptides. Huang calculated the energetics of deformation during peptide insertion into the bilayer.

After the coffee break, *Robert Cantor* related how his calculations regarding the lateral pressure profile could explain the mechanism of action of anaesthetics. Not all anaesthetics act the same, and those with long-chain alcohols do not work, presumably since there is no differential deformation across the bilayer. *Antoinette Killian* tested some of Cantor's ideas about the lateral pressure profile concept as applied to association of the KcsA potassium channel using NMR and fluorescent microscopy. When she added small solvent molecules together with lipids with small (PE) or large (PC) headgroups, she found that lipids stabilize the tetramer form of the KcsA channel against solvent-induced dissociation in a way that depends on the overall shape of the lipids. *Margie Longo* discussed her results on elastic properties and area when she added short chain alcohols of increasing chain length to SOPC GUVS by micropipette aspiration, which relate to the effects of anaesthetics on membranes

and to viticulture. Increases in area/molecule (including alcohol) and decreases in K_c (the bending constant) occurred in the order butanol > propanol > ethanol > methanol, and followed Traube's rule.

Finally, *Michael Brown* discussed his flexible surface model in which the spontaneous curvature of a monolayer acts together with hydrophobic mismatch to store energy within the bilayer, which can facilitate protein function. Using plasmon-waveguide spectroscopy and FRET, Brown obtained evidence for rhodopsin elongation and its interaction with the G protein transducin (Gt), especially in the presence of DOPE recombinants. Brown introduced a new concept, "spontaneous curvature matching" of the lipid bilayer to the mean curvature of the lipid/water interface adjacent to the protein, which balances the lipid/protein solvation energy.

Business Meeting

The subgroup's annual business meeting was held after the talks. In the future, abstract submission to our subgroup's talks will be encouraged, since they are now being published in the Abstracts Issue. A suggestion to reduce the number of candidates for election of chairs to two, down from the current four or five, was discussed. The new chair for 2006 is *Leonid Chernomordik*, and for 2007 it is *Frances Separovic*.

Other Activities

The subgroup dinner was held on Saturday night at l'Opera Ristorante. Twenty-six people attended and enjoyed the opera singing and viticulture.

On Sunday evening *Kalina Hristova* served as the subgroup's judge for the SRAA student poster competition. The MSAS gave out two SRAA prizes of \$100 each, provided by the Biophysical Society. The recipients were *Hiaki Ishii*, of the Department of Chemistry, Stanford

University, and *Bradley Akitake*, of the Department of Biology, University of Maryland. It has been an honor and pleasure for me to serve this year as the MSAS chair.

—*Stephanie Tristram-Nagle*, Chair

Exocytosis/Endocytosis

Symposium

The third Exocytosis and Endocytosis Subgroup Meeting on February 12 in Long Beach was organized by subgroup chair *Manfred Lindau* of Cornell University, Chair-Elect *Meyer Jackson* of the University of Wisconsin, past-chair *Kevin Gillis* of the University of Missouri, *Eileen Lafer* of the University of Texas, and *Guillermo Alvarez de Toledo* of the University of Seville, Spain.

The first presentation by *Zhuan Zhou*, of Peking University, China, was entitled *Ca²⁺-independent but Voltage-dependent Exocytosis and Endocytosis in a Sensory Neuron*. He presented results from DRG neuron somata where depolarization induces exocytosis in the absence of calcium and which is apparently also not due to intracellular Ca release. At high stimulation frequencies exocytosis in the absence of calcium is followed by endocytosis in a dynamin-independent process. He also reported on Ca sparks in these cells which can trigger small exocytotic responses.

The next talk, *Structural Properties of Dynamin Reveal a Mechanism for Membrane Constriction*, was presented by *Jenny Hinshaw*, of NIDDK, NIH. She described structural features of the 100-kDa GTPase dynamin, which is involved in the constriction and fission of clathrin-coated pits from plasma membrane during receptor-mediated endocytosis as well as during membrane retrieval following exocytosis in nerve terminals. Dynamin

self-assembles into spirals and onto lipid bilayers. Dynamin-decorated lipid tubes are formed that undergo a large conformational change upon GTP_i addition resulting in membrane constriction. The three-dimensional structure of dynamin in the non-constricted and constricted states was determined by high-resolution electron microscopy and image processing methods. The results suggest that the constriction is the consequence of a GTP-induced conformational change within the dynamin oligomer.

The second part of the symposium was devoted to the coupling between exocytosis and endocytosis or retrieval. *Tim Ryan*, of Weill Medical College of Cornell University, discussed three distinct mechanisms: Full fusion followed by endocytosis of membrane elsewhere in the nerve terminal, reversible fusion pore opening, and exocytosis followed by endocytosis of the same vesicle. The presentation title was *Exo-Endocytosis Coupling at Nerve Terminals*. Experiments using the pH-dependent synapto-pHluorin indicate exocytosis is followed by endocytosis with a time constant that increases with the extent of exocytosis and appears to be a saturable process that proceeds at a rate of about 1 vesicle/s. The re-acidification occurs with a time constant of about 4s and his experiments indicate that a rapid re-use of exocytosed vesicles is unlikely. *Richard Tsien*, of Stanford University Medical Center, gave a presentation entitled *Tipping the Balance between Modes of Vesicle Fusion and Retrieval*. The experiments he reported show that the membrane marker FM dyes are released incompletely in single fusion events and indicate that some dye remains trapped. The conclusion from these experiments is that at low stimulation frequencies most exocytosis is non-classical (not full fusion)

(Continued on page 10.)

(Continued from page 9.)

and that non-classical exocytosis is still very significant at high stimulation. Multiple fusion events of the same vesicle occur in a 10s time interval.

Sir Bernard Katz Award

In memory of Sir Bernard Katz, who developed the quantal hypothesis of transmitter release and who was awarded the Nobel Prize in Medicine or Physiology in 1970, the subgroup presents an annual award to an individual who has made outstanding contributions to the field of exocytosis and/or endocytosis.

The second Sir Bernard Katz Award for Excellence in Research in Exocytosis and Endocytosis was sponsored by HEKA Electronic, Axon Instruments, Rapp Opto Electronic, Till Photonics, Applied Scientific Instrumentation, ALA Scientific Instruments, Sutter Instruments Company, Bruxton Corporation, NPI Electronic, Invitrogen, and Elsevier (TINS and TCB).

This year's award recipient was *Wolfhard Almers* from the Vollum Institute at Oregon Health and Sciences University, in recognition of his outstanding biophysical studies of exocytosis and endocytosis, employing patch clamp capacitance measurements and fluorescence imaging. His contributions include the first electrophysiological characterization of single fusion pore conductances. In recent years, his application of total internal reflection fluorescence microscopy has provided much new insight into the mechanisms and stimulated many studies in other laboratories. Almers presented his award lecture entitled *How Separate are Exocytosis and Endocytosis?*, taking up the theme of the preceding presentations. He pointed out that often vesicles retain shape and membrane proteins after exocytosis in PC12 cells. FM dye experiments show that even

if fusion is transient, lipid exchange occurs between vesicle and plasma membrane. Cavicaptured vesicles can be re-exocytosed. The cavcapture of these vesicles appears to involve dynamin.

Following the symposium the subgroup enjoyed a Mexican Fajita Buffet Gala Dinner at the Acapulco Mexican Restaurant y Cantina.

—*Manfred Lindau*, Chair

Membrane Bioenergetics

Symposium

The Membrane Bioenergetics Subgroup sponsored a full-day symposium on Saturday, February 12, 2005. The morning symposium on the *Mitochondria in Diseases and Therapeutics*, organized and chaired by *Shey-Shing Sheu* and *John Lemasters*, centered on the interdisciplinary approaches including biophysical methods to elucidate the important role of mitochondria in disease and the development of drug treatments. *Shey-Shing Sheu* opened the session with his presentation on Ca^{2+} , ATP, and ROS: a mitochondrial love/hate triangle, in which an imbalance among the Ca^{2+} homeostasis, energy metabolism, and ROS generation is the origin of numerous diseases. *Paul Brookes* described the role of mitochondria in cardiac ischemia-reperfusion injury. *John Lemasters* presented the mitochondrial pathways to apoptosis and necrosis. He identified VDAC as the "governator" because of its role in regulating mitochondrial function. *Mei-Jie Jou* extended her work on mitochondrial DNA defects in pathogenesis, apoptosis, and therapeutics. The session ended with *Brad Gibson's* presentation on mitochondrial proteomics and oxidative stress.

Just after the lunch break, the Young Bioenergeticist Award was presented to *Christoph Maack*, a postdoctoral fellow in

the laboratory of *Brian O'Rourke* at Johns Hopkins University Medical School.

The afternoon symposium in *Mitochondria in Cell Dynamics*, organized and chaired by *Gyorgy Hajnoczky* and *Carmen Mannella*, brought together investigators who study mitochondrial biology and signaling in the context of cellular function. The presentations reported recent progress on mitochondrial structure, biogenesis, fusion, fission, movement and death. Most of the studies utilized advanced microscopic imaging approaches.

Carmen Mannella used cryo-electron tomography to illustrate near-native mitochondrial structure and described how proteins involved in membrane fusion (Mgm1) and apoptosis (tBid) may be involved in maintaining and remodeling cristae morphology.

Michael Yaffe described mechanisms of mitochondrial motility in the fission yeast, *Schizosaccharomyces pombe*. Mitochondria are tethered to microtubules by CLASP-like proteins, and travel via tubule polymerization/depolymerization. Moreover, specific positioning of mitochondria relative to the mitotic spindle is important for proper distribution of mitochondria between daughter cells.

Heidi McBride summarized the function of GTPases that control mitochondrial morphology in mammalian cells. Fission and fusion depend on the activity of dynamin related protein 1 (Drp1) and its regulation by SUMO1.

Gyorgy Hajnoczky described mechanisms that allow individual mitochondria to interact with each other and to synchronize the activity of the entire mitochondrial population. The interactions require positioning of the organelles, which is achieved by anchorage to and movement along the microtubules and microfilaments.

Nicolas Demaurex described the coordinated function of endoplasmic reticulum and mitochondria in intracellular

calcium signaling. The dynamic interaction between these organelles involves continuous remodeling of the mitochondria by fusion and fission.

Mariusz Karbowski spoke further on the role of the mammalian mitochondrial fission and fusion proteins Fis1, Drp1, endophilin B1 and Opa1 in mitochondrial morphology and apoptosis.

Business Meeting

The organizers would like to thank B&B Microscopes, Olympus, PTI, Universal Imaging, Zeiss, Strathkelvin, and *Shy-Shing Sheu* for the generous financial support. A special thanks is extended to *Gyorgy Hajnoczky* for highly effective fundraising and to *Casey Kinnally* for her four years of service as treasurer. The new treasurer, by acclamation, is *Larry Prochaska* of Wright State University.

—*Marco Colombini*, Chair

Membrane Biophysics

Symposium

The Membrane Biophysics subgroup held its annual symposium on Saturday afternoon, February 12, in Long Beach, California. This year's symposium theme was *Intracellular Ion Channels: Trafficking, Regulation, and Function*. The session was organized and moderated by this year's subgroup chair, *Deborah Nelson*, University of Chicago. Presenters included *David Clapham*, Harvard Medical School; *Sergio Grinstein*, Hospital for Sick Children; *Terry Machen*, University of California, Berkeley; *Victor Faundez*, Emory University; *Deborah Nelson*, University of Chicago; *Christine Bear*, Hospital for Sick Children; and *Kevin Foskett*, University of Pennsylvania. The subgroup thanks *Debby Nelson* for organizing an excellent symposium.

Business Meeting

At the business meeting following the symposium, *Nael A. McCarty*, Georgia Institute of Technology, was selected as Chair-Elect. *David T. Yue*, Johns Hopkins University, is the current chair, and he is organizing the 2006 symposium. *Carol L. Beck*, Thomas Jefferson University, was elected Secretary-Treasurer. The subgroup thanks *Bill Wonderlin*, West Virginia University, past Secretary-Treasurer, for his four years of service to the group.

Cole Award

The Cole Award dinner was held at Smooth's restaurant. Following dinner, the Cole Award was presented to *Barbara Ehrlich*, Yale University.

Twelve students attended the Cole Award dinner as guests of the subgroup. Guest student tickets for the dinner were awarded by lottery. The subgroup plans to continue this tradition. Interested students should watch for newsletter announcements to participate in next year's lottery.

—*Carol L. Beck*, Secretary-Treasurer

Molecular Biophysics

Symposium

The Molecular Biophysics subgroup held a symposium on *Single Molecule Biophysics*. The program consisted of a variety of lectures aiming to provide an overview of the current state-of-the-art of the methodology and giving an impression of the widths of topics being studied. The program started with two lectures given by *Taekjip Ha*, University of Illinois, and *Ben Schuler*, University of Zürich, on the observation of dynamical processes in biomolecules at the level of

individual molecules in vitro. First, enzymatic processing of novel DNA/RNA structures and their dynamic formation was presented (Ha), followed by the presentation of protein folding dynamics by single-molecule FRET (Schuler). The symposium was continued by three lectures on single-molecule/single-particle analysis in live cells given by *Peng Chen*, Harvard University, *Thomas Schmidt*, Leiden University, and *Xiaowei Zhuang*, Harvard University. It was shown that individual motors could be followed as they stepped on microtubules within the cell (Chen), and how viruses and gene delivery vectors were transported through the cell (Zhuang). Analysis of the mobility of individual signaling molecules allowed the observation of the domain structure of the cell membrane (Schmidt). On average more than 250 participants followed the exciting lectures and took part in the lively discussions during the session and in the break.

SRAA Competition

As outreach activity, our subgroup took a big share in the student award competition. Thanks to our jurors, *Ben Schuler*, University of Zürich, and *John van Noort*, Leiden University, all 35 student presentations in this category were carefully judged. The winners selected were *Rodolphe Kutra*, Case Western Research University and *John Mongan*, University of California, San Diego.

Business Meeting

At the business meeting *Peter Hinterdorfer* from the University of Linz, Austria, was unanimously elected 2007 chair. *Cynthia Stauffacher*, from Purdue University, is the 2006 Chair. She is looking forward to seeing everyone again at next year's meeting.

—*Thomas Schmidt*, Chair

Minority Affairs

MARC and Student Travel Grant Awardee Reception

Each year the Biophysical Society, in collaboration with the Minority Access to Research Careers (MARC) office at Federation of American Societies for Experimental Biology (FASEB), funds travel awards to support the participation of students and faculty/mentors at the Biophysical Society Meeting. *Lydia Sohn* and *Stephen Mayo* of the Minority Affairs Committee (MAC) coordinated the 2005 MARC award competition. The 14 winners of MARC awards were recognized and honored on Saturday, February 12, in Long Beach at the Student Travel Grant and MARC Awardees Reception. *Stephen Mayo* from the Minority Affairs Committee and *Bernard Chasan*, Co-Chair of the Education Committee, co-hosted the event. The winners were individually recognized and presented certificates from the Biophysical Society and MARC/FASEB program. Each recipient, in turn, expressed his or her gratitude for the opportunity to attend the Biophysical Society Meeting and briefly described the research that he or she would present at the poster sessions.

Committee Meeting and Future Plans

The Committee held its annual business meeting following the Awards Reception. Guests at the meeting included *Steven Block*, Society President-Elect at the time; *Bernard Chasan*, Education Committee Co-Chair and creator and principal lecturer of the biophysics summer course; *Yvonne Cissel*, BPS Staff; *John Hakizimana*, Florida A&M University student; *Mark Jack*, assisting lecturer of the 2006 summer course; *Ro Kampman*, BPS Executive Director; and *Alberto Roca*, SACNAS liaison.

The Committee discussed plans for continuation and improvement of the Herman R. Branson Summer Honors Course in Biophysics, *Case Studies in the Physics of Life*, developed in collaboration with the National Society of Black Physicists (NSBP). The mini-course will be expanded from the initial three-week offering at Hampton University in 2004 to a five-week program at Boston University in 2005, June 12–July 17. Students will also be matched with faculty mentors so that they can pursue research studies in a biophysics laboratory during the following academic year. A proposal for future support of the sum-

mer school at Florida A&M University has been recently submitted. *Mark Jack*, who will assist *Bernard Chasan* with the 2006 course, is a member of the Florida A&M physics faculty and the lecturer designated for the planned 2006 course.

Also discussed at the business meeting were assignments of Committee members' responsibilities for the coming year. *Luis Markey* and *Linda Kenney* will represent the Biophysical Society at the annual Society for Advancement of Chicanos and Native Americans in Science (SACNAS) meeting in Denver, Colorado, September 29–October 2, 2005. *Lydia Sohn* and *Alfred McQueen* will be attending the Annual Biomedical Research Conference for Minority Students (ABRCMS) meeting in Atlanta, Georgia, November 2–5, 2005. *Colin Wraight*, who organized a mini-symposium on macromolecular biophysics at the National Society of Black Physicists/National Society of Hispanic Physicists (NSBP/NSHP) meeting in Orlando, Florida, February 16–19, 2005, immediately following the Long Beach meeting, will also organize the Biophysical Society's participation in the 2006 NSBP/NSHP meeting in San Jose, California, February 15–18, 2006. *Timothy Cross* and *Michael Chapman* from Florida State University joined *Colin Wraight* as lecturers at the 2005 NSBP/NSHP mini-symposium.

Barry Lentz will oversee the 2005 Herman R. Branson Honors Summer Course in Biophysics and organize future summer courses if the aforementioned request for funding is successful. *Barry Lentz*, *Robert MacDonald*, and *Wilma Olson* will work with the Society staff on the outreach program, including the Minority Affairs Committee web page and resource/research clearing house.

Stephen Mayo and *Gabriel Montano* will coordinate the 2006 MARC travel award competition and co-host the Student Travel Grant and MARC



Six of the fourteen 2005 MARC Student Travel Awardees at the awards reception, with Steven C. Harvey, Past-President (far left).



Additional 2005 MARC Travel Awardees at the awards reception.

Awardees Reception in Salt Lake City. *Wilma Olson* will lead the Committee as a whole in the development of a formal program for the 2006 Minority Affairs Committee Forum.

The appointments of *Ishita Mukerji* and *Wilma Olson* to the Committee were approved at the New Council meeting.

Forum

On Sunday, February 13, the Minority Affairs Committee sponsored a forum entitled, *New Society Resources for Attracting Minorities to Biophysics*. *Barry Lentz* reported on the first Herman R. Branson Summer Honors Course in Biophysics, *Case Studies in the Physics of Life*, held at Hampton University in 2004 and provided an update on the course to be held in 2005 at Boston University. *Jean Chin*, NIH-NIGMS Division of Cell Biology and Biophysics, presented a valuable survey of NIH resources available for the training and support of minority students in the biomedical sciences. *James Cassatt*, Director, NIH-NIGMS Division of Cell Biology and Biophysics, spoke enthusiastically about the biophysics summer course. *Barry Lentz* also presented a draft of the Minority Resources web site and received useful feedback from members of the audience, including representatives of several Biophysics Training Programs, on

changes that are needed to finalize and make the web page useful to both students and faculty.

—*Wilma Olson*, Chair

Education

The Education Committee sponsored a panel discussion on *Undergraduate Education* which drew over a hundred people. We consider this to be an excellent turnout, particularly since a luncheon on biophysics in Primarily Undergraduate Institutions (PUI) was held almost simultaneously. More than just numbers, we were impressed by the level of interest. A show of hands indicated that a large fraction of the audience was either teaching an undergraduate biophysics course at present, or planning to in the future. Presentations were given by *Phil Nelson*, University of Pennsylvania; *Richard Ludescher*, Rutgers; *Jerry Smith*, Georgia State University; and *Bernard Chasan*, Boston University emeritus. A follow-up panel is planned for the 2006 meeting in Salt Lake City.

—*Bernard Chasan* and *Richard Ludescher*, Co-Chairs

Early Careers

Meet & Greet at Opening Mixer

Expanding on last year's Valentine's Day-inspired 'Lonely Hearts' table, Early Careers committee members were again on hand to meet early career attendees at the Opening Mixer and spread the word about early careers-related events happening at the Meeting. This year, a group of 16 extended the event into a self-assembled dinner at California Pizza Kitchen after the Mixer. Be sure to look for this popular gathering in Salt Lake City in 2006!

Postdoctoral & Graduate Student Breakfasts

As customary, postdoctoral and graduate student attendees met with Early Careers committee members during two separate buffet breakfasts, sponsored by the Burroughs-Wellcome Foundation. At both breakfasts, attendees voiced their concerns related to early career development, and offered suggestions for mechanisms by which the Early Careers Committee and the Society as a whole could facilitate early career transitions. A recurring theme was the need for more information (on a variety of fronts), and in particular better organization of existing information. For example, many attendee suggestions corresponded to ongoing or completed projects of the Early Careers committee (see box entitled "Did You Know?.....Early Career Resources"), but information about these projects is often hard to find on the Society website. As a result, a major focus of the Committee for 2005/6 will be the consolidation, organization, and expansion of existing resources, rather than many new projects. Topics for this focus include job negotiation skills, fellowship/grant opportunities for young investigators, fellowship/grant writing advice, and more efficient mechanisms to connect early careers members of the Society. Keep your eyes on this part of the Newsletter for updates!

Early Career Development Panel Discussion

Committee member *Sean Wilson*, University of Mississippi, moderated the fourth of these highly popular panels, entitled *Negotiating the Transition*. Panelists included representatives from academia and industry. Discussion was lively on a variety of topics related to seeking, obtaining, and flourishing in an independent scientist position. Plans for next year's panelists include representatives from a Primarily Undergraduate

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Institution (PUI), patent law, and science writing/editing.

Grant Writing Workshop - Jointly Sponsored with Public Affairs Committee

A capacity crowd met with representatives from the NIH and NSF, led by *Jean Chin* (NIH) and *Kamal Shukla* (NSF), to review grant writing dos and don'ts, with a special emphasis on writing and submitting a first proposal. Highlights of the workshop were a mock study section review of three proposals, comparisons and contrasts between the funding priorities and procedures at NIH and NSF, and a steady stream of questions from the audience. Funding agency representatives generously remained after the workshop to answer numerous one-on-one questions. For additional information, see page 22.

Placement Center

Notable changes to the on-site Center for 2005 were a small increase in fees for employers listing jobs, and two self-serve computers for entering CV/resume and job description information. The extra computers/network connections, financed in large part by the increased fee schedule, streamlined the on-site Center registration process. Once again, *Ed Bocko* returned to the Center to give his highly popular series of career development workshops and one-on-one consultations throughout the meeting. Remember: the online Placement Service, where Society members can post their CVs at no cost (job advertisers pay a small nominal fee) operates year-round (learn more at <http://www.biophysics.org/placement>).

On-site Child Care – a Joint Project with CPOW

For the first time in recent memory, the Annual Meeting offered onsite childcare at the Hyatt Hotel, adjacent to the Convention Center. Financial support from the Society meant that student meeting attendees were able to use the facility for half price (postdoctoral attendees were charged 75%). For additional information, see the CPOW report below.

—*Patricia L. Clark*, Chair

CPOW Report

Childcare

CPOW was very active at the 49th Annual Meeting, sponsoring panel and luncheon discussions on a variety of topics including lab management, negotiations and grant writing. With Biophysical Society staff, CPOW also worked to bring childcare to the meeting for the first time. Childcare was provided by an outside agency, Kiddie Corp. Ten families participated for a total of 11 children with ages ranging from infant to 8 years old. For 75% of the families, the children's program offered by Kiddie Corp did make a difference in their ability to attend the meeting. Everyone who used the service was very happy with it and said that they would use it again. The kids liked it, too — many of them did not want to leave when it was time to go back to Mom and Dad! Given the success of this first year's offering, the Biophysical Society will offer childcare at the 50th annual meeting in Salt Lake City. CPOW along with the Society staff are working hard to find corporate sponsors to substantially reduce the price. More

information can be obtained by visiting the Biophysical Society website.

Career Panel Discussion

The Panel Discussion on *Starting in a New Position: Managing People* was a great success with an attendance of close to 100 people. The discussion was moderated by veteran scientist and former Biophysical Society president, *Mary Barkley*. *Norma Allewell*, Dean of the College of Arts and Sciences, University of Maryland, and *Mark Meyer*, Laboratory Chief of Cellular and Molecular Neurophysiology, NIH, provided perspectives from more seasoned investigators, while *Susan Green*, Millenium Pharmaceuticals provided the industry perspective, and *Mike Varnum*, University of Washington, represented the perspective of a tenure-track investigator. Each participant offered excellent suggestions on how to deal with difficult students and how to foster lab community. The consensus was to maintain a level of professionalism at all times and keep the lines of communication open. Routine assessment and establishing expectations were also seen as important factors in maintaining a productive work environment.

Career Luncheon

Whether a postdoctoral fellow or a young or seasoned investigator, skills in writing a grant and in negotiations are both key to a successful career in biophysics. These were the topics of discussion at the Career luncheon sponsored by CPOW, which was attended by over 70 scientists at all levels. Biophysical Society members *Robert Clegg*, *Kathy Giangiacomo*, *Steve Harvey*, *Suzanne Scarlata*, *Lynn Marie Thompson*, and *Andrea Yool*, who have served on study sections and have well-established research programs, provided

invaluable insight into these topics. In general, everyone had something to learn from these discussions. For grant writing, some of the most salient points included obtaining preliminary data, identifying appropriate funding sources and some agencies outside of government ones, addressing controversies in the field head-on and having parallel specific aims, especially for first-time investigators. For negotiating, discussions centered on items needed when starting as a new assistant professor and strategies for successful negotiation at any career stage. From both discussions, it was clear that knowing the facts is key to successful negotiation. Being a team player and making your requests reasonable and in keeping with your needs were also seen to be important. Look for expanded articles on the art of negotiation and grant writing from CPOW in upcoming newsletters. CPOW looks forward to sponsoring more luncheon and panel discussions at the 50th Annual Meeting — forward any suggestions for topics to *Kathy Giangiacomo*, new CPOW chair (giang@unix.temple.edu).

—*Ishita Mukerji*, Chair

International Relations

Awardee Luncheon

The International Relations Committee greeted the 2005 International Travel Awardees at a luncheon on Sunday February 13. The 17 grantees, from throughout the world, all expressed their gratitude to the Biophysical Society for the opportunity this program brings to international students and biophysicists with economic constraints to attend the Society Annual Meeting.

New Initiatives

The International Relations Committee keeps working to attract members from the international community to the Society and has launched two new initiatives:

- ◆ Besides receiving complimentary registration to the meeting, the International Travel Awardees will receive one year complimentary membership to the Society.

- ◆ Together with the Minority Affairs Committee, the International Relations Committee will work on an International Collaboration site to encourage collaborations of Society members with biophysicists in countries in need.

Opportunities

Through the International Affairs Committee, the Society and the U.S. National Committee (USNC) for the International Union of Pure and Applied Biophysics (IUPAB) will provide travel awards to the IUPAB/EBSA

International Biophysics Congress in Montpellier, France August 27–September 1, 2005. For application and rules, visit <http://worldbiophysics2005.sfbio-phys.org/travel.html>.

The International Relations Committee also oversees other opportunities including:

- ◆ Funding for International Courses in countries in need.

- ◆ Travel grants for non-US graduate students from countries in need to visit labs of Society members.

- ◆ Travel awards to the Biophysical Society Annual Meeting. For application guidelines visit: <http://www.biophysics.org/opportunities/international.htm#visiting>.

- ◆ Students from countries in need (low-, lower-middle-, upper-middle-income countries as per the World Bank List) pay a special \$10 membership rate. New, regular members from countries in need pay a one-year, one time \$50 rate. Visit <http://www.biophysics.org/members/>.

—*Ligia Toro de Stefani*, Chair



2005 International Travel Awardees pictured: *Daniel Fraiman Borrazas, Sebastian Brauchi, Svetlana Khaymina, Juliana Cortines, Svetlana Baoukina, Olga Ostrumova, Yen Sun, Cesar Cardenas, Piotr Bednarczyk, Rosen Ugrinov, Allen Kaasik, Lia Pietrasanta, Gregor Zupancic, Tatiana Hushcha, Tatiana Demina, Luis Chaves, and Cecilia Bouzat* (not pictured is *Mahnaz Amin*). Committee members pictured: *Ligia Toro de Stefani* (Chair), *Cristobal dos Remedios, Catherine Royer, Frederic Mandel, Anthony Watts*.

Fourteen Students Receive 2005 Student Research Achievement Awards

Each year at the Annual Meeting the Biophysical Society honors graduate students for their achievements in biophysics, by presenting them with a Student Research Achievement Award (SRAA). These awards are given to the graduate students who make the best poster presentations in the Student Research Achievement Awards Poster Competition, in each of the subcategories represented by the subgroup topics.

Members from each of the eight subgroups and Education Committee reviewed and judged the poster competition. Students gave 5–10 minute presentations of their posters, focusing on procedures, techniques, results, and their consequences. The students fielded a number of questions from the judges, in range from the general to the highly specific. The poster presentations were a pedagogical exercise, and as such, conversation was at the heart of the competition.

Out of the 108 submissions, 14 winners were selected to receive monetary awards. The Biophysical Society extends congratulations to the winners of the Student Research Achievement Awards competition listed below:

Bioenergetics Subgroup

Jiunn Heng, University of Illinois
Ling Qin, Michigan State University

Biological Fluorescence Subgroup

Sejin Han, University of Maryland, College Park
Benedict Hebert, McGill University

Exocytosis/Endocytosis Subgroup

Wonchul Shin, University of Missouri

Membrane Biophysics Subgroup

Ann Marie Stanley, Johns Hopkins University
Wenyi Zhang, Stony Brook University

Membrane Structure & Assembly Subgroup

Bradley Akitake, University of Maryland, College Park
Chiaki Ishii, Stanford University

Molecular Biophysics Subgroup

Rodolphe Katra, Case Western Reserve University
John Mongan, University of California, San Diego

Motility Subgroup

Xiaoying Lu, University of Iowa
Bridget Salzameda, University of Nevada

Permeation Transport Subgroup

Veronica Segarra, Yale University



SRAA winners pictured (from left to right): *Ling Qin*, *Sejin Han*, *Wonchul Shin*, *Ann Marie Stanley*, *Bradley Akitake*, *Chiaki Ishii*, *Veronica Segarra*, with *Steven C. Harvey*, Past-President. (Not pictured: *Jiunn Heng*, *Benedict Hebert*, *Wenyi Zhang*, *Rodolph Katra*, *John Mongan*, *Xiaoying Lu*, *Bridget Salzameda*).

2005 Undergraduate Student Symposium and Poster Session

The Annual Meeting of the Biophysical Society has grown substantially in both attendance and abstract submissions over the last several years. Undergraduate students who attend may be intimidated by the large scope and breadth the Annual Meeting, as seen in 6,000 attendees and over 3,000 abstract submissions. Thus, each year the Education Committee presents the Undergraduate Student Symposium. This symposium serves as a smaller meeting within the context of the larger meeting, by allowing undergraduate students the opportunity to participate in Annual Meeting activities, but within a group of their peers and advisors in a more intimate setting.

This year's Undergraduate Symposium opened with two talks in *Emerging Topics in Biophysics*. *Cathy Royer*, from Centre de Biochimie Structurale in Montpellier presented *Pressure Denaturation of Proteins*, and *Achillefs Kapanidis*, from the University of Oxford, presented *Single Molecule Biophysics*. The Emily Gray Award Lecture followed, presented this year by *Barry Lentz*, from University of North Carolina, Chapel Hill. His talk was entitled *Why Did Nature Design Membranes with So Many Lipid Species?* The symposium ended with a poster session that was open only to undergraduates, giving the students an opportunity to present their own work to a smaller audience of their peers.

The Society would like to extend thanks to the undergraduate students listed below for presenting posters in the Undergraduate Poster Session.

Shari Anthony, University of Maryland, Baltimore County

Brady Atwood, Brigham Young University

Violeta Beleva, Kent State University

Lacramioara Bintu, Brandies University

Courtney L. Brown, Oakwood College

Dorothy Dederko, University of California, San Diego

Krisna Duong-Ly, Swarthmore College

Shawnalea Frazier, Kansas State University

Carolyn Hemmer, Florida State University

Yee Seir Kee, Luther College

Andrew Kohlway, University of Maryland, Baltimore County

Megan McDonald, Davidson College

Stephen Okaine, Syracuse University

Jared Pearson, Brigham Young University

Megan Prasse, Illinois State University

Eric Richardson, Brigham Young University

David Sauer, Purdue University

Jill Savla, Washington University

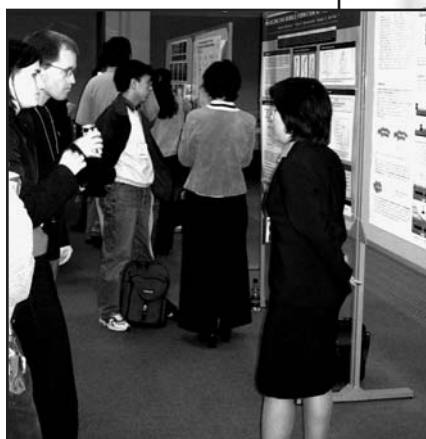
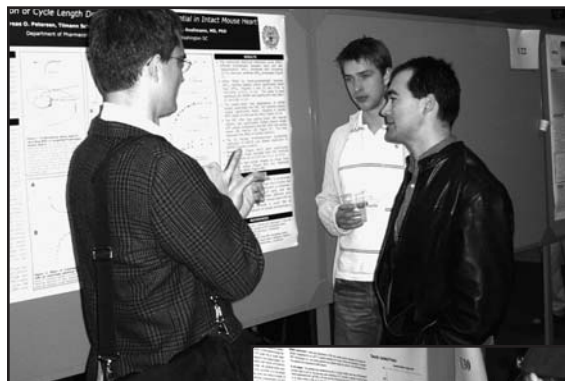
Jason Schmucker, Goshen College

Tilman Schober, Georgetown University

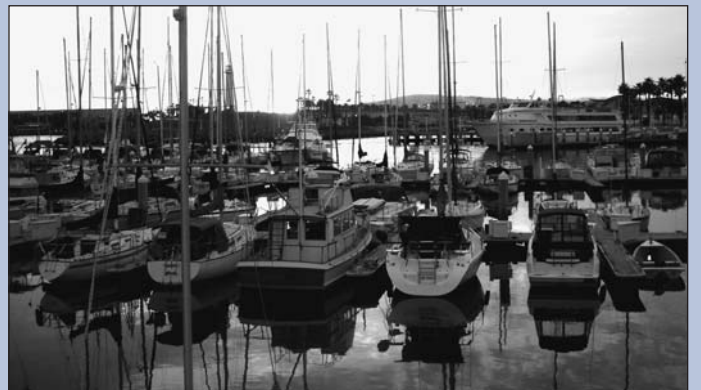
Patrick Shea, University of Houston

Lindsay Sicks, Illinois Wesleyan University

William Terrell, Marshall University



Welcome To The Biophysical Society 49th Annual Meeting and Exhibits





LONG BEACH, CALIFORNIA 2005



Education Committee Seeks Experiments

The Education Committee, noting a seeming lack of suitable experiments for an undergraduate biophysics course, wants to address this problem. If you have developed, used, or otherwise know of a suitable experiment, we invite you to allow the Education Committee to post it on its website. Copyrighted material will be so labelled. The experimental write-up and any explanatory notes should be sent as a Word document to Richard Ludescher (ludescher@AESOP.Rutgers.edu), Co-Chair of the Education Committee. We hope to generate a collection of experiments of varying cost and sophistication.

Interested in Starting a Subgroup?

Is your specific area of biophysics not represented by the current list of Society subgroups? Starting a new subgroup is easy. All that is required is a petition, signed by at least 100 current, regular Biophysical Society members, a set of bylaws, and final approval by Council. Subgroups hold scientific symposia and business meetings each year on the Saturday preceding the start of the Annual Meeting. They also sponsor several awards, including the Student Research Achievement Awards (SRAA) for undergraduate posters. Membership to the Society's subgroups is open to all Society members.

Current Subgroups:

Bioenergetics	Membrane Structure & Assembly
Biological Fluorescence	Molecular Biophysics
Exocytosis/Endocytosis	Motility
Membrane Biophysics	Permeation/Transport

For more information, please visit our website at www.biophysics.org

Did You Know?.....Early Career Resources at www.biophysics.org

General Information

<http://www.biophysics.org/committees/resources.htm>

Student Travel Awards

<http://www.biophysics.org/opportunities/travel.htm>

Grant and Fellowship Information: Links to Funding Opportunities and Writing Tips

<http://www.biophysics.org/opportunities/grants.htm>

Peer Contact Database – Find someone to talk to at an institution of interest, or sign up to be contacted!

<http://www.biophysics.org/committees/early-careers.htm>

International Contact Database

<http://www.biophysics.org/mentor.htm>

Placement Service - Browse the online job listings, or upload your CV!

<http://www.biophysics.org/placement/>

Careers in Biophysics

<http://www.biophysics.org/education/biophyscareers.htm>

How to Get Started in Another Country – An article by Maurits de Planque

<http://www.biophysics.org/abroad.pdf>

Ask Professor Sarah Bellum – Archive of early career advice columns

<http://www.biophysics.org/education/biophyscareers.htm#sb>

The Next Step – A bi-monthly e-newsletter with links to other early career resources and articles, plus original content. Email drita@biophysics.org to subscribe.

Biophysical Society Ballot by Petition Form

Society bylaws allow for members to run for Council by petition. To be included in the 2006 ballot, completed forms must be received in the Society Office by October 1, 2005. Signatures must be of current, regular Society members.

Nominee _____

Present Title/Department/Institution _____

Nominee Biographical Data: Highest degree _____ Year received _____

Discipline/Field _____

Institution where degree was received _____

Research Interests & Experience _____

Previous Biophysical Society experience (Officer, Executive Board, Council, Editor, Committee Chair or Member, Subgroup

Chair, etc.) _____

The undersigned members of the Biophysical Society hereby nominate _____
for the office of _____

Signature	Typed Name
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
9. _____	_____

If I am elected to the office of _____, I agree to serve and to attend Council meetings as described in Article VIII of the Bylaws. My reason for running for the office is _____

Signature: _____ Date: _____

Mail or fax completed form to:
Biophysical Society
9650 Rockville Pike, Bethesda, MD 20814-3998
Fax: 301-634-7133

Public Affairs

Annual Meeting Activities

Over 300 people attended the grant writing workshop, *How To Write Your First Proposal*, co-sponsored by the Public Affairs and Early Career committees during this year's Annual Meeting. *Kamal Shukla*, the program director for Molecular Biophysics at the National Science Foundation provided an overview of the grant application process at his agency, while *Jean Chin*, the program director in the Division of Cell Biology & Biophysics, NIGMS at the National Institutes of Health, explained the NIH process and rating system.

For most of the session, participants were treated to mock review panels demonstrating how grants are rated, and highlighting the pitfalls to which many first-time investigators succumb. NIH employees participated in the mock reviews, with NSF representatives providing input on how the process differs at their agency. Plenty of time was left for participants to ask questions. The NIH panel members were *James Cassatt*, *Catherine Lewis*, *Charles Edmonds*, and *Don Schneider*. *Mona Norcum* represented the NSF along with Shukla.

If you missed the session, the slides from the presentation are available on the Biophysical Society website. Additional information also can be found on both the NIH (http://grants.nih.gov/grants/grant_tips.htm) and NSF (http://www.nsf.gov/pubs/gpg/nsf04_23/) websites on how to prepare a successful grant application. The NIH website offers webcasts of mock review panels similar to those included in the Annual Meeting event. In addition, NSF

will be holding their next regional grant writing conference April 4–5 in Oakland, California. More information on the workshop can be found at <http://www.nsf.gov/bfa/dias/policy/outreach.jsp>.

President's Budget Request for 2006

President Bush submitted his FY2006 budget to Congress on February 7, 2005. Overall, the President is proposing an increase of 2.1% for discretionary programs. However, the President actually is proposing a cut of 0.6% for non-defense/non-homeland security discretionary funding. Defense and homeland security programs are receiving the bulk of the overall increase in discretionary programs.

The President has said that these cuts are necessary to meet his target of halving the deficit within four years. Nevertheless, his cuts are affecting just 19 percent of the budget. Mandatory spending (social security, Medicare, interest on

the debt, etc) comprise 67 percent of the budget and defense discretionary spending makes up the remaining 18 percent of the Federal budget.

The chart below, shows current funding by agency, as well as the amount President Bush has requested for next year. Additional budget information by agency follows.

NIH: Individual NIH Institutes will receive only about a 0.4 percent increase, once the money is distributed. The NIH increase is below the 3.2 percent that is required to maintain pace with biomedical inflation.

NSF: If Congress appropriates at the President's requested level, the FY 2006 budget will still be less than the \$5.652 billion that Congress appropriated in FY 2004. A portion of the increase for 2006 is for the NSF taking over responsibility for funding ice breaking activities from the U.S. Coast Guard. During a hearing on the Hill, *Arden Bement*, the NSF direc-

U.S. Budget for Discretionary Non-defense R & D
(in billions)

Agency	2004 Enacted	2005 Enacted	2006 President's Request	% Change from 2005 to 2006
NIH	27.8	28.4	28.6	0.7%
NSF	5.600	5.5	5.6	2.4%
DOE Office of Science	3.5	3.6	3.46	-3.9%
NASA	15.4	16.1	16.5	2.4%
NIST ATP Program	.169	.140	0	-100%
NIST Laboratories	.331	.373	.421	12.7%

tor, indicated that the agency would increase success rates during these tight financial times by soliciting grant applications only for programs essential to major agency priorities and focusing those solicitations sharply. The goal is to attract fewer proposals, thus improving success rates. (In some cases, the success rate has been as low as 10 for solicited proposals.)

DOE: The Department of Energy's (DOE) Office of Science would see its budget fall 4%, and environmental R&D programs would decline across the board. Multi-agency initiatives in nanotechnology, IT, and climate change science would all decline in funding.

NASA: The National Aeronautics and Space Administration (NASA) would continue to receive additional resources even though most other nondefense R&D funding agencies would see their funding decline or fall well short of inflation. Under the FY 2006 budget proposed by President Bush, NASA would get \$16.456 billion, an increase of 2.4% over FY 2005 levels.

Security Clearances for Scientists Extended

In February, the State and Homeland Security Departments announced that security clearances provided to international students will now be valid for the length of a student's studies in the United States, not to exceed four years. In addition, foreign scientists will have their clearances extended from one year to four years. This change will allow students to travel to and from their home country during their studies with more ease. The Visas Mantis program, as the screening process is known, often resulted in lengthy delays in the past.

In addition to the extension of validity for Visas Mantis clearances, the Department of State has made several other improvements in the Visas Mantis program in the past year. By increasing staffing, improving systems and working with interagency partners, the Department has been able to decrease the average time to obtain a Visas Mantis clearance to less than 14 days.

NIH Announces Plan for Public Access to NIH-funded Research Articles

On Thursday, February 3, the NIH released its plan to provide public access to NIH-funded research articles. NIH-funded investigators will be asked to submit voluntarily to PubMedCentral the author's final manuscript once a journal has accepted it for publication. The request is for any article supported in whole or in part with direct costs from NIH. PubMedCentral is the NIH digital repository of full-text, peer-reviewed research journals.

The final plan allows authors to indicate when the manuscript can be made available to the public within the next year. This is a change from the proposed policy NIH released in the fall, which asked that the articles be made public after six months.

Stakeholders on both sides of the issues are expressing concern about the policy. Those that wanted immediate, free access to all NIH-funded research think the policy does not go far enough. Those that are concerned about the viability of scientific journals when the information is freely available on PubMedCentral are concerned that author's can choose to have the articles available immediately, which could affect subscriptions.

In a document entitled, *Policy on Enhancing Public Access to Archived Publications Resulting from NIH-Funded Research*, the NIH explains the details of the plan and also provides answers to the questions received during the public comment period. This document, along with a questions and answers section, can be found at <http://www.nih.gov/about/publicaccess/index.htm>. The policy goes into effect May 2, 2005.

NIH Announces Strict Conflict of Interest Policy for Employees

On February 1, the NIH announced its new conflict of interest policy for employees. Facing pressure from Congress, Elias Zerhouni stated that the tough regulations are necessary to preserve public confidence in science and the National Institutes of Health. The new regulation focuses on outside activities, financial holdings, and awards for all NIH employees. The changes come a year after the Los Angeles Times ran a story about lucrative outside consulting deals held by NIH employees with private companies. A series of Congressional hearings followed, turning up several unreported paid consulting relationships held by NIH employees.

Under the new rules, all NIH employees are prohibited from engaging in certain outside employment with: 1) substantially affected organizations, including pharmaceutical and biotechnology companies; 2) supported research institutions, including NIH grantees; 3) health care providers and insurers; and 4)

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(Continued from page 23.)

related trade, professional or similar associations. Investments in organizations substantially affected by the NIH, such as the biotechnology and pharmaceutical industries, are also not allowed for those employees who are required to file public and confidential financial disclosure reports, and are restricted for other staff.

In a town hall meeting the day after the announcement, employees expressed their outrage at the new regulations. Employees have also resurrected the Assembly of Scientists, an internal NIH employee's group, to represent their concerns to the NIH leadership. The Assembly argues that the rules could adversely affect recruiting, with the best scientists choosing to work elsewhere. The Assembly is working on a proposal more in line with those a blue ribbon panel recommended to Zerhouni last summer. Those recommendations urged Zerhouni to ban consulting by senior officials, but allowed limited consulting by other NIH employees.

The rules could also affect scientific societies such as the Biophysical Society. NIH scientists would have to get permission to serve on the Board or as an editor for such bodies. As the rules are currently written, each scientist has to get permission on a case-by-case basis.

This is an interim final regulation, which means that it went into effect immediately and stays in effect unless changed by subsequent regulations. As noted in the new regulation, HHS intends to evaluate certain provisions in the rule, including those regarding outside activities and financial holdings, within the next year.

For further information, visit: NIH Conflict of Interest Information and Resources (http://www.nih.gov/about/ethics_COI.htm).

BPS comments on NIBIB Strategic Plan

The NIBIB released a five-year strategic plan and solicited comments from the community. The Biophysical Society submitted the following comments, reiterating the concerns of the Bridging the Sciences Coalition in funding basic research:

"The Biophysical Society applauds NIBIB for recognizing the critical role interdisciplinary research and the physical sciences play in biomedical research. We are heartened to see that the Institute is prioritizing research at the interface of the life and physical sciences. The mission of the institute is greater than just support for biomedical imaging, and the NIBIB rightly highlights that in this strategic plan.

The strategic plan specifically mentions that "some important areas of research in the engineering, physical, and imaging sciences have not been traditionally well represented at the NIH." While dedicating a majority of the Institute's resources to support this underrepresented community is a positive step towards bringing those communities into NIH, we encourage the NIBIB to respect the culture and norms of these communities. To achieve this goal, the NIBIB must set up review panels that include engineers, chemists, and physicists to review grant proposals in those fields. We also encourage the Institute to clarify that the "underrepresented communities" include mathematics and computational science, in addition to the engineering, physical and imaging sciences.

The objectives under Goal 1 indicate that the NIBIB is cognizant of the need to balance its portfolio between basic research and the development and application of emerging technologies. In funding the "development and application of emerging technologies," we hope the NIBIB will seize the opportunity to fund high risk research that has the potential to have big pay-offs in biology, but may take 5-20 years before those pay-offs are realized. When speaking about the Roadmap for Biomedical Research, Dr. Zerhouni has stated that the NIH should have a broad range of investments in its portfolio, including those that could pay off big, or may not pay off at all. The NIBIB should ensure that its portfolio include high risk research."

Roundup:

On the Hill: The House Appropriations Committee reorganized to reduce the number of panel subcommittees from 13 to 10. The panels approve the annual budgets for the agencies under their jurisdiction, prior to sending those budgets to the floor for a full vote of the House. The reduction in panels means that some Congressmen have had to relinquish their chairmanships. The juggling of committees also means that agencies will have new "competition" for dollars. Each subcommittee is allocated a certain amount of money for the programs in its jurisdiction; the subcommittee then doles that out.

The three eliminated subcommittees are: 1) the Veterans Administration/Housing and Urban Development (VA/HUD) subcommittee; 2) the Legislative Branch subcommittee; and (3) the District of Columbia subcommittee. *Frank Wolf* (R-VA), Chairman of the

newly created Subcommittee on Science, State, Justice, and Commerce, and Related Agencies, will have jurisdiction over the National Science Foundation and NASA. These agencies were previously in the VA/HUD subcommittee. *Ralph Regula* (R-OH), Chairman, Subcommittee on Labor, Health and Human Services and Education (L/HHS), will continue to have jurisdiction over NIH.

On the Senate side, the Veterans' Affairs-Housing and Urban Development Subcommittee, which previously oversaw funding for the National Science Foundation, NASA and the Office of Science and Technology Policy, will be eliminated. The Commerce, Justice and Science Subcommittee, chaired by Senator *Richard Shelby* (R-Ala), will be responsible for funding for these agencies. From the science perspective, the House and Senate panels match up well, which will ease negotiations when the two sides pass bills that must be reconciled.

Bridging the Sciences: The final report from the NIH/NSF November 9 meeting on Bridging the Sciences was published on February 4. The report findings focus on ways to facilitate interdisciplinary research, through increased funding, the creation of new infrastructure, and changes to training. The report notes that one suggestion for implementing these actions is a national effort aimed at bridging the sciences. The report is available on the NIBIB website at: www.nibib1.nih.gov/Events/110904Conf/index.htm. Click on "Final Report" at the bottom of the webpage.

Making Your Voice Heard In Washington

Concerned about the budget?

Have opinions about the new NIH ethics regulations?

Want to see increased federal support for stem cell research?

As a working scientist, you have the power to influence your elected officials and change the course of U.S. science policy. You can do so by contacting your Congressmen and writing letters to the editor to your local papers. As a respected scientist in your community, you can educate your elected leaders as well as your community on science-related matters.

To facilitate the process, the Federation of American Societies for Experimental Biology (FASEB) maintains a legislative action center on its website. Elected leaders like to hear from their constituents, and by writing, you can reinforce the stances the Biophysical Society and FASEB take on your behalf.

With permission of the Biophysical Society, FASEB occasionally sends you email alerts regarding legislation that may be important to you as a scientist. These emails outline the matter at hand and direct you to the legislative action center where you can contact Congress and express your views. On this page, you can enter your zip code to identify your Congressman and Senators, and send messages with a click of a button.

The legislative action center provides updated information on relevant issues, even when an action alert has not been sent via email. You can use it to find alerts on issues such as stem cell research and fiscal year (FY) 2006 funding, or to see what is currently happening in Congress.

You can also use the legislative action center to write letters to your local papers. The site identifies local media outlets for you, and links you to their sites to submit your letter.

The legislative action center can be found on FASEB's Office of Public Affairs website at: <http://capwiz.com/faseb/home/>.

(Continued from page 7.)

requesting time with her to discuss their work. Her passion for science and support of the careers of colleagues and young researchers carries an enduring legacy, along with the superb example she set for others in the Society." Garcia-Moreno also praises Woodward's commitment to young scientists. "Clare

“those who organize their life to ensure relationships in which the career aspirations of both partners are mutually supported, are more likely to find science a joy, not a source of stress.”

has always been very highly supportive of young scientists," he explains. "She played an active role in supporting and promoting the science and the professional development of many young biophysicists."

Woodward advises those starting out in biophysics to "try and understand everything there is to know about your scientific area, and then formulate an interesting question that can be feasibly probed by specified methodologies. You have to persuade your colleagues that your question is worthwhile, and that you have identified and acquired appropriate theoretical and/or experimental techniques to pursue the question. At the personal level, I have observed that those who organize their life to ensure relationships in which the career aspirations of both partners are mutually supported, are more likely to find science a joy, not a source of stress."

The Biophysical Society has been an important component of Woodward's professional career. Since her initial national meeting in 1970, Woodward says the Society is "where I first established contact with colleagues. This is most important, especially for women — having colleagues who truly examine your work, consider it deeply, and give you critical feedback." She

immediately began bringing her students and postdocs to the meetings as well, and says the Society has always been particularly "hospitable to young people and students." Woodward has served on many Society committees, and was President in 1997-1998, successfully overseeing a very difficult and tumultuous period in the Society's financial and governance structure.

Woodward and her husband now reside in Utah. Both are officially retired, although she maintains a formal affiliation with the University of Minnesota as Professor Emerita, which permits her to continue collaboration with Professor *George Branay*. She co-advises students and postdocs, mainly through telephone and email. "I was fortunate to get a research-teaching position when universities were first hiring women,"

Woodward says, "and to retire at a time when electronic communication has blossomed." In addition, she lectures and reviews papers for colleagues.

"Clare Woodward is a multidimensional person with many interests, and she knows how to have fun," explains Bolen. "She and her husband Val enjoy the great outdoors, living in the mountains of Utah, with frequent trips in their camper to the desert, the coast, and national parks. It has been my pleasure and good fortune to have them as friends."

"There is an essential unity of the humanities and sciences. I never felt they are dichotomous, but rather that they are intertwined in the life of the mind," Woodward says. "I feel fortunate to have had teachers and colleagues who know and appreciate both."



Photos: *Clare Woodward* and colleague *Ann Rougvi*, University of Minnesota, hiking in the northern Utah mountains (upper left). With former student *Natalia Carulla*, a biophysicist in Barcelona, Spain, in front of the Woodward cabin in northern Utah (upper right), and hiking in the northern Utah Mountains (bottom).

Molecular Motors: Point Counterpoint

BIOPHYSICAL SOCIETY DISCUSSIONS MEETING
OCTOBER 2006, ASILOMAR, CALIFORNIA
Application Deadline: June 2006

The Discussions are small meetings that focus on a cutting-edge or emerging topic in biophysics, topics that benefit from intense discussions. The meetings are patterned after the Farraday Society and have a unique format that stresses discussion over formal presentations. Plenary sessions consist of five-minute presentations by speakers, followed by a lengthy discussion. In addition there are poster sessions. This format allows for greater, less-inhibited participation by participants. The Discussions meeting will be limited to 150 participants and will last for approximately three days.

The 2006 Discussions topic will be *Molecular Motors: Point Counterpoint*. Organized by *Sharyn Endow* of Duke University and *Steven Rosenfeld* of Columbia University. *Molecular Motors: Point Counterpoint* will focus on aspects of the motor mechanism, juxtaposing recent findings from the kinesins with those from the myosins and dyneins. Presentations on other motors will be included where relevant. Talks will emphasize mechanistic themes among motors of different families, pointing out differences and similarities. Discussions will focus on findings from biophysical and biochemical approaches, taking into account those from biological and theoretical methods.

Visit the Biophysical Society website, www.biophysics.org, for information and program updates.

Breakthroughs in Bioscience



The latest article in the Breakthroughs in Bioscience series can be found on the FASEB Breakthroughs website at <http://www.faseb.org/opa/break/>. The article, written by *Cathryn Delude*, is entitled *Clot Busters!! — Discovery of Thrombolytic Therapy for Heart Attack & Stroke*. It can be located directly at: <http://www.faseb.org/opa/break/thrombosis.pdf>. Additional copies can be obtained by contacting FASEB Office of Public Affairs.

Opportunities

Burroughs Wellcome Fund – Career Awards at the Scientific Interface

Up to \$500,000 over 5 years

Deadline: May 2, 2005

<http://www.bwffund.org/>

Japan Society for the Promotion of Science Postdoctoral Fellowships for Foreign Researchers

YEN 650,500 plus a round-trip air ticket and insurance

Deadline: May 13, 2005 and September 10, 2005

<http://www.jsps.go.jp/english/e-fellow/postdoctoral.html#long>

Science and Engineering Visualization Challenge

Deadline: May 31, 2005

<http://www.nsf.gov/od/lpa/events/sevc/>

Upcoming Events*

April 30-May 4

6th European Symposium of The Protein Society

Barcelona, Spain

<http://www.proteinsociety.org/>

May 7-10

2nd Molecular Mechanisms of Neurodegeneration

Milan, Italy

<http://users.unimi.it/triplet>

May 19-25, 2005

Evolving Methods in Macromolecular Crystallography

Erice, Italy

<http://www.crystalerice.org/2005.htm>

May 23-25, 2005

Morphogenesis and Regenerative Medicine Symposium

The Morphogenesis and Regenerative Medicine Institute at
the University of Virginia

www.morphogenesis.virginia.edu

May 28-June 2, 2005

American Crystallographic Association, Annual Meeting

Orlando, Florida

<http://www.hwi.buffalo.edu/aca/>

June 1-4, 2005

Biophysical Chemistry meets Molecular Medicine

Sesimbra Beach, Portugal

<http://www.ycw.fc.ul.pt/>

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



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