

CHEMISTRY & BIOCHEMISTRY

California State University, Long Beach • Spring 2009

Editor's Note: CSULB's Hall of Science was one of 123 projects within the California State University and thousands within the state of California that was temporarily suspended due to a state freeze on disbursement of funds to finance such projects. The university and the contractor are committed to begin construction on the Hall of Science immediately after the freeze is lifted. Please watch for updated information on the Hall of Science.

Groundbreaking Ceremony for Hall of Science Nov. 3, 2008

The college held a groundbreaking ceremony on Oct. 3, 2008 for the Hall of Science. Supported by the university and the CSU system, the new 160,000-square-foot science building, along with the Molecular and Life Sciences Center (MLSC) and the Microbiology Building, completes the Natural Sciences Complex. Within the complex, the College of Natural Sciences and Mathematics (CNSM) provides CSULB's principal curriculum for majors leading to careers in science, technology, engineering and the health professions. When it opens in 2011, the new science building will furnish nearly twice the assignable space as MLSC. The facility will have 22 research laboratories, 31 teaching laboratories, two 180-seat lecture halls and two 80-seat lecture halls. This is where CNSM's efforts to combine the teaching-intensive character of a small liberal arts college with the creative scholarship of a top research university will find their fullest expression, and a proud program will rise to new levels of excellence.



From left: F. King Alexander, CSULB president; Gary W. Reichard, executive vice chancellor and chief academic officer of the CSU; Debra S. Fara, CSU trustee; Erin Swetland, president of the Associated Students; Laura Kingsford, Dean of the College of Natural Sciences and Mathematics; Cynthia Keeffe, Principal, Smith Group; Karen Gould, CSULB provost; Ron Wildermuth, Vice President, Hunt Construction; and Mary Stephens, CSULB vice president for Administration and Finance.

See pg. 3 for more photos

Department Honorees are Successful Alumni

by Anne Ambrose

Each year, the Department of Chemistry and Biochemistry honors outstanding students with scholarships and other awards that provide financial support for their studies or call attention to the caliber of their work to prospective graduate programs or employers.

Several of these awards are made possible by the generosity of individual and corporate donors and have helped many honorees to go on to successful careers or continue their graduate education.

Jeff Suri earned a 1998 Kenneth L. Marsi Scholarship and went on to earn a Ph.D. at UC Santa Cruz and do postdoctoral work at the Scripps Research Institute in La Jolla.

"At Santa Cruz, with Professor Bakthan Singaram, I carried out research on the design and synthesis of a fluorescent chemical sensor," Suri said. "The goal was to develop a continuous glucose monitoring system that would be used to measure blood sugar levels in diabetic patients. It utilized boronic

Continued on pg. 5, Honorees

Message by the Dean

LAURA KINGSFORD

Despite the economic downturn and worries about budgets, lots of good things are happening in the College of Natural Sciences and Mathematics, and I'm very optimistic about our future. One of the things we are all enjoying is watching the construction of our new Hall of Science. Last June, we held a "Wake" to say goodbye to PH3 before the building was demolished over the summer. Then on Oct. 3, we held the ground-breaking ceremony for the Hall of Science. As I write this in December, there is a huge hole in the ground, about 20-30 feet deep surrounded by retaining walls. In about two weeks, the contractors will start the foundation. Complete funding for this building was acquired prior to the economic downturn, so we are happy to know that construction will continue. At a cost of \$105 million, it will be one of the largest science buildings in the CSU system (164,000 square feet) and, along with the Molecular and Life Sciences Center (MLSC) and Microbiology Building, will give us an outstanding science complex. The building is scheduled to be completed in the spring of 2011, and we anticipate moving in that summer. Part of the Department of Chemistry and Biochemistry is housed in MLSC, and the rest of the department, including the department office, will be located in the new Hall of Science when it is completed. If you want to watch the construction, you can access a webcam at <http://www.csulb.edu/projects/ph3/cameras/index.html>.

CSULB again is ranked first among master's degree granting colleges and universities who produce the highest number of baccalaureate students who go on to doctorate (Ph.D.) degrees in science or engineering in the United States. The last "Baccalaureate Origins of U.S. Research Doctorate Recipients: 1997-06" is part of the annual *Survey of Earned Doctorates* that tracks characteristics of doctoral recipients. It is a joint project of the National Science Foundation, National Institutes of Health, U.S. Department of Education, National Endowment for the Humanities, U.S. Department of Agriculture and NASA, in collaboration with the National Opinion Research Center at the University of Chicago. This ranking is a strong indicator of the quality of the undergraduate students we attract and the many opportunities available for them to do research here. When they graduate, they are highly competitive for top-notch doctoral and health professional programs and go on to become leaders in academia, industry and government. One of the keys to this success is their engagement in research as undergraduate students with faculty mentors. When I talk with these students, they are excited, articulate and knowledgeable about what they are doing—the passion for the process of discovery is clearly evident. The research they are doing is cutting edge and not trivial. Many are involved in research projects and doing techniques that funding agencies have considered not doable by undergraduates. Yet, they are successful. Their work is presented at professional meetings, and they are published as co-authors with their faculty mentors. We are proud of the accomplishments of our students and the faculty who play a major role in their success.

Just recently, we had a reception and dinner to welcome and honor Dr. Matthew Becker as the Bert and Ethel Conrey Endowed Chair in Hydrogeology. This is the first endowed chair in the college and the third in the university. As I indicated to our faculty, I think this signifies a real turning point in our college regarding the emphasis on development and the excellence we can attain with fundraising and the collaborations we set up with our alumni, industrial/business partners and friends in the community. Recently, we also had the first naming for our new Hall of Science. One of the two 80-seat lecture halls will be known as the Georgia Griffiths/GS Software Systems Lecture Hall. Georgia is an alum of the math department and gave a generous gift of \$112,000 to endow a scholarship in the Department of Mathematics and Statistics. We anticipate that this is the first of many more "namings" to come. We would welcome any who are interested in a naming opportunity or any other type of gift giving to contact Maryanne Horton, our director of development in the college. Her e-mail address is mhorton@csulb.edu, or you may call her at (562) 985-1687.

As always, we thank you—faculty, staff, students, alumni and friends—who have contributed in some way to the teaching and research programs for our students. State funding only covers part of the cost of educating our students, and it is the collaboration and support from all of you who help make it possible to provide the high-quality programs for our students who leave CSULB with highly valued degrees.



Photo by Victoria Sanchez



Photo by Victoria Sanchez

Top photo: MLSC and PH3 buildings before the demolition. Middle photo: President F. King Alexander at the groundbreaking ceremony.



Photo by David J. Nelson



Photo by David J. Nelson

Remarks

by the Outgoing Chair

DOUGLAS McABEE



Photo by Victoria Sanchez



Photo: after demolition. Bottom photo: Dean Laura Kingsford and



My time as department chair has coincided with a number of significant changes in the life of the department. Since 2002, we have hired several excellent faculty members (Drs. Bu, Marinez, McClain, Myers, Narayanaswami, Schramm, Shon, Slowinska, Sorin and Weers) who have brought expertise, diversity of interests and great energy to our department. Our faculty are our most important asset, and these newest members have been great additions. We have also witnessed a large expansion in the number of students taking chemistry as well as our number of undergraduate chemistry and biochemistry majors—about a 60 percent increase. Our facilities have also improved dramatically. About two-thirds of our faculty occupied the new MLSC in summer 2004, and we are in the midst of the construction of a second new science building, which when completed in 2011 will house the rest of our faculty and provide us with outstanding and much needed lecture halls, teaching labs and research space. With these new buildings has come a large cohort of state-of-the-art instrumentation and equipment used by faculty and students in teaching and research. More recently and very importantly, the department has committed itself to establishing and implementing a strategic dynamic blueprint for its mission and vision as a community immersed in teaching and research.

This growth we have enjoyed, however, has been accompanied by significant challenges for our faculty and staff in meeting the basic educational needs of our students. Our state's financial roller coaster ride over the last six years has sharply reduced our resources for much of the department's routine operations. Providing a quality education is not cheap, yet the state's more recent solution to this general problem within the CSU has been to provide additional funds only through enrollment increases, which has exacerbated some of our problems. CSULB is fortunate to have had administrative leaders who have prudently planned for financially difficult times. Nonetheless, these financial challenges will persist (and likely worsen) until the state and national economies rebound. Until then, our faculty and staff must work together to ensure that we continue to provide excellent instruction and opportunities for students to conduct meaningful research. As always, the gifts and donations of the friends and alumni of the department will be indispensable for us to continue the excellent tradition we have established over the years.

I am looking forward to returning to the classroom and my research lab full time. Nonetheless, it has been my honor and privilege to serve as department chair for the last six years. Any success I have had during this time has been principally due to the hard work, creativity, cooperation and professionalism of the department faculty and staff, and I am most pleased to gratefully acknowledge their efforts and accomplishments. I am very confident that the department will grow and strengthen under the leadership of Dr. Cohlberg, our new chair. I wish him all the best.

Watch PH₃ Come Down!

Go to <http://chemistry.csulb.edu/cameras/> to see time-lapse videos of the demolition of PH₃ and the early stages of construction of the new Hall of Science!

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by Anne Ambrose

Jeffrey Cohlberg

Becomes Department Chair

I am delighted to be writing to you, alumni and friends, as incoming chair of our department. Having been at CSULB since 1975, I know many of you from different eras of the department—from my early days in PH3 when I shared an office with Don Simonsen and a research lab with Les Wynston, Lou Perlgut and Jack Berry, to the '80s and '90s when the hum of our analytical ultracentrifuge was a nearly constant background sound on the second floor of PH3; through the heatless, flooded winters of the 1991-93 PH3 renovation and the 2004 move to the Molecular and Life Sciences Center; and now to the present and the future as our new Hall of Science rises before our eyes.

The sciences of chemistry and biochemistry as they were in 1975 are hardly recognizable now, and our department has changed markedly, too. Our faculty are producing ever greater numbers of publications in prestigious journals and attracting ever greater amounts of external funding. Our facilities include an increasing amount of state-of-the-art instrumentation. We are engaging undergraduate and graduate students in research to an ever greater extent. We continue to strive to provide a high-quality education for our majors, adapting our curriculum to the changing nature of our science and the changing nature of our profession.

We face challenges in maintaining and continuing to improve our program in the face of exploding enrollments at the same time that we are getting reduced state funding as the result of an economic downturn and a fiscal crisis for California. As we confront these challenges, we value the support that you have given us over the years, and we welcome your continued support and interest in the future of this great department.

— Jeffrey A. Cohlberg

CSULB's Department of Chemistry and Biochemistry came under new leadership in fall 2008 as long-time Professor Jeffrey A. Cohlberg began a three-year term as department chair.

Cohlberg began his career at Cal State Long Beach in 1975 after earning his B.A. in chemistry from Cornell University and his Ph.D. in biochemistry from UC Berkeley and serving as a postdoctoral fellow at the University of Wisconsin.

"I'm a physical biochemist who studies protein structure and assembly. Most recently, I've been studying an enzyme called superoxide dismutase (SOD1) that is involved in ALS (amyotrophic lateral sclerosis) or Lou Gehrig's disease," he said. In order to devote time to his chair's responsibilities, he will be turning over his research lab to new faculty member Vas Narayanaswami.

Having studied SOD1 since 2001, Cohlberg is writing journal articles about his research results. "We've demonstrated that certain changes in the protein lead to deposits called amyloids, and we've demonstrated that mutations in the protein favor amyloid formation. More specifically, they make it easier for the protein, which is normally a dimer, to come apart into single molecules, which is a step in the aggregation process. We have some information about the pathway by which the soluble, properly folded protein goes through partially unfolded intermediates and eventually forms amyloid aggregates," he explained.

"There are quite a few people who are investigating this enzyme and what happens to it to cause ALS. All of this information put together will hopefully lead to a better understanding of the disease and possibly the development of drugs that can treat the disease," he continued.

Among his primary goals as chair will be "to make it through the lean years that are coming and try to minimize the impact of budget cuts on our instructional and research programs."

Cohlberg plans on developing fundraising goals with the help of the department's Advisory Council, made up of chemistry and biochemistry business representatives and professionals as well as Maryanne Horton, development director for CSULB's College of Natural Sciences and Mathematics.

Cohlberg's goal is to increase corporate and alumni donations as well as government research grants and contracts, which help support faculty and student research, student scholarships and departmental activities such as seminars with visiting speakers.

He also wants to continue work on strengthening the department's curriculum that began under the leadership of outgoing chair Douglas McAbee. "The science of chemistry and biochemistry has changed and our student populations have changed," Cohlberg said. Some of those changes are based on new technologies and discoveries, but others are "because we need to find out how to best serve different student

populations, not just chemistry and biochemistry majors but biology majors as well. We want to make changes in course organization and content to help students achieve success in the program," he explained.

"Another goal will be to try to help faculty achieve success in research," both new faculty who are establishing their research careers as well as veteran professors in continuing their work.

Cohlberg is proud of the department. He said that many master's students are becoming successfully employed, especially in biotechnology. "A substantial number are going on to Ph.D. programs, and a smaller number are going into community college teaching. Among bachelor's students, we always send some really excellent students to Ph.D. programs and also medical and other health professional schools. We have students who are getting into the very best graduate schools in the country. One of the strengths of the department is that it provides so many opportunities for research for undergraduate students. That's one of the byproducts of strengthening research in the department. Another thing about strengthening research and fostering faculty publication is that it helps develop the reputation of the department and it attracts good students to come here, especially into our graduate programs."



Photo by David J. Nelson

Suri



Potter



Photo by Victoria Sanchez

Pervitsky

Honorees

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acid-based glucose receptors and various pyranine-based fluorescent dyes. It was a great opportunity to work closely with industry and understand the practical applications of organic chemistry.

"My time at Scripps was a wonderful experience," he continued. "I worked in the lab of Professor Carlos Barbas, where we developed organocatalysts and organocatalyzed reactions. We applied this methodology in the synthesis of medicinally important amino acids, lactams, carbohydrates, and azasugars and prepared metabotropic glutamate receptor antagonists."



Photo by David J. Nelson

Jeff Suri in his lab at GluMetrics.

That work led to his current position as a research chemist with GluMetrics Inc., based in Irvine, Calif. "In 2005, after more than a year at Scripps, I received a phone call to participate in the launch of a new company geared towards commercializing the sensing technology that I helped develop at UC Santa Cruz. GluMetrics, as implied in the name, is a medical device company that measures glucose using a fluorescent chemical sensing platform. The goal is to develop a continuous glucose monitoring system that will allow for the accurate measurement of glucose in hospitalized intensive care unit patients."

"The Marsi Scholarship helped pay for books and school supplies and also gave me additional confidence in pursuing chemistry as a career," Suri said. "I am very grateful for my experience at CSULB and for the foundation in organic chemistry that was provided by the late Ken Marsi. Graduate

school was very intense and nonstop. The coursework at CSULB forced me to develop good study skills that I utilized in grad school. In addition, when I was at CSULB, I carried out research in Jim Sample's geochemistry lab and worked in the chemistry stockroom. Both of these experiences really perked my interest in chemical research and in pursuing it as a career."

President's Scholar Tiffany Potter Link earned both a B.S. in biochemistry and a B.A. in chemistry and was the 2004 College of Natural Sciences and Mathematics' outstanding graduate. Now at the Johns Hopkins School of Medicine, "I have completed the first two years of medical school as well as passed the first step in my medical licensing exam," she said. "For my Ph.D. training, I am currently in my third year of graduate work, working on completing my thesis in Dr. Michael Caterina's laboratory.

"My thesis involves studying the presence and function of the ion channel TRPV2 (transient receptor potential vanilloid 2) in mouse peritoneal and various tissue macrophages. This channel is a non-selective cation channel but is most well known for its use as a calcium channel in sensory neurons and the cell bodies of the dorsal root ganglion and trigeminal ganglion. It has recently been discovered that this channel is also found in various immune cells, including T lymphocytes, mast cells and macrophages. While its presence has been established, its function, particularly in macrophages, has not been well established. I am focusing on TRPV2's involvement in various primary macrophage functions as well as how macrophages help to produce inflammation," she explained.

"My career goals have changed surprisingly little since leaving CSULB, although I have found a real passion for the practice of medicine," Link continued. "I had relatively little experience in that area going into the program. However, I still want to use my training as both a physician and scientist to treat a population of patients, address their medical problems on the bench and eventu-

ally bring those findings back to the bedside to improve patient care. The two fields I am currently strongly considering are those of neurology and dermatology. Both are rich fields with plenty of room for substantial research that could contribute to the field in a meaningful way. After my training, I plan on going into a residency program in one of those fields to continue my training."

Link praised CSULB for preparing her for her M.D./Ph.D. program. "I have found that while there is always a lot of material to cover in the coursework, much of that material I have mastered in previous CSULB courses. That definitely gave me an advantage. Because I didn't need much time to study for courses, I was able to spend more time in the laboratory on my thesis project, and as a result, I have completed a substantial amount of work already, going into my third year, which is almost unheard of. CSULB, particularly the science departments, gave me such a solid foundation, of not just information and mastery of material, but also taught me how to think critically and that is key in graduate school.

"I owe much of my preparedness to Dr. A. Z. Mason," she continued. "Being in his laboratory for nearly four years taught me many technical skills as well as critical thinking skills. Because I had been involved in my own independent project, upon starting my thesis in my first year, I was able to come up with my own experimental designs and plans, which really helped me to 'hit the ground running,' so to speak. He was an amazing mentor."

Moreover, Mason and Professor Nail Senozan attended Link's 2006 wedding to Jed Link, a USC graduate whom she met while they competed on the speech and debate teams for their respective universities. Jed now is director of special projects for Montana Congressman Denny Rehberg.

Dmitry Pervitsky earned the 1999 and 2000 Michael Monahan Fellowship Award and 2001 Robert B. Henderson Award. He completed his Ph.D. in the UC Irvine lab of Professor Patrick Farmer this spring.

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Scholarships Offer Opportunities for Educational Success

With the weight of the economic downturn coming down to bear on higher education, many of the exceptional students who aspire to obtain a degree in chemistry or biochemistry are unable to afford the cost of a CSULB education without financial assistance. Tuition has more than doubled since 2002 and increased another 10 percent in 2008. In addition, most of our students hold down part-time jobs while attending school.

Consequently, scholarships that support our students are enormously beneficial to our department, and their importance to student success cannot be overstated (see page 1 for a story about successful alumni who were

scholarship recipients). We are very grateful to the generous donors who have made these scholarships possible.

Below are the department's newest scholarship offerings and their generous donors:

NHK Laboratories, Inc. Biochemistry and Organic Chemistry Award

The NHK Laboratories, Inc. Award is designed to promote academic excellence in the areas of biochemistry and organic chemistry. In addition to a \$1,000 cash award, the recipient has the opportunity to work for academic credit as an unpaid intern at NHK's

analytical laboratory in Santa Fe Springs, Calif., for four to six weeks on a part-time basis. NHK works with faculty in the CSULB Department of Chemistry and Biochemistry to develop a suitable work assignment and ensure that the minimum 120 hours of field experience required by the three-unit course, NSCI 492 Internships in Natural Science, are met.

The award is open to all junior and senior level chemistry or biochemistry majors with a minimum 3.0 GPA, who have completed at least one year of general chemistry, as well as organic chemistry, and who have a demonstrated need for financial assistance.



Annual student research poster session in the Nagel Courtyard.

NHK Laboratories, Inc., a family owned company, is a custom formulator, contract manufacturer and contract packager of private label dietary supplements, functional foods and pharmaceuticals, specializing in the production of capsules, tablets and powdered drink mixes.

McAbee-Overstreet Graduate Research Scholarship

This award was established by a gift from Cathie Overstreet, who received her M.S. degree in biochemistry at CSULB in 2004 under the supervision of Dr. Doug McAbee and went on to a Ph.D. in molecular biology at UC Irvine. This award recognizes a

graduate student for his/her excellence in scholarship and commitment to research in chemistry or biochemistry.

Cathie established the award to recognize the high quality of both the training she received at CSULB and the mentorship of Dr. McAbee. She commented, "It is important to me that the student is doing research that can be presented and defended in a public forum."

Dr. McAbee said, "It was my privilege to have Cathie Overstreet as an M.S. student in my lab, and her establishment of this scholarship program allows the department to help support other chemistry or biochemistry graduate students whose work exemplifies Cathie's strong drive for excellence in research."

Stacie Loftus Scholarship

Dr. Stacie K.B. Loftus, a 1990 B.S. graduate of biochemistry, gave a \$2,000 scholarship to be used for an undergraduate in Dr. Roger Acey's laboratory. She recalled that someone had done the same for her when she was a student in his lab, and it made all the difference in the world. "It saved me from working at Disneyland all summer," Stacie commented. Instead, she continued her work in Dr. Acey's lab, knowing that she had enough money to pay for school in the fall. Stacie went on to earn a Ph.D. at UCI in 1996 and now works at the NIH in the National Genome Research Institute.

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Honorees

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Pervitsky is a native of Belarus and earned his master's degree at CSULB in the lab of Professor Lijuan Li. At UC Irvine, he studied the interaction of nitrosyl hydride (HNO) with heme proteins such as myoglobin (Mb) and hemoglobin (Hb) that resulted in several articles published in the *Journal of the American Chemical Society*.

"The first step was a generation of HNO-Mb with over 90 percent purity by using a reducing agent," he explained. "So far, it is the only published preparation which gives over 90 percent purity of HNO-Mb. Last year, my friend Dr. Ravi Kumar and I found another way of making HNO-Mb, but that preparation has not yet been submitted for a publication. After finding a reliable preparation of generating pure HNO-Mb, we investigated the interaction between ferrous Mb and HNO applying flash photolysis techniques."

"In 2004 we published a paper in which we investigated the rate of reaction between ferrous Mb and HNO using ¹H NMR techniques (*JACS* 2004,126(4),1096-1101); however, the reaction rate between ferric Mb and HNO was not considered. In addition, we did not consider the possibility of a side reaction between generated HNO-Mb and HNO. All of these were investigated last year. We found



Dr. Lijuan Li and Dmitri Pervitsky.

new approaches to determine relative rates of reaction between HNO and heme proteins. The results were presented last year at a regional ACS meeting and submitted to *JACS*, but not published yet. We also were the first group who generated HNO-Hb of over 60 percent purity and assigned proton peaks to alpha and beta subunits comparing EPR spectra of HNO-Hb samples of various purity with EPR spectra of pure NO-Hb. These results were also presented last year at a regional meeting, but not submitted yet," he said.

"In addition to Mb and Hb, we generated HNO adducts of other heme proteins, never done before, showing that other heme proteins form stable HNO adducts. This project was done by Dr. Kumar with some of my help and also presented at a regional meet-

ing last year, with submission to *JACS* this summer," he stated. "Besides working with proteins, I found a reliable preparation of synthesis of organic HNO donors."

Pervitsky is still considering which research career path to take, possibly in organic and inorganic synthesis, computational chemistry or working with proteins. He recently joined the U.S. Army Medical Corps as a biochemist, where "I hope that I will get a chance to continue my study of interaction between HNO and hemoglobin."

As a CSULB student, Pervitsky also was responsible for supporting his family and was grateful for his scholarships. "It was very exciting for me to receive these and other awards. For me, it was an indication that I was on the right track and that my academic and teaching efforts were noticed by the department. This money also helped us to pay off some of our bills. At that time, my wife was a full-time student at Golden West College and a full-time mom taking care of our two daughters," he said.

"I was very lucky to meet and work side by side with such remarkable professors such as the late Dr. Ken Marsi, Dr. Peter Baine, Dr. Henry H. Po, Dr. Senozan, Dr. Li, Dr. Maricich and others," he remarked. "I consider time spent at CSULB as the best time in my life."

SCHOLARSHIPS

Continued from pg. 6

Allergan, Inc.

Allergan, Inc., a multi-specialty health care company focused on discovering, developing and commercializing innovative pharmaceuticals, biologics and medical devices, gave out two \$3,500 undergraduate summer research fellowships for faculty-directed research during summer 2008. One was funded by the Allergan Foundation and the other was funded by Allergan Chemical Sciences. The fellowships were awarded to Arti Patel, who is working in Dr. Paul Weers's biochemistry lab on apolipoproteins in connection with their ability to neutralize the endotoxin lipopolysaccharide, which could lead to therapeutic approaches for treating sepsis; and Junghye Lee, who is working in Dr. Ken Nakayama's organic chemistry lab on the synthesis of a group of organophosphonate isomers that inhibit butyrylcholinesterase and could lead to highly effective drugs for treating Alzheimer's Disease. The Allergan Foundation recently announced funding of two more scholarships for the summer of 2009.

Provost's Undergraduate Student Summer Stipend Program

Near the end of the spring term 2007, Provost Karen L. Gould announced the creation of the Provost's Undergraduate Student Summer Stipend Program, a new award program intended to support research and scholarly activity at CSULB. The goal of this new award program was to encourage undergraduate students to engage in research, scholarly or creative activity in direct collaboration with a faculty-mentor.

Although any aspect of research, scholarly and creative activity could form the core of the proposed experience, the stipend was intended to foster active participation by the student and ongoing interaction between the student and faculty member over a period of at least 30 days during the summer. The stipend could not be used to support an experience composed solely of independent study. A single faculty-mentor could sponsor one or two students. Each student selected for this award would receive \$1,500 to support their work with a faculty mentor.

Applications are rated based on the clarity and thoroughness of the description of the nature of the research project, its significance and the intended outcomes, the nature about the proposed student-faculty interaction, and the likelihood of accomplishing the stated outcomes within the projected timetable.

Faculty Awards

Xianhui Bu Receives 2008 Provost's Award for Research, Scholarly or Creative Activity



Xianhui Bu, assistant professor of inorganic and solid state chemistry, was presented with the 2008 Provost's Award for Impact Accomplishment of the Year in Research, Scholarly or Creative Activity. He was selected for the award based on the significance of his research, high research productivity, the quality of his research and the extensive involvement of CSULB students. During the past year and a half, Bu has published 15 manuscripts, sub-

mitting an additional seven documents for publication over the short span of one month during the 2008 spring semester.

"It is better to try and get rejected than not try at all," he commented. "This is the rule I go by when submitting a manuscript for publication. But I feel it applies to many things in life."

Bu's manuscripts, which highlight his research in preventing medicines from producing harmful side effects, have been published by some of the top journals in his field including *The Journal of the American Chemical Society* and *Angewandte Chemie*.

A native of China, Bu received his bachelor's degree in 1985 from Fudan University in Shanghai and later obtained his Ph.D. in 1992 from the State University of New York at Buffalo. His research area also includes the synthesis, structural and property characterization of solid-state inorganic materials or inorganic-organic hybrid materials.

Nancy Gardner Produces Podcasts of Lab Techniques

By Stuart Berryhill



Coming soon to your laptop or iPhone—videos of chemistry lab techniques! The podcasts are being produced by Nancy Gardner, a long-time lecturer in our department, along with Walter Gajewski, the coordinator of University Media Technologies, at CSULB.



Chemistry major and actress, Katie Swancutt, starring in the latest chemistry lab procedure podcast with producer/director Nancy Gardner.

Instructors in beginning chemistry courses have long noted the problems that students have in mastering some basic techniques. Now a student can watch a video of the technique before coming to class that shows how the technique is performed

and emphasizes safety precautions. The videos have proven to be an effective teaching tool for Chemistry 105 (Chemistry Explorations) and Chemistry 111A (General Chemistry).

Nancy gave a talk to the Division of Chemical Education at the spring American Chemical Society meeting that got a very enthusiastic response. The response from the broader community has also been enthusiastic. In April, one of the podcasts was the second most popular science podcast on iTunes, and overall, more than 10,000 hits were recorded during the first few months the podcasts were posted. Inquiries have also streamed in from chemistry instructors and students worldwide.

The podcasts, which can be viewed at <http://chemistry.csulb.edu/chem105/vodcast/index.html>, currently include lessons on proper use of pipets as well as both vacuum and gravity filtration. The development of several more podcasts is being currently supported by an internal grant from the CSULB Faculty Development Center. Nancy and Jim Kiesel, from the Department of Science Education, have submitted a proposal to the Dreyfus Foundation to support the production of even more podcasts covering techniques for the general chemistry lab as well as the organic chemistry lab.

Ron Garber Receives 2008 Mayfield Award

For the second year in a row, a Chemistry and Biochemistry Department lecturer has received the Mayfield Award for Outstanding Teaching in the College of Natural Sciences and Mathematics at the Commencement ceremonies last May. The 2008 recipient was Dr. Ron Garber.

This annual award is sponsored by the college's student council and was established 19 years ago at the suggestion of members of the council to honor Darwin Mayfield, professor emeritus of chemistry and biochemistry who retired that year at the age of 70. It was designated the Mayfield Award to recognize its first recipient.



"My classroom style is to be energetic and highly modulated in my delivery, hoping to keep everyone awake," Garber said. "In addition, I try to make connections between principles we study and front page examples of those subjects. Is ethanol a practical substitute for gasoline? What's the real deal with regard to nuclear power?"

Garber teaches Chemistry 111A, which is the first semester of the yearlong General Chemistry sequence required of all science majors and pre-professional students. The average class size is around 125 students.

"The course is arguably the most difficult on campus," admitted Garber. "The difficulty is not intellectual in nature. We require some minimal understanding of the subject matter as demonstrated by a previous passing grade on an introductory course or qualifying exam. The trouble comes because a sizeable number of students have not been asked to perform at a university level before this, even in previous college classes.

"Much of our early class meetings are spent discussing overreaching with respect to course load, work hours or family obligations," Garber continued, "Accepting responsibility for one's situation is a sign of maturity missing in the group that has trouble. Strangely, students who fulfill their part of the bargain find it relatively easy to get at least a B in the class.

"I was stunned by the announcement that I had won the Mayfield," Garber commented. "I tend to polarize my students, and there are enough of the disaffected around at the end of any semester that I never expect to win a popularity contest. Also, I shared an office with Darwin Mayfield for several years, and he's one of the classiest people I've ever known at CSULB. It's an honor to have my name associated with his."

Stephen Mezyk Receives 2008 Distinguished Faculty Scholarly and Creative Achievement Award

Stephen Mezyk, an associate professor of chemistry and biochemistry, was honored with the 2008 Distinguished Faculty Scholarly and Creative Achievement Award, just one year after receiving the Distinguished Faculty Teaching Award.

Ask Mezyk for the key to his research success and he'll tell you it's student involvement. A physical chemist with interests in energy and the environment, Mezyk has worked with 18 under-



Dean Laura Kingsford congratulates Dr. Stephen Mezyk.

graduate and graduate students at CSULB to conduct cutting-edge research that focuses on the study of free-radical reactions with drinking water contaminants. He is currently working with nine students on removing cancer-causing mutagenic nitrosamines—chemical compounds that have been turning up in water in small amounts. They are performing their research at CSULB as well as national laboratories and universities throughout the country.

Mezyk's research has been presented with 31 student authors at more than 44 conferences around the world, including some of the top conferences in his field. In addition, since he arrived at CSULB in 2001, Mezyk has published 30 peer-reviewed papers with 12 student co-authors, four peer-reviewed book chapters and nine extended conference abstracts with 12 student co-authors.

"I have endeavored to provide my research students with a unique and rewarding educational opportunity that also gives them the experience and tools to succeed at the next level in their career paths," said Mezyk, who is a native of Australia with a Ph.D. from the University of Melbourne.

"I am very proud to have helped our future academics, professionals and scientists achieve their dreams."

Honoring Those That Served Us Well

Dr. Henry Po



by Dr. Paul Buonora



Scenes from the farewell seminars of Drs. Henry Po and Dot Goldish, April and May 2008.

Photos by David J. Nelson

The 2007-08 year marked the end of the careers of three college and department fixtures. The first two were Dr. Henry Po and Dr. Dorothy (Dot) Goldish, who officially retired. The third was the closing and demolition of Peterson Hall 3.

A number of faculty members have retired in recent years with little fanfare. The current faculty considered that there should be an opportunity for the community to acknowledge the careers of our retiring faculty and for the former students they have influenced to wish them well. To give this opportunity, the department set aside two of the semester's seminars for "Last Lectures" by Drs. Po and Goldish, and held a reception for them in May.

Dr. Po joined the department in 1968 and soon established himself as an excellent teacher and a prodigious researcher. He also served as the graduate advisor for a number of years. His work with students at CSULB resulted in 44 publications in premier journals of chemistry, including the *Journal of the American Chemical Society*, the *Journal of Coordination Chemistry*, *Inorganic Chemistry*, the *Journal of Physical Chemistry* and the *Journal of Computational Chemistry*. He directed M.S. thesis research of 35 graduate students to completion. He also mentored 22 undergraduate research students.

Seventeen of his former students have earned their Ph.D.s, seven are M.D.s and several have other advanced degrees. Seven of his students are university professors. He received the Scholarly and Creative Achievement Award in 1984 and was selected as the university Outstanding Professor in 1995. In 2002, he was inducted into Phi Beta Kappa (Rho Chapter) as a full-fledged member. In the last seven years, the recipients of the Outstanding Graduate Award of the College of Natural Sciences and Mathematics named him twice as the Most Valuable Professor. His "Last Lecture" was titled "Macrocyclic Complexes of Ag(II) and DFT Study on the Tautomerism of 2-Pyrimidinethiols" and covered some of the high points of his research career at CSULB.

Dr. Goldish joined the department in 1958, the same year she completed her Ph.D. at UC Berkeley. She taught in the areas of organic and general chemistry, and in her final semester, taught the pilot for a chemical communication course. In addition to her teaching duties, Dr. Goldish held a long series of leadership positions in faculty governance. Her administrative responsibilities included service as acting chair of the Department of French-Italian and as acting dean of the College of Business Administration, as well as serving as the

associate dean of the School of Letters and Science, acting dean of the College of Natural Sciences and, in 2001-03, as the acting dean of Undergraduate Studies. She is especially proud of her work with committees in developing educational policies and in promoting effective advising. People using the faculty handbook may have seen her name as one of the people responsible for developing and updating the handbook. From 1992-95, she was the chair of the Academic Senate. Her distinguished service as a faculty leader earned her the Nicholas Perkins Hardeman Academic Leadership Award in 1995, the highest honor the faculty can confer to one of its members. She also delivered the prestigious Legacy Lecture in 1992.

Dr. Goldish's "Last Lecture" was titled "Chemistry and the Chemistry (and Biochemistry) Department, Then and Now" and provided a perspective on the alchemy and people that created a vibrant department. In it she said, "If you have read Malcolm Gladwell's *The Tipping Point*, you know how he identifies a point at which there was a substantial change from one state to another. I see the 1950s as a tipping point in chemistry. We were fortunate in starting out with a faculty ready to work with the 'new' chemistry."

In April 2008, the Peterson Hall 3 building was closed to begin demolition and ultimately the construction of the new Hall of Science. The building served the college for 46 years, having opened in 1962. The college marked the occasion with a wake in early June, when several current and former faculty members reminisced about the history of the building and its denizens. While space prevents relaying those reminiscences in this issue, I invite our readers to send their own memories of the Peterson Hall Building for next year's newsletter.

2007 Department Distinguished Lecturer:

Dr. Jennifer Doudna



On Oct. 4, 2007, the department was pleased to host Dr. Jennifer Doudna as our 28th Distinguished Visiting Lecturer. This event was again sponsored by the very generous support of Allergan Corporation, and we thank Dr. Stephen Ruckmick of Allergan, a member of the department's advisory board, for helping us to obtain funding for this seminar series.

Dr. Doudna is a Howard Hughes investigator and professor of biochemistry and molecular biology at the University of California, Berkeley. She is well known in the scientific community for her ground-breaking research on the structure and functional roles of RNA. Dr. Doudna has received numerous awards and honors in recognition of her outstanding contributions to

our understanding of RNA, including the Eli Lilly Award from the American Chemical Society, the Alan T. Waterman Award from the National Science Foundation, and the David and Lucille Packard Foundation Fellow Award. She is also a member of the National Academy of Sciences and the American Academy of Arts and Sciences. This litany of accomplishments is even more remarkable given that Dr. Doudna began her academic career as an assistant professor at Yale University as recently as 1997.

Dr. Doudna presented her work in two separate seminars. Her first lecture, entitled "The Expanding World of RNA," was attended by a packed audience of more than 300 students and faculty in the Beach Auditorium and was received with great enthusiasm. Her second lecture, entitled "Hijacking the Ribosome: Translational Control in Cells and Viruses" and held in the Anatol Center, covered some of her more recent research accomplishments in greater detail. Both talks focused on her study of internal ribosome entry site RNAs, complex folded structures present in messenger RNAs that allow ribosomes to initiate translation in the middle of the mRNA. Her research has revealed some of the elaborate conformational changes in both the ribosome and mRNA that occur during this process.

Dr. Doudna's visit also included a lunch with M.S. and undergraduate research students, a faculty coffee hour, and meetings and dinner with department faculty.

The Distinguished Visiting Lecturer series was instituted in 1980 with lectures by Dr. Takeru Higuchi of the University of Kansas. Since then, the series has included many outstanding scientists representing all areas of chemistry and biochemistry. Lecturers from the last few years have included Dr. Peter Ford (bio-inorganic chemistry, UC Santa Barbara), Dr. Barry Trost (organic chemistry, Stanford University) and Dr. Marc Kirschner (biochemistry and systems biology, Harvard University). The October 2008 Distinguished Visiting Lecturer was Dr. Carlos Bustamante from the University of California, Berkeley. Dr. Bustamante's work focuses on understanding complex activities of biological macromolecules by examining and dissecting the behaviors of individual molecules. Details of his lecture will be available in the next newsletter.

M.S. Theses Chemistry & Biochemistry

2007-08

M.S. Chemistry

EMILY CHEW

B.S., University of Texas-Arlington
"Synthesis and Characterization of Homochiral Framework Materials"
(Advisor: Xianhui Bu)

YIZHE WANG

B.A., Tongji Medical University
"Carbamate Triserine Lactone Receptors for Anion Recognition"
(Advisor: Eric Marinez)

MATTHEW WONG

B.S., U.C. Irvine
"Synthesis and Characterization of Chiral Metal-Organic Framework Materials"
(Advisor: Xianhui Bu)

M.S. Biochemistry

SRIVIDYA RAMAN

M.Sc., University of Delhi
"Purification and Characterization of RNA Polymerase II from *Artemia Salina*"
(Advisor: Roger Acey)

CHUNG-PING LEON WAN

B.A., Simon Fraser University
"SUV Solubilization and Nanodisc Formation by Apolipoprotein II"
(Advisor: Paul Weers)



Reports from Faculty

ROGER ACEY

We're back...I'm sorry for having missed last year's newsletter. It's been a very exciting year for us. We had two patents issued, one U.S. and one international. The patents describe a novel technology for removing and recovering toxic or precious heavy metals from water. In addition, Dr. Richard Kanner (a former graduate student of Dr. Berryhill) and I submitted a patent application describing a point-of-use medical device for removal of mercury-based preservatives from clinical products. We are now actively searching for external funding to commercialize our technology.



From left to right, back row: Nathan Richmond, James Yano, Dr. Roger Acey, Simon Moon, Paul Madera and Gwen Jordaan. Front row: Rebecca Graziano, Mary Han, David Jang and Danni Tsuboi.

I'm sure many of you remember us as "Artemiologists," investigators using brine shrimp to study embryonic development. However, we are now a stem cell lab. We are using the cells to study the role of butyrylcholinesterase in both neuron development and the progression of Alzheimer's Disease (AD).

Drugs currently used in the treatment of AD target butyrylcholinesterase. Dr. Nakayama and his students have synthesized a series of organic phosphates that we have been testing as potential butyrylcholinesterase

Back row, standing from left: Dr. Xianhui Bu, Dr. Christopher Brazier, Dr. Eric Marinez, Dr. Margaret Merryfield, Dr. Stephen Mezyk, Dr. Dorothy Goldish, Dr. Marco Lopez, Dr. Paul Buonora, Dr. Peter Baine, Dr. Kasha Slowinska, Dr. Krzysztof Slowinski, Dr. Dennis Anjo and Dr. Ken Nakayama.
Front row, sitting, from left: Dr. Robert Loeschen, Dr. Paul Weers, Dr. Tom Maricich, Dr. Jeffrey Cohlberg, Dr. Douglas McAbee, Dr. Nail Senozan and Dr. Brian McClain.

inhibitors. The results have been startling; the compounds are potent, highly specific, irreversible inhibitors of butyrylcholinesterase. Dr. Nakayama and I have submitted a patent application describing the compounds.

I am happy to report that my senior graduate students have completed their research and are writing their theses. Wafa Mana's project focused on expression of butyrylcholinesterase during neuron differentiation and how phthalate esters interact with the enzyme. Chad MacArthur's research involved measuring the inhibitory activity of Dr. Nakayama's compounds on butyrylcholinesterase and their effect on neuron development. The results of Wafa's and Chad's research were the basis of a proposal recently submitted to *Autism Speaks*.

Rebecca Graziano, Dani Tsuboi and David Jang, all undergraduates, have been working with derivatives of the phosphates synthesized by Dr. Nakayama's group. Rebecca, a McNair and RISE Scholar, presented her results at the CSULB and statewide student research competition. She placed second in both competitions. We're proud of her! Dani and David are currently helping prepare a manuscript for publication describing the inhibitors. Both spent the summer evaluating the toxicity of these compounds on neurons.

Mary Han, a Whitney High School student, has been looking at the reactivation of the inhibited enzyme. Michael Brown, a recent transfer student, joined the lab this past summer. He has been working with Bis Phenol A (BPA), a reported endocrine disruptor. His results show that the compound, found in plastic bottles and the lining of cans, is an inhibitor of butyrylcholinesterase. This is a very ominous finding, considering the involvement of the enzyme in neuron development.

Paul Madera, a graduate student, joined the lab early in 2008. His project revolves around metallothionein, a metal binding protein we cloned from *Artemia*. He is evaluating the metal binding characteristics of the protein. Simon Moon is writing his thesis. Sri Raman has just submitted her thesis to her committee.

Finally, I cannot talk too highly of Gwen Jordaan and Jim Yano. Both of these individuals are model graduate students. Their work ethic and integrity are exemplary. Moreover, they are most responsible for the overall organization of the lab. I cannot thank them enough.

Gwen's project is to isolate the promoter sequence for the metallothionein gene. Jim has been studying a novel down regulated protein in activated macrophages. Both of their projects are progressing nicely.

XIANHUI BU

There have been lots of activities in my group in the 2007-08 year. Two M.S. students, Emily Chu and Matthew Wong, successfully completed their thesis work. Emily defended her thesis on Dec. 20, 2007, while Matthew did his thesis defense on June 27, 2008. Emily and Matthew contributed to a

total of five publications in my group through their work on the synthesis and structural characterizations of homochiral framework materials using camphoric acid as a structural building block. One of my favorite undergraduate students, Henry Valle, has just completed his undergraduate work and will attend the graduate program at CSULA in the fall of 2008. He has been offered the LSAMP fellowship there, which provides him with very generous financial and research support. Another undergraduate student who graduated in the past year is Areg Zingiryan. Areg developed a novel strategy to create homochiral materials through the co-assembly of two structurally similar ligands, one chiral and one achiral. His work has resulted in a publication in the journal *Inorganic Chemistry*. His work was so nicely done that all referees recommended "publication as is." None of my other manuscripts has enjoyed such a review. Just when I started to feel lonely after the departure of all these wonderful students, four undergraduate students (Jignesh Tijoriwala, Ruben Nieto, Hellen Ngo and Trixia Sarmiento) joined my research during the past year. I look forward to an exciting new school year working with my new students.

PAUL BUONORA

The 2007-08 academic year brought new courses. After teaching the Advanced Organic Chemistry Laboratory for three years, I taught the one-semester Fundamentals of Organic Chemistry course for food and nutrition and marine biology majors in the fall and the first semester of the new two-semester, non-majors Organic Chemistry course in the spring. Under my responsibilities as the coordinator to the university's NIH-Research Initiative for Student Enhancement (RISE) program, I created and taught a course titled "Preparing for a Laboratory Science Career," which was designed to provide students with perspectives on the necessary skill set development as they progress from undergraduate student through research mentor and renowned scientist.

In the research lab, Joe Badillo, Angela Bustamante, Susanne Cyrus and Bryan Fiamengo finished their research careers in the group. Joe has moved on to UC Davis and into the Ph.D. chemistry program. Angela fell off the face of the earth. Susanne presented her work on developing a



Dr. Paul Buonora at the summit of Mt. Kilimanjaro.

Karplus Constant analysis based on the bicyclic lactam molecules, which we have been synthesizing for some time, in a poster at the spring national meeting of the ACS in New Orleans. Bryan Fiamengo is now working as a research associate for Abbott Laboratories in the suburbs of Boston.

Jim Brady and Crystal Jenkins continue in the lab and should finish their M.S. research in the fall. Both are working on our dihydropyridazinone project, which should be reaching an end, after about 15 years, over the next year. Straun Phillips and Heather Ascher joined the group this year on our new project focused on developing a new reagent for the synthesis of quinones, pseudocarbohydrates and carbohydrates. This project will occupy my sabbatical research in spring 2009.

At the fall national meeting of the ACS in Philadelphia, I had the opportunity to visit with former group members Lizbeth DeSelm (M.S.) and Melissa Flores (B.S.). Lizbeth is working at the EMD Serono Research Institute in Rockland, Mass., and Melissa is in the Ph.D. program at Penn. Melissa gave a very nice talk about some of her work in the Bode group at the meeting. The work from this group on peptide synthesis is quite impressive.

Outside the university, I traveled to Tanzania and climbed (actually hiked up) Mt. Kilimanjaro, the highest peak in Africa. The trip was organized by my nephews and brother-in-law and was a tremendous experience. At 19,350 feet the air is a bit thin, but the summit is worth the training and effort to get there.

JEFFREY COLBERG

As I write this, I am preparing for my transition to the position of department chair. I am wrapping up my research on amyloid formation from superoxide dismutase (SOD), both the wild-type protein and mutants related to familial amyotrophic lat-

eral sclerosis (ALS). I am writing two manuscripts describing work done by several students, including Zeynep Oztug (now Zeynep Durer), Chris Bowman, James Tan, Phong Dinh and Yoko Nakano.

My last two grad students, Yoko Nakano and Furkan Senal, will be completing their theses in fall 2008. Yoko and Furkan have both studied various aspects of the pathways by which both wild-type and mutant SOD form amyloid and the intermediates in these pathways, and Yoko has some evidence that a specific soluble intermediate is cytotoxic. Furkan is presenting a poster at the August meeting of the Protein Society in San Diego. Yoko will return to Japan (with her husband and new baby boy) in March. In mid-August, I vacated my lab to make room for our new biochemistry faculty member, Vas Narayanaswami.

I'm also pleased to report that proteomics has been integrated into Chem 443. Students analyze cell extracts on two-dimensional gels, cut out spots and do tryptic digests, obtain mass data for the peptides and identify the protein by querying the database. They also examine cholinesterase enzymes that have been reacted with covalent inhibitors, using mass spectrometry of tryptic peptides to identify the site of modification.

I'm looking forward to the challenges of being department chair, and I plan to continue teaching in the Chem 441AB biochemistry sequence as well as graduate courses.

DOUGLAS McABEE

This past year was a busy one for me. In addition to teaching in the undergraduate biochemistry sequence, I taught my graduate course in cell membranes last spring after a hiatus of five years. As always, preparing lectures and class materials for this graduate course was a terrific learning experience for me, though demanding. During the past year, two student members of the lab completed their work here at CSULB and have gone on to the next stages of their careers. Sid Seth, who characterized the interaction of lactoferrin-transferrin C-lobe hybrid proteins with the asialoglycoprotein receptor, finished his M.S. thesis in fall 2007 and is now working at Kirin Pharma in the San Diego area. Casey Curran, an undergraduate who helped isolate lactoferrin-binding proteins from human serum, graduated and is now attending medical

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school at Northwestern University in Chicago (and probably playing on the Chicago Bulls practice squad in his free time). Aynur Bakirci is continuing her M.S. thesis work that focuses on understanding the proteomic changes that take place in the liver following in vivo iron overload. I also welcomed Jeremy Wood into the lab this year. Jeremy is an undergraduate in our department and worked previously with Tom Maricich. Jeremy is working on the serum lactoferrin-binding protein project and is making very good progress.

Because I am no longer department chair, I have been able to work in the lab regularly for the first time in several years. This has been enjoyable for me, and it has also provided Aynur and Jeremy with comic relief as they see me try to find things in the lab. In addition, I am on sabbatical leave this fall, the first sabbatical I've taken in my 19+ years as an academic. In addition to helping Aynur and Jeremy on their projects, the sabbatical is allowing me to collaborate with Dr. Editte Gharakhanian on a project to biochemically dissect the intracellular pathway followed by a yeast vacuolar protein (carboxypeptidase Y) in a mutant that cannot properly traffic proteins from endosomes or multivesicular bodies to the vacuole. Working with yeast (other than making bread or drinking beer) is a new experience for me, and I'm enjoying the new opportunities this collaboration affords.

STEVEN MEZYK

This was another extremely successful year for the Mezyk RadKEM laboratory at CSULB, with multiple highlights for both my research students and me. Several of my students graduated in May, including Casandra Cox, who is now a graduate student at MIT (Ph.D. chemistry); Janeane Moura, who was accepted into pharmacy school at USC; and Trent Foust, who is still waiting on his medical school applications. Three other undergraduates who had worked in my laboratory previously also graduated: Manu Singh, who is now attending medical school in Buffalo; Nicholas Landsman, who is at USC pursuing his medical degree; and Christine Bradford, who has started at the University of Wisconsin (Ph.D., organic chemistry). We wish all of them the best of luck in their new endeavors.

My ongoing research group of seven undergraduates and one master's degree stu-

dent continues to thrive. In addition, Thomas Neubauer started his master's degree research on the radical-induced degradation of sulfa antibiotics in wastewater systems. Over this period, our group was able to get seven journal articles published, have eleven refereed conference abstracts accepted, and showcase our research in 31 conference presentations across the world. One major conference highlight this year occurred at the American Chemical Society meeting in Philadelphia this past August, where my undergraduates, Katy Swancutt and Michelle Dail, both gave oral presentations.

Research funding was also one of our major successes this year, with many of my students receiving scholarships for their efforts in my laboratory. Katy Swancutt finished her Beckman Scholars program scholarship this past summer, successfully completing her project investigating the free-radical chemistry role in platinum-containing anti-cancer drug usage. Her research efforts continue in a related field, being partially supported by the inaugural undergraduate research scholarship personal donation from Ken Ishida and also from the CNSM College.

Devin Doud received a Beckman Scholars program scholarship to support his research on the radical-based remediation of simple hydroxylamines, which have been shown to be precursors of carcinogenic nitrosamines in wastewater. Michelle Dail received the Californian Target Specialty Products Inc. Scholarship, a CSULB Women and Philanthropy award and a Provost Summer Undergraduate Scholarship for her research efforts on elucidating the hydroxyl radical oxidation chemistry of β -lactam antibiotics under various conditions. Thomas Neubauer also received the Provost Summer Research Scholarship. Edsel Abud was awarded a CSULB Women and Philanthropy scholarship, supporting his studies of mixed alkyl/aryl nitrosamine species in water.

All of their efforts complemented my own Research Corporation extension grant award, as well as a Water Reuse grant to support these areas. In addition to this scholarship and grant funding, one new avenue of funds for our research has been through contract work at Idaho National Laboratory. The Aqueous Separations and Radiochemistry Group at this institution has provided funding for another one of my students, Thomas Cullen, who is working on the



Photo by David J. Nelson
From left, Trent Foust, Katie Swancutt, Devin Doud, Casandra Cox, Thomas Neubauer and Dr. Stephen Mezyk.

radical kinetic chemistry involved in the degradation of organic ligands to be used for separating metals from nuclear waste.

My personal efforts this year were also centered on research, mainly due to a one-semester sabbatical leave that I took in fall 2007. This sabbatical was spent at the University of Notre Dame (eight weeks) and Idaho National Laboratory (seven weeks), establishing new research areas and finishing up old projects that now need to be written into papers (when I find the time). This endeavor culminated several years of intense research effort, which was extremely satisfying. My collaborations continue to expand, with new research projects being initiated with environmental engineer colleagues at the University of Colorado, working on characterizing dissolved organic matter and quantifying its interference with advanced oxidation process treatment concepts; with physicists at the University of Paris, France, studying the α -radiolysis degradation of nuclear waste extraction ligands; and with radiation chemists at Brookhaven National Laboratory, New York, studying the hydroxyl radical induced oxidation of plutonium species in acidic media.

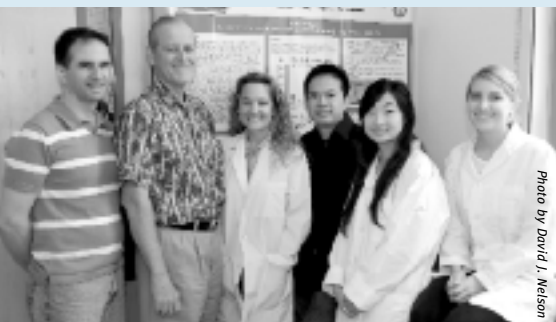
We are also continuing our ongoing collaborations at CSULB with Eric Marinez and Michael Schramm, who are helping my students synthesize contaminant chemicals of interest in our water reuse projects, and with the Southern Nevada Water Authority and the University of California at Irvine. All these collaborations continue to afford my students the opportunity to interact with world-class scientists at state-of-the-art experimental facilities, thus furthering their research experiences.

Lastly, my one other highlight this past year was being awarded the 2008 CSULB's Distinguished Faculty Scholarly and Creative Achievement Award. This award gave me an excellent opportunity to summarize all our

research success over these past few years and to focus these interests for the future. Once again, I anticipate another outstanding year to come!

MICHAEL MEYERS

This year has been another exciting and productive year for my research group. We published a review paper in the journal *International Immunopharmacology* and have another paper accepted in the journal *PLOS ONE* on my lab's collaborative work with Dr. Jadus at the VA center. I continue to work on our CSULB funded NSF (National Science Foundation) MRI (Major Research Instrumentation) grant while finishing my CSUPERB (California State University Program for Education and Research in Biotechnology) Faculty-Student Collaborative Research Seed Grant this year on the role of Maxi-K channels in a viral therapy for glioma cell cancer. These grants have allowed me to continue productive research collaborations and to continue to publish our data.



From left: Dr. Michael Myers, Gerald Vandeusen, Angi Carelli, Jimmy Pham, Ye Li and Alexandria Brooks.

Thanks go to all my undergraduate students working on these projects this year: Alexandria Brooks, Jimmy Pham, Gerald Vandeusen, Angi Carelli and Ye Li. Thanks also go to Dr. Linda Callahan of the Nursing Department, who continues to work in my group. I am happy to report that Jimmy Pham has decided to stay in the lab and work on his master's degree in public health in my laboratory.

I continue to work in the department to do research in chemistry education. I presented an abstract at the Sixth Annual International Conference on Education earlier this year in Honolulu, Hawaii, on my work studying the use of eLearning by faculty to facilitate student success. The work we are doing involves assessing how faculty can use

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New Face

Vasanthi Narayanaswami

Vasanthi Narayanaswami, known to her colleagues and friends as Vas, hails from Chennai (formerly known as Madras), a sunny coastal city in South India. She completed her undergraduate degree from Madras University and is a proud alumnus of the Indian Institute of Technology (Madras), where she carried out her graduate studies in biochemistry in the Department of Chemistry. Her graduate work investigated the role of selenium in glutathione and hydroperoxide metabolism and in oxidative stress. She then did post-doctoral training at the University of Dusseldorf in Germany with a fellowship from the Alexander von Humboldt Foundation, an organization that actively promotes cultural and scientific exchange of scholars. "This was one of the most exciting times in my life," recalls Vas. "I obtained further insights into oxidative stress research in Prof. Helmut Sies's laboratory, which established the foundation for my current research program. I also had a fantastic time traveling and experiencing the rich cultural atmosphere around me in Europe."

After the short stint in Germany, Dr. Narayanaswami then moved on to Edmonton, Canada, where she continued her post-doctoral training in lipoprotein research. The transition from a place where she was accustomed to ambient temperatures of 33 °C to one where -33 °C was considered merely cold was indeed challenging, to state it mildly. Staying indoors most of the time and broadening her research horizon as a post-doc was certainly one way of dealing with the cold—which she did! However, once she realized that she had to learn to deal with the cold instead of battling it, her experience was more enriching. The aurora borealis and the long daylight hours during summer were phenomenal, and she remembers those days fondly.

Dr. Narayanaswami comes to Long Beach from the Bay Area in Northern California, where she was an assistant scientist at the Children's Hospital Oakland Research Institute after her stay in Canada. "Being in Long Beach feels like coming back home," she says. Her research program involves investigating the role of cholesterol in the brain, particularly in disease states involving neurodegeneration such as Alzheimer's Disease. She loves to interact with students and is passionate about education and research. She looks forward to involving students in her research program, which focuses on investigating the role of apolipoprotein E (apoE) in neurobiology of aging and age-related diseases. ApoE is a critical player in the transport of cholesterol in the plasma and in the central nervous system.

One of the projects in her laboratory involves examining the effect of acrolein on the structure and function of apoE and the consequences in lipoprotein metabolism. Acrolein is a pro-oxidant that is generated as a metabolite of age-related oxidative stress and is present in high concentrations in the gaseous phase of tobacco smoke. The goal of this project is to determine if exposure to second-hand smoke predisposes individuals towards developing a pro-atherogenic profile, an established risk factor for heart disease and stroke. Involuntary exposure to secondhand smoke is particularly relevant in the case of the pediatric population and the elderly.

Dr. Narayanaswami likes to read and hopes to travel more someday. She has a son whom she likes to hang out with. She is pleased to represent women in science and would love to see more women in the area of neuroscience. Vas is eager to support the cause of removing disparities in minorities health related issues and in increasing the diversity in health and disease research programs through research and education.



Photo by Victoria Sanchez

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online tools effectively to increase student learning in science.

I look forward to a busy year of more biochemistry teaching, grant writing, manuscript preparation, and continuing to work with students as the undergraduate advisor for the department. I have worked hard this year to improve student advising, and we have finally seen our efforts pay off as graduation rates are on the rise. The new mandatory freshmen advising effort I helped start this year with the Academic Advising Center resulted in 98 percent of our department's freshmen getting second semester advising, a great start that we will now extend to our transfer students this year. We continue to raise the bar on service, teaching and research here at The Beach!

KEN NAKAYAMA

Our research group has continued to expand the library of potential inhibitors of the cholinesterases. This work on the cholinesterases is being conducted in collaboration with Professor Roger Acey's research



Photo by David J. Nelson

From left: Linh Tran, Long Nguyen, Ricardo Gallardo-Macias, Junghye Lee and Dr. Ken Nakayama.

group over the past five or so years and has been very fruitful. Undergraduate Connie Cajavilca finished the synthesis of some very potent inhibitors of the phosphonate class and graduated in fall 2008. After working as a substitute teacher at Warren High School, she was accepted to a premedical preparatory program, which started this past summer, offered at UC Davis.

Undergraduate Joel Ancheta is now in the M.S. program in physical therapy at CSULB. Junghye Lee, an undergraduate I recruited from Chem. 420, received three awards (Provost's Summer Stipend, the Allergan Summer Research Award, and the Kenneth Marsi Award) and has worked very

hard during the spring and summer of 2008 on some chiral organophosphorus synthesis. Graduate student Eunice Cheung has made major progress in her synthetic methods project and will be completing her work by the end of 2008. Meanwhile, graduate student Ricardo Gallardo has been working on aminophosphonate synthesis, and we are close to publishing our preliminary findings. The work of graduate student Long Nguyen, who joined our group in the spring semester of 2007, involves the resolution of a library of chiral phosphates and is also slowly gaining momentum.

I have been involved during the past year in teaching the advanced organic laboratory course (Chem 420), which has been revamped several times, now. I continue to try and incorporate reactions from the literature into the course curriculum to give students an opportunity to experience "real-world" challenges.

On a personal note, our daughter Karissa (nine years old) is a very articulate child with command of both English and Japanese. Judging from her interests, her future goals seem to vacillate between becoming either a clothing designer or a shark biologist. Our son Kendall (six years old) is getting very adept with his computer, amazing his parents with new shortcuts. They continue to be sources of both joy and life's lessons for my wife and me.

HENRY PO

Yes, I have finally retired and not one minute too soon. Dr. McAbee asked me to write a bit about myself, for he thinks that my students would like to know what I am doing after retirement. I thought, why not, because people do ask. Well, I don't have to go teach or go to meetings anymore, but my free time seems to get used up quickly.

Some of the activities, as expected, include taking vacations. At the end of my talk in April, I showed a picture of a cruise ship and said that I am going cruising. This I did. My wife and I went on a cruise to Northern Europe. It was a fun trip; the cruise ship stops included port cities of six countries. We were in Copenhagen, Warnemunde (Berlin), Tallinn (Estonia), St. Petersburg, Helsinki and Amsterdam. These are places that I wanted to visit, and the weather was cooperative, which made the trip really fun.

I would have never thought that I would be visiting these places that I have read so much about. To be there in person gives one a different perspective of these countries.

Many of you came to my last seminar on April 30 and also to the retirement reception for Dr. Goldish and me a week later. I would like to thank all of you for taking time from your work and coming to the seminar and the reception. In no particular order, I would like to thank the following people for coming to my retirement: Gian Gacho Grant, Dr. Silvero Arano, Dr. Kedy Ying Jao, Nick Jones, Ted Nguyen, Dr. David Anvar, Ming Yuan, Dr. Ximeng Wang, Gary Tietavainen, Dr. Kenneth Huang, George and John Liarakos, Danute Basiulis, Dr. Dmitry Pervitsky, Josephine Yee, Dr. Steve Jones, Janet Kiang Tsukamoto, Melanie Concepcion Gonzales and Dwayne Ishida. The flowers that were sent to the seminar were from Dr. Jao and those sent to the reception were from Huilin Huang. Thank you both for your thoughtfulness.

I also received many cards and e-mails with well wishes and kind words from as far as Heidelberg (Dr. Chosu Khin), New Hampshire (Jeffrey Masse), Ithaca (Professor Janet Hunting), Hong Kong (Dean and Professor Wai-Kwok Wong) and New York City (Professor Alexander Greer). Well wishes from Mrs. Jensen, Atty. Linda Sarno, Professor Robert Bau (USC), Huilin, and Gian were also received. I shall treasure all the kind gestures and supports from all of you.

Since PH-3 has been demolished and is going to be replaced with a state-of-the-art science building, I neither have an office nor a lab, now. However, I am still doing QC calculations, but in Dr. Li's lab. She has provided me with space for my PCs. My most recent publication, "Electrochemical Oxidation of 2-Pyrimidinethiols and Theoretical Study of Thiol Dimers, Disulfides, Sulfenyl Radicals, and Tautomers," appeared in the *Journal of Physical Chemistry*, A 2008, 112, pgs. 1643 – 1655. There are two computational projects that I have started before moving out of PH3-204. One has to do with Fourier analysis of the total rotational energy barriers of small molecules and the other is on the stabilities of realgar and its invertmer. An undergraduate student is helping me with these calculations, and I hope to complete them soon.

Most of you know that my early research was on the reaction kinetics and mechanisms of inorganic reactions and electrochemistry of inorganic complexes; however, nine years ago I decided to take on a new area, computational chemistry. On a sabbatical leave, I went to UCI and worked with Dr. Warren Hehre's group and Dr. Fillmore Freeman. Drs. Tammy Chao (Taiwan) and Pete Rose (Germany) were there, and they helped me tremendously in learning computational chemistry. This is where I picked up a new area of research.

My hobbies include growing some orchids (not very well) and also photography, amateurish at this moment. Some of you might have received digital photos of my orchids, which are not very good, I think, because my photography skills are not that great. However, I will invest some time to learn more techniques of photography and the art of taking pictures. I plan to take trips to the Philippines to visit my brother and my sister and their families. Mrs. Po and I go to San Francisco frequently to visit and have fun spoiling our one-year-old grandson.

I would love to hear from all of you, so don't hesitate to call or send a card or an e-mail.

YOUNG SEOK SHON

During the past year, I taught Chemistry 322A and 322B, the new organic chemistry courses for non-majors. I thoroughly enjoyed teaching these organic chemistry classes and learned some new things in the second semester (322B), which covered many organic reactions involved in the metabolism of biomolecules such as proteins, etc.

Several undergraduate students joined our research group this year. Erick Oval is working on the green synthesis of water-soluble metal nanoparticles using microwave synthesis. Tiffany Yee, Aaron Tran and Mike Aquino are studying the optical sensing of small molecules using transparent nanoisland films. Roger Pham and Martha Trujillo are investigating the application of nanoparticle-cored dendrimers and ionic monolayer-protected nanoparticles, respectively.

Students who have been working in our research group since last year are starting to see their efforts come to fruition. Jonathan Dare and Tuong Dinh, who have contributed to the synthesis and characterization of

nanoparticle-cored dendrimers, had their first publication in the professional journal, *Langmuir*. Parfait Voundi and Nicole Choi presented their research on ionic monolayer-protected nanoparticle films and gold nanoisland films, respectively, at the regional American Chemical Society meetings. Caroline Lam, Shaleen Chuc, Huong L and Parfait Voundi were the co-authors for other presentations. Hyun Lim and Rachel Salazar have also obtained some quality results in the lab.

ERIC SORIN

My first year back home in Southern California was very challenging, and I first and foremost wish to extend a sincere "thank you" to my colleagues and students for offering tremendous support to my family and me in what continues to be a difficult year for us all. This academic year has also been very fulfilling on a professional level, however, and I am excited both to be teaching again and also to watch my research group evolve.

On the teaching front, I've spent my first two semesters here developing and refining Chem 377A, which has been a wonderful experience and a great opportunity for me to get to know many of our majors and graduate students. I was also delighted to give guest lectures in two of our HHMI Honors courses this past spring and meet with new faces (Biol 110H) and more advanced students (Biol 466H) in the honors program. I look forward to further refining 377A in 2008-09, as well as offering a new course, Chem 480/580: Biomolecular Modeling & Simulation, which will be accessible to upper division and graduate students from all scientific disciplines.

In this spirit of interdisciplinary studies, I've also had the opportunity to assemble a small research group that brings together students from a variety of scientific disciplines and stages in their academic careers. Yi An (M.S., chemistry) has started his graduate project on binding affinity calculations for computational drug screening; Allison DePaul (biochemistry/chemistry senior) is working with Erik Thompson (chemical engineering junior) on modeling lipid membranes and membrane proteins, as well as investigating conformational transitions in binding regions of small RNAs; Felisha Eugenio (biological science freshman)

has started her undergraduate research into the structural basis of collagen related diseases; Kristin Haldeman (math/economics sophomore) is studying possible correlations between RNA conformational preferences and the local ionic atmosphere; Matt Runyon (chemistry/math sophomore) is working on modeling the kinetics of ion exchange in metallothionein systems; and Lluvia Zuniga (M.S., physics) is pursuing graduate research employing minimalist and simplified models to study biopolymer assembly.

This diverse group of students has made for some very fun and stimulating group meetings this past year, and it has been extremely rewarding and energizing to see them working as a team and sharing their knowledge with one another! Several of my students attended their first undergraduate research conference at my undergraduate alma mater, UC Riverside, and several obtained stipends to support summer '08 research activities to complement my SCAC Summer Stipend Award.



Photo by Victoria Sanchez
From left, back row: Yi An, Erik Thompson and Dr. Eric Sorin. Front row: Alison DePaul, Felisha Eugenio and Lluvia Zuniga-Aragon.

Together, we have established a new molecular computing laboratory in Mlsc-300, which now houses student work-stations, a laboratory server and two Folding@Home servers, and we have several collaborations in progress with groups here at CSULB, as well as Stanford and UMich. We've also teamed up with the new Academic Technologies division, which is hosting our recently installed 100+ processor computing cluster and providing backup power and cooling free of charge. In the meantime, I'm pleased to report the publication of a book chapter entitled "Computer Simulations of Protein Folding" by the Royal Society of Chemistry as well as an article in the *Journal of Computational Chemistry*.

2006-07 Research Publications

for Department Faculty

ROGER ACEY

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MICHAEL MYERS

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Continued from pg. 17

PAUL WEERS

The Weers research group aims to gain insight in structural and functional aspects of apolipoproteins in lipid transport processes and innate immunity. We use the insect apolipoprotein, apolipoprotein III as a model system because of the structural resemblance with human apolipoproteins, availability of high-resolution structures and biophysical properties. Last year our research was funded by two NIH grants (AREA and SCORE). The following people were part of our research group: Sean Lee, Pezman Mansourian, Arti Patel and Marina Savkovic (undergraduate students); Daisy Martinon, Merve Oztug, Leon Wan and Xiping Wu (graduate students); and Gizman Abdullahi (research technician).

Leon Wan completed the biochemistry graduate program in June 2008. His three-year stay in our research lab was very successful. He was a co-author on two papers, received two fellowships (Louis Perglut Scholarship recipient in 2005 and the Boeing-College of Natural Sciences and Mathematics graduate scholarship in 2008), and also made it to the Graduate Dean's List of University Scholars and Artists (2008). In August 2008, Leon entered the pharmacology program at the University of British Columbia, Vancouver, Canada. After spending a successful year in our lab, supertech Gizman Abdullahi left in July 2008. She will be missed for her everlasting positive energy. Admitted to Medical School at Penn State and UCLA, Gizman decided to stay close to home, where she will enter the program at UCLA. Last year, we participated in two national conferences. Merve Oztug and Leon Wan presented their work at the Biophysical Society meeting in Long Beach, February 2008, and Gizman and Arti were present at the ASBMB in San Diego, April 2007. Notably, Arti Patel was a proud recipient of the Allergan Undergraduate Summer

Research Fellowship, and Daisy Martinon was awarded the 2008 Provost's Graduate Student Summer Stipend Program for Research, Scholarly and Creative Activity.

MARC student Johana Rodriguez joined the lab in spring 2007 to design mutant apolipoproteins. In summer 2008, Pezman Mansourian also joined the lab. Marina Savkovic completed two semesters of protein expression and purification, while Sean Lee and Xiping (Angela) Wu made good progress with their projects.



Photo by David J. Nelson

Dr. Paul Weers and (back row, from left) Arti Patel, Marina Savkovic, Gizman Abdullahi, Leon Wan, Merve Oztug and Johana Rodriguez; and (front row, from left) Daisy Martinon, Sean Lee and Xiping Wu.



From left to right, back row: Hai Hoang, Sadie Martin, Meredith Flores. Front row: Jenny Pham, Dr. Michael Schramm and Yassir Edebbbar. Absent: Ha Nguyen, Stephen Smith and Massiel Trujillo.

Awards & Scholarships

Chemistry and Biochemistry Students 2008

ENDOWED AWARDS

ROBERT B. HENDERSON AWARD

Dr. Henderson was a member of the Department of Chemistry and Biochemistry from 1955-82 and a distinguished scientist and teacher of organic and general chemistry. He was one of the founding faculty of the department, served as chairman of Physical Sciences and associate dean of the college, and was a thesis advisor for several M.S. students. This award is given to a student best exemplifying Henderson's scholarship and commitment to the profession of chemistry. This year, we were pleased to present this award of \$1,000 to each of two outstanding students: **MIGUEL CAMACHO FERNANDEZ** and **CHRISTINE BRADFORD**.



MIGUEL CAMACHO FERNANDEZ



WILLIAM HAMMOND



CHRISTINE BRADFORD



JASON ALVAREZ

the income from his bequest is to be used to support student research in our department. This is the 11th year this \$2,500 award has been given, and the recipient is **WILLIAM HAMMOND**, an M.S. biochemistry student working with Dr. Slowinski.

SPYROS PATHOS IV AWARD

The Spyros Pathos IV Award is presented annually to a student excelling in the second semester of general chemistry, Chemistry 111B. This is the 12th year this award has been granted and is made possible by the friends of Spyros Pathos IV, who was an undergraduate chemistry major in our department at the time of his death in 1993. This year's recipient is **JASON ALVAREZ**, a B.S. biology-zoology major working with Dr. McClain.

DAVID L. SCOGGINS AWARD

This award memorializes David L. Scoggins, a 1968 B.S. chemistry graduate of CSULB and a graduate student and teaching assistant in the Department of Chemistry at the time of his death in 1969. The award recognizes outstanding scholarship and promise by a graduating chemistry or biochemistry student who intends to pursue a career in one of the health-related professions. The Scoggins scholar this year is **CASEY CURRAN**.

JOHN H. STERN AWARD IN PHYSICAL CHEMISTRY

The Stern Award, consisting of a cash prize, is given in memory of Dr. John H. Sterns, internationally known for his work in solution thermodynamics and author of many publications in that field. The award was established by colleagues, former students and friends of Stern, who was a member of our faculty from 1957-87 and a distinguished teacher of physical and general chemistry. **JASON ALVAREZ**, a B.S. biology-zoology student working with Dr. McClain, was named the recipient of the Stern Award for 2008.

KENNETH L. MARSCHI SCHOLARSHIP

The Kenneth L. Marschi Scholarship was established by faculty, staff, family, friends and former students of Dr. Marschi on the occasion of his retirement in 1996. Marschi was a distinguished scientist, teacher of organic chemistry, and served superbly as department chair for 21 years. Marschi passed away in 2005. This \$1,500 scholarship is used to defray registration fees of outstanding junior and senior chemistry or biochemistry majors. This year's scholar is **JUNGHYE LEE**, who is a B.S. biochemistry major working with Dr. Nakayama.



JUNGHYE LEE



CASEY CURRAN

MCABEE-OVERSTREET FELLOWSHIP

The McAbee-Overstreet Fellowship recognizes a graduate student for excellence in scholarship and commitment to research (see page 6). The first recipient of the award is **LUCIANO CASTANEDA**, a biochemistry graduate student working with Dr. Slowinski.



LUCIANO CASTANEDA

MICHAEL MONAHAN FELLOWSHIP

The Monahan Award was established through a generous bequest from Dr. Michael Monahan, an alumnus of our department who received his B.S. in chemistry in 1963 and his Ph.D. in physical organic chemistry in 1968 at UC San Diego. While an undergraduate, he was a

Photos by David J. Nelson

research student with Dr. Robert Henderson. He was a distinguished scientist and member of the faculty at the Salk Institute and subsequently a senior research scientist at Beckman Instruments. Monahan was also the founder and president of California Medicinal Chemistry Corporation. In 1985-87, following his retirement, he served as an adjunct faculty member in our department. According to his will,

SUBJECT AREA AWARDS

Freshman Chemistry Award:

THI DAO

American Chemical Society,
Polymer Chemistry Award:

JASON ALVAREZ

American Chemical Society,
Analytical Chemistry Award:

CASEY CURRAN

Organic Chemistry Award:

SARAV PATEL

Inorganic Chemistry Award:

CASANDRA COX

Merck Award in Organic Chemistry:

THOMAS COMBAHEE

Biochemistry Award:

CASEY CURRAN



THI DAO



SARAV PATEL



CASANDRA COX



THOMAS COMBAHEE

DEPARTMENTAL AWARDS

Toni Horalek Award for
Departmental Service:

CHRISTINE BRADFORD

Hypercube Award:

YI AN

Departmental Undergraduate Honors:

**GREER McMICHAEL, CASEY CURRAN and
CASANDRA COX**

Departmental Graduate Honors:

VAN BUZZO and WEI XU

American Institute of Chemists

Baccalaureate Award:

CASANDRA COX

American Institute of Chemists

Graduate Award:

WEI XU

American Institute of Biochemists

Baccalaureate Award:

GREER McMICHAEL

American Institute of Biochemists

Graduate Award:

CHAD McARTHUR



YI AN



GREER McMICHAEL



VAN BUZZO



WEI XU

COLLEGE & UNIVERSITY AWARDS

Graduate Dean's List of University
Scholars and Artists:

CHUNG PING LEON WAN

Robert B. Rhodes Award:

CASANDRA COX

Khalil Salem Award:

GREER McMICHAEL

Initiated into Phi Beta Kappa:

**CASEY CURRAN, AMBER VALENCIA and
CHRISTOPHER WOSTENBERG**



Photos by David J. Nelson

CHUNG PING LEON WAN

Photo by David J. Nelson



SAACS officers, left to right: Heather Asher (vice president), Alexandria Brooks (president), Shauna Otto (secretary), Marco Martinez (treasurer), Dr. Brian McClain (adviser) and Myles Brookman (student member).

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Student Affiliate of the American Chemical Society

by Brian McClain

The CSULB chapter of the Student Affiliate of the American Chemical Society (SAACS) has had an outstanding year. In January 2008, Dr. Michael Schramm joined me as an advisor to SAACS, providing his organic chemist "ying" to my physical chemist "yang." Dr. Schramm has brought a fresh perspective and excitement to the club, and he continues to infuse great ideas that relate chemistry to everyday life.

In early spring, SAACS held their officer elections. Alexandria Brooks was elected president, Heather Ascher is the new vice president, Marco Martinez is the treasurer and Shauna Otto was selected as the club's secretary. These four individuals have given countless hours of their time to help grow the club.

The former officers have graduated and are doing well. Our past president, Heather Hopkins, is attending graduate school at Georgetown University. Eddie Duran, the former vice president, is now a medical student at Boston University; Chris Slay, treasurer, is a graduate student at UC Irvine studying evolutionary biology; and Christine Bradford, secretary, is a graduate student in biochemistry at the University of Wisconsin, Madison.

In late spring, it was rumored that the officers decided to commemorate the last few weeks of the PH3 building by adding an artistic flair to the traditional Friday coffee and donut hour. Mysteriously, a painting of Homer Simpson eating a donut appeared on the floor in the third-floor hallway. In another drawing, a Pac-Man was found to be eating donuts and directing faculty and staff to the coffee and donut room. Of course, neither co-advisor had any knowledge of how these characters appeared in PH3.

In late spring, SAACS was fortunate enough to tour the new L.A. crime lab facilities at Cal State L.A. The event was a resounding success, as students got to see first hand the chemistry that goes into forensic analysis of ballistics identification, DNA testing and other methods. SAACS closed out the semester with their annual Spring Fling party, generously hosted by Dr. Peter Baine. The hit of the party was student-faculty challenges on Nintendo Wii, capped off by the main event, Dr. Baine and Dr. Nail Senozan challenging each other to Wii horse racing. Dr. Baine won by a nose, but unfortunately both digital horses had to be put down due to the extensive injuries incurred from their jockeys during the race.

The fall semester began right where the spring left off. The club participated in the Week of Welcome on campus and, as a result, our first meeting was attended by over 70 students. SAACS had an outstanding "garb" sale this semester, which is our revenue generator. From these funds, SAACS was able to purchase t-shirts for members of the club. The shirts are an original design from the club members and show a pair of safety goggles above the words, "Practice Safe SAACS – Student Affiliate of the American Chemical Society."

We closed out the semester with a Halloween party on Oct. 31, hosted by Dr. Nail Senozan, and a tour of a local winery to look at the chemistry of making fine wines. As always, alumni support is welcome. Please contact either Dr. Schramm or me to find out more about SAACS and how to get involved.

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During the 2007-08 fiscal year, the department received gifts totaling **\$108,580**. The faculty, staff and students of our department are very grateful for your generosity.

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Photo by David J. Nelson

Members of the 2007-08 graduating class with several members of the Chemistry and Biochemistry Department faculty.

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