

CHEMISTRY

BIOCHEMISTRY

For past and present students and friends of Chemistry and Biochemistry at California State University, Long Beach • Fall 2004 • Number 29

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Tiffany Potter and Eric Sundberg

Two Extraordinary Graduates Enter Top Medical Schools

by Anne Ambrose

One bachelor's degree from CSULB wasn't sufficient for Tiffany M. Potter to achieve her professional goals, so she graduated in May with both a B.S. in biochemistry and a B.A. in chemistry, along with minors in biology and communications. She was named this year's outstanding graduate of the College of Natural Sciences and Mathematics.

Those efforts were rewarded by her acceptance into graduate school at Yale, Dartmouth, Syracuse and Cornell, among others. This fall she started in the Johns Hopkins Medical Scientist Training Program in Baltimore, "where I will spend the next six to eight years earning both M.D. and Ph.D. degrees."

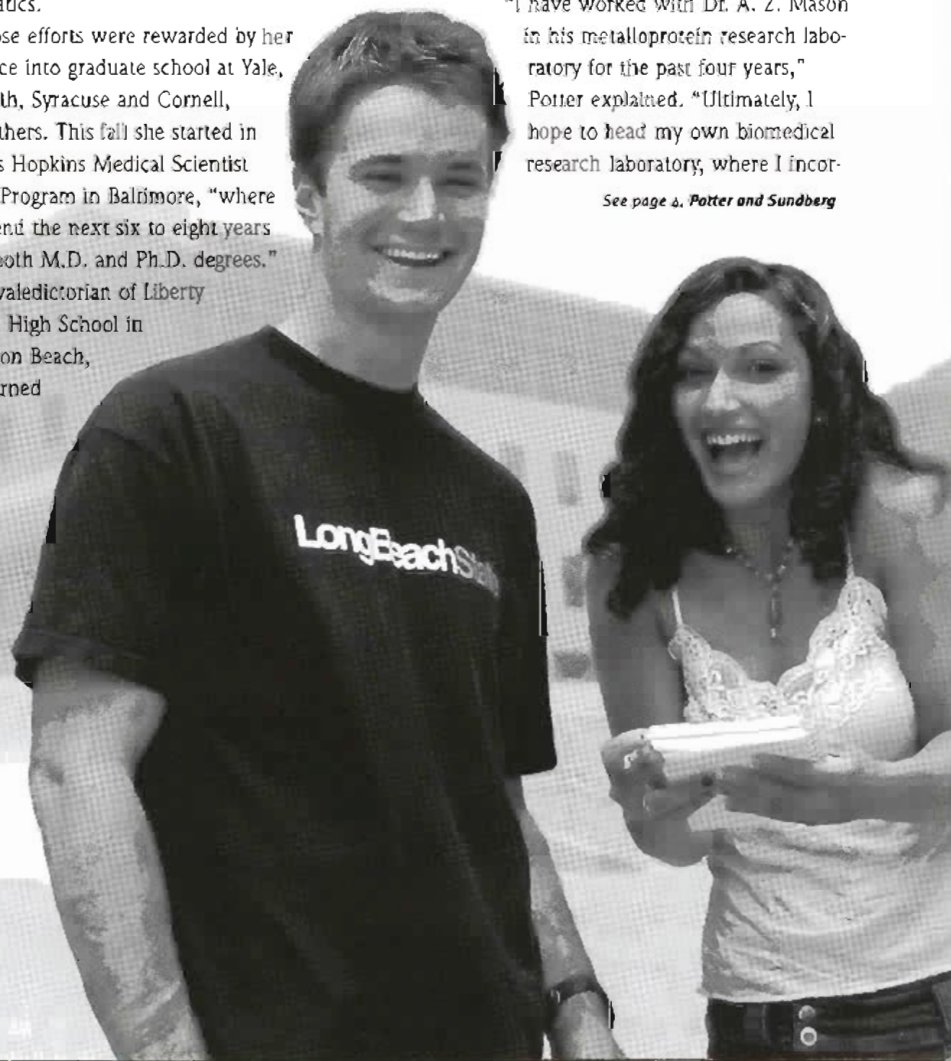
As valedictorian of Liberty Christian High School in Huntington Beach, Potter earned

admission to Stanford University but accepted a CSULB President's Scholarship, which provides full tuition and other benefits to selected California valedictorians and National Merit scholars. "This has been one of the best decisions I have ever made, and I am thankful for every day of my CSULB experience," she remarked.

"I have worked with Dr. A. Z. Mason in his metalloprotein research laboratory for the past four years," Potter explained. "Ultimately, I hope to head my own biomedical research laboratory, where I incor-

See page 4, *Potter and Sundberg*

Photo by Victoria Sanchez



Mario Fernandez

CSULB Alum Heads Science Institute in Mexico

by N. M. Senozon

Long Beach State alumnus Dr. Mario Fernández Zertuche heads one of Mexico's premier research institutes at the University of Morelos (Universidad Autónoma del Estado de Morelos). He is also a professor of chemistry at the same university. The institute is home to 26 faculty members and conducts doctoral research in all areas of chemistry.

Dr. Fernandez's long journey to the top of Mexico's science establishment began in the northern desert

See page 5, *Fernandez*

Message by the Dean

I've now been in the dean's office for a year and in the permanent position as dean since April 1, 2004. I have been reflecting back over all that has happened. As you remember, it was with deep sadness that we began the last academic year without Dr. Glenn Nagel, our dear in the College of Natural Sciences and Mathematics for the previous seven years. He is still missed, but his legacy remains and the college continues to build on what was accomplished under his leadership. This is an exciting and vibrant college, one that is moving forward in all areas. For example, even in tight budget times, we have continued to hire new faculty. We have five new faculty members starting this fall in the Departments of Biological Sciences, Chemistry and Biochemistry, and Physics and Astronomy. These new faculty members join an outstanding faculty that excels in teaching, research, and service to the university and community.

Although the college continues to face a number of challenges, I'm confident that we will work our way through them in good shape. The economy in California and the budget cuts to higher education this year mean that we have to define priorities so we can continue to offer high-quality programs for both undergraduate and graduate students.

Photo by Victoria Sanchez



We also are going through fluctuations in enrollments as the university

responds to budget cuts and changing enrollment targets from the Chancellor's Office. Our goal, as always, will be to maintain high-quality degree programs and provide infrastructural support for faculty and student research. Private and other government sources of support for faculty/student research and other student initiatives will become more important to offset decreases in state funding. Faculty and staff have been very successful in acquiring external funding, and we anticipate that this will continue.

I reported last year that we were looking forward to moving into our new science building early in 2004. This was delayed until summer. The new 80,000-square-foot Molecular and Life Sciences Center (MLSC) was dedicated on Sept. 10. In honor of all that Dean Nagel contributed to this college and to the acquisition of the new building, the Glenn M. Nagel Courtyard for MLSC was also dedicated that morning.

While the MLSC building was in the process of being completed, we began planning for another science building which will replace PH3. This building will be about 30 percent larger than MLSC and house the rest of the

by Laura Kingsford

Departments of Biological Sciences and Chemistry and Biochemistry as well as the Departments of Geological Sciences, Physics and Astronomy, and Science Education. The college offices as well as the James L. Jensen Student Access to Science (SAS) Center will be located there. Having two new science buildings in a row indicates the extraordinary support on this campus for the sciences and is recognition of our need to have modern laboratories for teaching and research. With the anticipated completion of this new building in 2008, CSULB will have one of the best, if not the best, science complex in the CSU system.

The Department of Chemistry and Biochemistry has an excellent reputation for its programs. Its students continue to excel and go on to professional and graduate programs. New faculty bring energy and ideas and have been highly successful in acquiring external funding for research programs to support undergraduate and graduate student research. New teaching and research space in MLSC will enable the faculty and staff to work in state-of-the-art facilities with new equipment and make a real difference in the quality of education we can provide our students. Thus, lots of good things are happening for the college and the department. We look forward to another exciting and productive year.

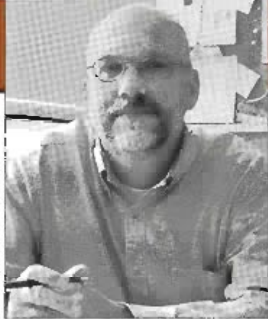


Remarks by the Chair

The 2003-04 academic year held several notable events in the life of our department. This past year, we searched successfully for an analytic chemist with the hiring of Dr. Kasha Slowinska. Dr. Slowinska did her doctoral work at the University of California, Berkeley, and, more recently, she was a staff scientist at the General Electric research and development facility in Albany, N.Y. Her area of research interfaces analytic electrochemistry with cell biology, biochemistry and physiology. She is also married to Dr. Kris Slowinski, who returned to our department this past summer after a yearlong leave of absence. We are most fortunate to have Dr. Slowinska join our faculty. The department has received authorization to perform two faculty searches next year: a physical chemist and a chemical educator. Both searches were approved last year but were cancelled due to budget restrictions. The chemical educator position will be a joint hire between our department and the Department of Science Education. Success in these two searches will strengthen our physical chemistry faculty and will enhance instruction in our introductory chemistry courses.

The group of students in chemistry and biochemistry who graduated this year was one of the strongest graduating classes our depart-

Photo by Victoria Sanchez



ment has enjoyed over the last several years. Most of this year's graduating students

are heading to graduate programs, professional schools, jobs in industry and biotechnology, or teaching middle school or high school. Many received end-of-the-year department awards and honors and were recognized at commencement ceremonies in May. We were very pleased to have one of our biochemistry students, Tiffany Potter, honored as the College Graduate of the Year. Ms. Potter did her research work in Dr. Zed Mason's laboratory (Department of Biological Sciences), and she received a fellowship to work at the National Institutes of Health this past summer. This fall, Ms. Potter entered the M.D./Ph.D. program at Johns Hopkins University (Baltimore). We congratulate her for her outstanding accomplishments.

Arguably the biggest event in the life of our department this past year was the opening of the Molecular Life and Sciences Center (MLSC). The MLSC, which was supposed to have been completed in January 2003, was finally occupied this past summer. The very first courses taught in the new building were General Chemistry 2 (CHEM 111B) and Quantitative Analysis (CHEM 251), and several

by Douglas McAbee

faculty (biochemists, inorganic chemists and organic chemists) were able to get their research labs up and running in the last several months. We were very pleased to have the MLSC and the adjoining plaza area dedicated in ceremonies held in early September, and it was good to see many alumni and friends of the department in attendance at the dedication. The plaza was named in honor of former Dean Glenn Nagel. Obviously, many people have played a role in making the MLSC a reality, but I wish to recognize Dr. Robert Loeschen, professor of organic chemistry and associate dean, for his efforts and hard work in coordinating the building preparation with our college and the relocation of faculty into the MLSC. (Dr. Loeschen was also honored at commencement with receipt of the 2004 Mayfield Award, which recognizes the outstanding professor in the college as voted on by students.) Our department stockroom staff—Joyce Kunishima, Ray Grace and Bertha Macias—also deserve thanks for their efforts in setting up the new issue room and getting all the student lockers and equipment for teaching labs in general chemistry, quantitative analysis, organic chemistry and biochemistry relocated from PH2 and PH3 into the new teaching labs in MLSC.

See page 5, Chair's Remarks





Photos by Victoria Sanchez

Tiffany with Dr. Mason in the lab.

porate a small pool of regular patients into research findings. I originally decided to pursue an M.D. degree in high school; however, working with Dr. Mason for the past four years has sparked a passion for scientific research. By actively participating in both clinical medicine and research, I hope to be able to address relevant clinical problems of my patients in the laboratory and, reciprocally, bring successful laboratory findings bedside to improve the quality of care for my patients."

Potter praised Mason for being a good mentor to his students. "I have no doubt that I am well prepared for an M.D./Ph.D. program, and with the types and amount of sophisticated technology and methods that I have been exposed to in his laboratory, I have all the tools necessary to successfully complete the Ph.D."

Potter's research focused on metal homeostasis, Mason said. "She has successfully prepared a number of apo-proteins using reverse phase high performance liquid chromatography (HPLC) and has recently been reconstituting them using specific stable isotopes," he explained, adding that she also used 2D HPLC interfaced inductively coupled plasma mass spectroscopy to quantify the transfer of atoms between proteins.

"This research is novel and not trivial," he continued. "Indeed, Tiffany had an opportunity to discuss the significance of her findings with Dr. Edmond Fischer, a Nobel Laureate who visited our laboratory."

But Potter's life didn't revolve solely around the lab. She also was a member of CSULB's nationally recognized speech and debate teams and won more than 75 national speaking

awards. She helped start the Urban Debate League in local urban high schools and participated in several community service projects as well as in an improvisational theater group.

Another President's Scholar, Eric Sundberg, graduated this May as a member of Phi Beta Kappa and recipient of the John H. Stern Award in Physical Chemistry and the Inorganic Chemistry Award. This fall, he started medical school at Stanford University, where he plans to focus his studies and research on the goal of becoming a cardiologist.

"I was accepted at Baylor, and I actually got accepted into the M.D./Ph.D. at the Mayo Clinic," he said. "After Stanford, I was really weighing whether or not I wanted to go to Mayo because it's world-renowned and has great facilities. But I decided that I wanted to do the straight M.D. with more of a research emphasis rather than go for 10 more years of school for the M.D./Ph.D. program.

"I'm interested in cardiology, primarily because when I was in high school, I was diagnosed with a second-degree heart block, which came as a complete shock. I played varsity soccer and varsity baseball and come from a family of runners, so I was very active all the time and never expected it," he explained. Opportunities in research and medical practice encouraged him to focus on this field, and "Stanford is very good with their research. It's a smaller faculty than some of the schools, but it's very well funded and the research is highly available to the students.

"Dr. Nail Senozan is the reason I chose to major in chemistry because I was so impressed that the department chair at the time would have his door open constantly and welcome his students. I just didn't expect that in college. I always had this picture of removed professors and not being able to speak with them. Through him I got interested in research, and he recom-

mended that I speak with Dr. (Lijuan) Li. At the time I was applying for a Beckman Scholarship that would fund my research over the summer. I spoke with Dr. Li, and she said it would be great to have me come in. Again, I was impressed because at the time I was just finishing my sophomore year and heard how hard it is to do undergraduate research."

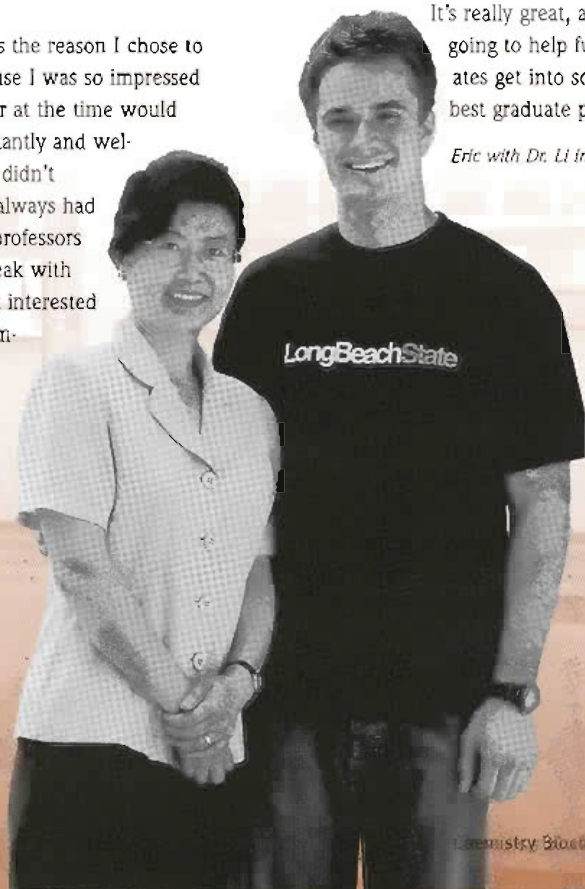
Sundberg became a Beckman Scholar and began conducting research in Dr. Li's laboratory on nitric oxide compounds. "The ultimate goal of our research is to make these compounds that can deliver nitric oxide to biological systems," he explained. "Nitric oxide for the past couple of decades now has been known to do an amazing amount of things in the body. It dilates blood vessels and it can attack cancerous cells, among other things. It's involved in memory storage and just about everything. So, having these mechanisms of delivery is the ultimate goal, but basically it's straight inorganic synthesis, where we're making these molecules that have biological components that also contain nitric oxide."

CSULB has proven to be a good choice for the Sundberg family. Eric's younger brother Michael is following in Eric's footsteps as a chemistry major, President's Scholar and Beckman Scholar. He also earned the Freshman Chemistry Award last year.

"I really think that Long Beach is more than the stereotypical state school, now," Eric remarked. "The reputation precedes the school.

It's really great, and it's going to help future graduates get into some of the best graduate programs."

Eric with Dr. Li in the lab.



town of Torreon, Coahuila, where he was born and where he received his elementary and secondary education. In 1974, at the age of 18, he enrolled in Monterrey Institute of Technology and Higher Studies in Monterrey, Mexico, to study chemistry. At the Monterrey Institute he had the opportunity to work with the late Professor Xorge Dominguez, a Harvard graduate and a distinguished member of the chemistry community in Mexico. By the time he received his B.S. in 1978, Dr. Fernandez knew organic chemistry was his calling. He moved to California in late 1978 and the following fall began a master's program at Cal State Long Beach. At CSULB, Dr. Fernandez writes, "I met another great educator, Ken Marsi, who inspired and motivated me during some difficult moments. Although I never took a formal course from him, in a way I feel as if I did, because I had to be alert at all times when he taught Chemistry 321A or B (organic chemistry). After an exam or a quiz he would call me to his office and ask me to go over the entire test with him. And sometimes he would come to the lab after his lecture and ask me questions about the topic he had just lectured on that day."

Dr. Fernandez finished his thesis with Dr. Marsi in the summer of 1982 and started the Ph.D. program at UC Irvine with Professor Hal Moore. As part of his Ph.D. dissertation, he developed new synthetic methodologies for substituted quinones. His



Dr. Fernandez with his wife Magdalena.

research at Irvine led to five articles in the *Journal of Organic Chemistry* and *Tetrahedron Letters*. His final doctorate examination took place on June 19, 1987, and Dr. Marsi was an honorary member of the examination committee, which also included Professors Hal Moore, Fillmore Freeman and Richard Chamberlain.

After finishing his Ph.D., Dr. Fernandez obtained a postdoctoral position with Dr. Alan C. Sartorelli in the Pharmacology Department at the Yale School of Medicine, where he worked on the development of new antineoplastic agents. Meanwhile, Syntex, a pharmaceutical giant best known for the development of the birth control pill, took notice of Dr. Fernandez for a possible position in their expanding research facilities in Mexico. He joined Syntex Research in Mexico City in 1989 after completing his postdoctoral work at Yale. As a group leader at Syntex, his first responsibility was to develop new anti-ulcer compounds. Dr. Fernandez found research in industry to be quite different than in academia. "Contrary to academic research," he says, "industrial research is always in the context of how much money the company is going to make out of a specific project. Regardless of the good chemistry, regardless of the fact that we were developing new synthetic methodologies, if the compounds did not have the correct pharmacological profile, the company simply dropped the project and directed its scientists to something more 'workable' = profitable." In less than a year following his initial assignment to anti-ulcer compounds, Dr. Fernandez switched first to a project dealing with anti-inflammatory agents, then to another involving immunosuppressive chemicals.

See page 7, Fernandez



Chair's Remarks

In March, California voters approved Proposition 55, a bond measure that will help finance construction and renovation of public school buildings across the state. Our college and department will greatly benefit from this with the construction of a new 120,000-square-foot science building on our campus, which will replace the current PH3 and house all college departments save mathematics. Faculty discussions with the building architects began this past year and will continue periodically over the next two years. PH3 will be demolished sometime in 2006, and the new building will be completed by summer 2008. Construction of MLSC and the PH3 replacement building represents an extraordinary commitment by the CSU and our university toward the health and vigor of the sciences on our campus. When fully completed, these buildings will constitute a teaching/research facility second-to-none within the CSU system.

Our undergraduate and graduate programs in chemistry and biochemistry are strong. As of this past year, we have more than 300 students in our B.S. chemistry, B.S. biochemistry and B.A. chemistry programs, and we have about 25 students in the two M.S. programs in the department at the beginning of the fall 2004 semester. This past year, our faculty as a group showed good research productivity as reflected in papers published in peer-reviewed journals and acquisition of extramural research grants, and the number of research opportunities for our graduate and undergraduate students continues to be high. These accomplishments by our faculty are even more notable when viewed in the light of diminishing resources from the state. In response to the state's financial difficulties, our department budget has been cut by 14 percent in the last two years. By necessity, these budget reductions have been made almost entirely in non-faculty salary budget categories, which have put much stress on the college's and department's resources and required that our full-time faculty increase their instructional loads. Thus far, we have not had to cut courses, though the number of sections of certain courses (biochemistry, physical chemistry) has been reduced. Thus, the financial support we receive from alumni and friends of the department has been crucial for the department to maintain various teaching and research endeavors of our faculty and students. We deeply appreciate the donations we received this past year, and we are most grateful for your continued support for the coming year.

(Editor's note: After serving 34 years as a professor and for many years as director of the Office of University Research, Dr. Mayfield retired in 1990. In appreciation of his dedication to teaching, the students of the College of Natural Sciences and Mathematics established the Mayfield Award, which is given annually to a professor selected by the students to be the best.)



Photo by Joseph Heston

Chemistry/Biochemistry

by Darwin Mayfield

On the Verge of the Big Five-Oh

Is the Department of Chemistry and Biochemistry showing its age, or would it be preferable to say it is coming of age? Neither statement quite fits a department, which employed its first full-time faculty member in the fall of 1954. Now there are more retired faculty than active full-timers. At that time, makeshift laboratory instruction began in a temporary building (long since demolished) near the site of the present social sciences/public affairs building on Anaheim Road. Fifty years later, Chem/Biochem has just moved in to the top floor of an impressive new science building with modern laboratories for instruction and research. Some of the laboratories and offices have a view directly down the hillside to the site of those humble beginnings.

Space Age) and the exponential growth of the present California State University system.

The Chem/Biochem group, as well as other science faculties, went almost overnight from crowded four-person offices (more densely packed than present-day corporation cubicles) to space, space and more space. Remnants of the resulting room rush (49ers Indeed!) exist to this day, and folklore of those long-gone days still remains here and there in more or less reliable form (perhaps the academic counterpart of urban legends).

Three of my favorite legends are: (1) the Day Automobiles Became Auto and Mobile; (2) the Proof of Newton's First Law of Motion; and (3) Respected Faculty Members Risk Arrest for Heinous Capital Crime.

(1) Automobiles—In November 1955, the faculty of the Natural Sciences Division were still moving into the new science building (remember, west two-thirds of PH-2). No lot had yet been developed, so faculty autos were

the far east end. One of our most creative physicists suggested that we test Newton's First Law using a bowling ball. The person who succeeded in rolling the ball to the far end without hitting a wall would be treated to selected refreshments by the others. I failed to get beyond the strip on the floor, which still marks the division between the original science building and the slightly later addition. A couple of physicists were successful, I believe, leaving the chemists a bit on the huffy side.

(3) Capital Crime—The early days of the small Natural Sciences Division were marked by much interdisciplinary mingling. Everyone was there to help colleagues. One morning, word was sent from the UCLA Medical School that an appropriate cadaver was now available for use in our human anatomy class. One of the biology faculty members signed out a state car (a station wagon with a rear loading panel) and found a chemist who volunteered to go along to assist in the pickup. The 405 freeway



Photos by Victoria Sanchez

What happened between then and now? The first permanent building containing facilities suitable for laboratory instruction in chemistry opened in fall 1955. These facilities were on the top floor of the west two-thirds of the building that is now known as PH-2. In the following five years, the east section of PH-2, as well as all of PH-1 and PH 3, were added in a frenzy of science facility construction. Impetus for this activity was the Soviet launch of Sputnik I (the satellite that introduced the

parked on the dirt hillside just north of the building—approximately the area now occupied by our recently opened science lab/research (MLSC) building. In mid-November, a typical, drenching first rain of the season pelted down all during the day. As late afternoon approached, the carefully parked cars literally slid to the bottom of the slick and muddy hill. Imagine the mess!

(2) Newton's First Law—Picture yourself looking down the long, long first floor hallway of the newly enlarged PH-2 from the west to

did not yet exist, so the most convenient way to UCLA included a long run down Wilshire Boulevard. The pick-up of the container and contents went smoothly, but while driving back in heavy traffic along Wilshire, it was noticed that the rear panel of the station wagon had sprung open, perhaps a few blocks earlier. Fortunately, the contents hadn't moved. Imagine otherwise:

Faculty Member: "Officer, I can explain everything."

Officer: "Sure you can."



In Memoriam: Louis E. Perlgut

by Jeff Cohlberg

Louis E. Perlgut, a former biochemistry professor in our department, died on December 4, 2003. Lou served on the faculty from 1965 until his retirement in 1982.

Lou is perhaps best remembered for his long-time teaching of Chem 300, the organic and biochemistry course for nurses and physical therapy majors. A strong believer in the importance of organic mechanisms, Lou started out by giving his students a strong background in organic mechanisms, then taught biochemistry from a strongly mechanistic point of view. Those of us who taught lab sections of the course marveled at the sight of beginning nursing students effortlessly pushing electrons with arrows and drawing resonance structures of the thiamine-pyruvate adducts in the pyruvate dehydrogenase reaction! His avuncular manner helped to win him widespread affection from his students. A significant number of fledgling nursing students switched their major to biochemistry after taking Chem 300 with Lou and getting excited about chemistry.

Lou was born in New York in 1915 and grew up in New Brunswick, N.J. He graduated second in his class and Phi Beta Kappa with a

B.S. in chemistry from Rutgers University in 1937, then continued for an M.S. in organic chemistry. During World War II, Lou worked for Squibb Pharmaceuticals, then joined his father and brother in the family retail fur shop in New Brunswick. In 1962, he decided to enter the doctoral program in biochemistry at Rutgers. He finished in two and a half years, and in 1965, Lou received his Ph.D. at the same time that his son and daughter received their master's and bachelor's degrees. Lou's first wife, Mildred, died in 1991, and he remarried Adrienne Werner in 1997.

Lou's research at CSULB focused on two areas. One, a continuation of his work in the lab of W. W. Wainio at Rutgers, centered around demonstrating the presence of phosphohistidine and phosphoiodohistidine in mitochondria and investigating their possible role as high-energy intermediates in ATP synthesis. This work was done before the universal acceptance of the chemiosmotic model for ATP synthesis featuring the role of the transmembrane proton gradient. Another area concerned the roles of cations on DNA structure and cleavage. One of Lou's papers in this area, published in *Nature*, con-

tained the first demonstration of the formation of triple-stranded DNA in vitro, which used naturally isolated DNA rather than synthetic polynucleotides. Work in subsequent years has shown that triple-stranded DNA and RNA structures appear to play a significant role in gene regulation.

Lou also served as the first graduate adviser for the M.S. program in biochemistry, from its inception in the late sixties until 1977. He is fondly remembered by several generations of biochemistry M.S. students for his supportive counsel and his sage advice. Lou also served as department chair for one year in the early seventies.

In order to honor Lou's memory, his family has set up the Louis Perlgut Scholarship Fund. The proceeds will be used to fund awards to deserving graduate students in biochemistry to pay their student fees. This is especially welcome at a time when fees have risen sharply in the last few years. Donations are welcome and should be sent to Community Foundation of Tompkins County, 309 N. Aurora St., Ithaca, N.Y. 14850. Checks should be made out to the Community Foundation, and donors should specify that the donation is for the Louis Perlgut Scholarship Fund.

Fernandez

In 1992, Syntex built a superb research facility in Cuernavaca, a town located 50 miles south of Mexico City and famous for its eternal springs and lush subtropical gardens. In Cuernavaca, Dr. Fernandez continued to work on a different set of anti-inflammatory agents, the so-called COX II inhibitors.

Shortly after moving to Cuernavaca, Dr. Fernandez was approached by the University of Morelos to teach organic chemistry part-time. The position turned into a full-time appointment when he joined the faculty in 1995 as an associate professor. At about the same time, the Swiss pharmaceutical giant Roche bought Syntex and ceased all research in Mexico. Dr. Fernandez's first task at the university was to initiate a Ph.D. program in chemistry, not only in the area of his expertise—organic chemistry—but also strong programs in inorganic and physical chemistry. Roche's decision to stop research helped him to

accomplish this task. He was able to negotiate the donation of major research equipment such as a 200 MHz NMR instrument, entire stockrooms of chemicals and an extensive chemistry library from Syntex (Roche). Meanwhile, with grants from the National Council of Science and Technology, he continued research on alkylation reactions of chiral enolates and was able to publish a series of papers that earned him a promotion to full professor and tenure in 1999.

The Chemistry Research Institute (Centro de Investigaciones Químicas), which Dr. Fernandez now leads, was established in 1996 through the efforts of Gerardo Avila, then president of the University of Morelos. Through grants and assistance from the Federal Education Department, Dr. Fernandez succeeded in furnishing the institute with state-of-the-art instruments and equipment as good as in any American university. The doctorate program at

the institute is now nationally recognized and the National Council of Science and Technology certifies it. The certification is important in that it assures all students in the program will receive a national fellowship for the duration of their Ph.D. work. Dr. Fernandez and his colleagues' next goal is to achieve international recognition and "to show the world that we can do high quality work, here, in Mexico."

"On the personal side," he writes, "I am married to Magdalena since 1991. She is an M.D. (family doctor), who works at a local federal government hospital. We own a beautiful house in a very nice neighborhood in Cuernavaca. I play the piano, enjoy classical music and frequently travel around the country and abroad."

DRESS

Code

(The following passage is from a 1960s "Graduate Student Handbook in Chemistry.")

Each graduate assistant and teaching assistant is expected to dress and maintain his person in good taste. Normally men will wear dress shirt, coat and tie while carrying out their teaching duties in a classroom or lecture hall. Women will wear a dress, suit or skirt and blouse. Capris, shorts, etc., are absolutely inappropriate. During very warm weather, sport shorts will be considered appropriate for men. Sweaters are considered as an appropriate substitute for a coat.

These dress policies are necessary since most students react more favorably towards an instructor who acts and appears professional. Certainly no student will find it distasteful for his instructor to make a good appearance. Further, there is considerable merit in an instructor setting himself apart from the student in an appropriate and constructive manner.



Barry M. Trost

2003 Allergan Distinguished Visiting Lecturer

by Stuart Berryhill

On September 24, 2003, the Department of Chemistry and Biochemistry hosted a visit by Professor Barry M. Trost from Stanford University. Professor Trost was the 24th Distinguished Visiting Lecturer in a series that began in 1980 and has become a highlight of each academic year. This lectureship is currently supported by the Allergan Corporation.

Professor Trost earned his Ph.D. in Chemistry at MIT in 1965 and was a member of the faculty at the University of Wisconsin for over 20 years before moving to Stanford University in 1987, becoming the Tamaki Professor of Humanities and Sciences in 1990. He has been the chair of the chemistry department since 1996. He is the author of more than 720 scientific publications and is a Fellow of the American Association for the Advancement of Science, a member of the National Academy of Sciences and a fellow of the American Academy of Arts and Sciences. He has received numerous awards, most recently the ACS Nobel Laureate Signature Award for Graduate Education in Chemistry in 2002 and the Arthur C. Cope Award of the ACS in 2004.

Professor Trost's research work has covered the entire field of organic synthesis with emphasis placed on the development of new methodology. Among the areas he has pioneered are the use of sulfur-based reagents and transition metals in the synthesis of complex molecules. He is also known for his synthetic strategies, which utilize the concept of "atom economy."

The first of his two lectures at CSULB titled "Chemistry and Biology: Merging Sciences?" gave a historic overview of the development of organic chemistry, which began with the desire to understand physiological chemistry and subsequently expanded to include all of the chemistry of carbon. Professor Trost identified catalysis as an important unifying theme for current research in chemistry and biology. Organic compounds can be made using either chemical or biological catalysis. Enzymes are very useful, but they suffer from a number of practical limitations. The challenge for organic chemists is to develop simpler systems that still operate with the high level of selectivity associated with enzyme mediated reactions. To that end, Professor Trost has been working on the development of "chemist's enzymes." These are transition metal-containing catalysts which can perform reactions with high selectivity, and he described their application in the synthesis of several drugs. He mentioned an estimate of 3×10^{32} possible different drug molecules using combinations of 30 or fewer of the non-hydrogen atoms that are common in organic structures to show the possible kinds of organic reactions.

A second lecture, "On Inventing New Reactions for Atom Economy," focused on some of the details of Professor Trost's recent research in the development of an effective catalyst for the control of chirality in allylic alkylation reactions. A reception following this lecture gave students and faculty an opportunity to meet and speak with Professor Trost.

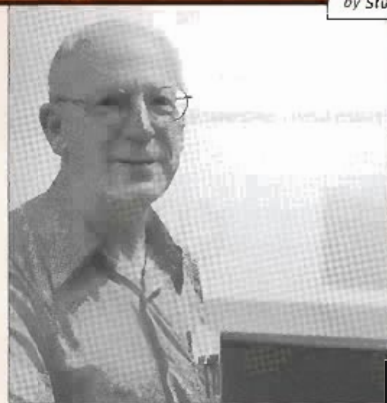


Photo by David J. Nelson



DR. XIANHUI BU Publishes in *Nature*

(Editor's note: Last November, Dr. Xianhui Bu co-authored an article on synthetic inorganic chalcogenides with potential applications in the areas of fuel cells, electrochemical sensors and photocatalysis. The article, which was based on work done before Dr. Bu joined our department, was deemed to be so important that it was published as the cover story (below) in *Nature*, a science journal regarded by many as the most prestigious in the world. The following is Dr. Bu's report.)

My first year at Long Beach has been fairly smooth, thanks to the release time given to new faculty members and the help and advice from staff and faculty members around the department and the college. The delay in the opening of the new building allowed me extra time to work on several research papers. I contributed to two review papers: one for the *European Journal of Organic Chemistry* and one for the *Accounts of Chemical Research*, and one book chapter for the *Encyclopedia in Inorganic Chemistry*. The review paper for the *European Journal of Organic Chemistry* was highlighted as the cover story. I also found time to

write two grant proposals, one of which (ACS-PRF-G) was luckily funded. Much of the above was done in the fall semester of 2003.

Teaching in the spring of 2004 brought much of everything else to a halt, as I was busy preparing Power-Point notes for CHEM 111B. Teaching such a course for the first time was also a big learning experience for me. One exciting event in the summer of 2004 was the installation of an X-ray diffractometer in Room 325A, MLSC. Of course, moving into the new building itself is exciting, too. I look forward to another challenging year at Long Beach.

New Chemist

by Douglas McAbee

Joins the Faculty

This past year, the department completed its search for a new analytic chemist with the hiring of Dr. Katarzyna (Kasha) Slowinska. In 1997, she received her university diploma (comparable to an M.S. degree) in electrochemistry from Warsaw University, Poland. In 2003, she was awarded a Ph.D. in chemistry from the University of California, Berkeley following her work with Dr. Marcin Majda. She then was employed as a chemist at the Global Research Center with the General Electric Co. Dr. Slowinska has several publications from her dissertation work in the area of electrochemistry. Her referees lauded her creativity and her proclivity for pursuing questions of broad significance in the field of electrochemistry. In particular, Dr. Majda emphasized that her efforts developed what had been a nascent and technically intractable project into a robust research endeavor that now occupies the focus of three Ph.D. students in his lab.

Dr. Slowinska plans to pursue research in the development of implantable biosensors, a research program that will readily involve undergraduate students, M.S. students and CNSM faculty collaborators. Her outstanding background in analytic and electrochemistry will also complement current department faculty research programs in analytic and inorganic chemistry and in biochemistry. While at UC

Berkeley, Dr. Slowinska taught laboratories in general chemistry and analytical chemistry, and she was able to teach Quantitative Analysis (CHEM 251) this past summer in our department. During her first year in our department, she will teach Quantitative Analysis and Introduction to General Chemistry (CHEM 101). Her engaging manner in the classroom predicts that our students will enjoy her instruction very much.

Dr. Slowinska is married to Dr. Kris Slowinski. They met in high school in Poland and both attended Warsaw University. Through a set of somewhat unusual circumstances, they found themselves together at UC Berkeley a few years later. They were married eight years ago and now reside in Long Beach. Kasha enjoys all types of music (classical, popular, rock), and she shares with Kris a love of opera, though she says, "I like opera—Kris is crazy about opera." She also enjoys cooking and swimming.

The department is very fortunate to have attracted Dr. Kasha Slowinska to our university. We expect she will make a significant impact on the quality of research and instruction in our department and college.





Reports from Faculty

ROGER ACEY

It's been a very exciting year for us, moving into the new Molecular and Life Sciences Center (MLSC), having a patent issued on a novel gene sequence we cloned from *Artemia* and getting into the area of stem cell differentiation. I've been fortunate to have a group of very bright, hard working and enthusiastic students in my lab. Gwen Jordaan, microbiology major, is an NSF scholar and has been working on expressing *Artemia* metallothionein in insect cells. We hope to produce enough of the protein to determine its crystal structure. I hope to persuade Gwen to join the lab as a graduate student. Rene Miranda has been expressing the protein in bacteria, and Dr. Zhou at CSULA has been using the protein for his electrochemical experiments. Axel Krichhof, an exchange student from Germany, has been working on expressing metallothionein as a metallothionein/intein fusion protein. We're hoping

Faculty and staff standing from left: Doug McAbee, Tom Maricich, Bertha Macias, Bob Loeschen, Ray Grace, Marco Lopez, Kasha Slowinska, Roger Acey, Roger Bauer, Paul Weers, Lijuan Li, Henry Po, Nail Senozan and Dot Goldish. Kneeling from left: Paul Buonora, Mike Myers, Dennis Anjo, Thach Ho, Xianhui Bu, Bob Soukup and Eric Martinez.

this will eventually lead to increased yields of protein. Kyla Perkins, a Howard Hughes Medical Institute (HHMI)/MARC scholar, has been working on the stem cell project. Years ago, we were able to show that metallothionein is expressed during cell proliferation. We'd now like to know if the protein is expressed during stem cell differentiation. Amanda Bluns is the most recent addition to the lab. She is an NSF scholar and is working on the metallothionein project.

Srividya Raman and Simon Moon are the senior graduate students. Wafa Mana joined the lab this summer. Srividya has recently detected sialic acid on one of the subunits of RNA Polymerase II. We are trying to determine if this modification is developmentally regulated and whether it is a potential mechanism for regulating enzyme activity. Simon is looking at the extent of histone H1 glycosylation. He has some evidence that the presence of sialic acid regulates the dimerization of the histone. Interestingly, this dimerization occurs during periods where transcription is undetectable. Wafa will be looking at the effect of phthalate esters on stem cell differentiation. In particular, we'd like to determine the effect of these compounds on cholinesterases during neuron differentiation.

In conjunction with these studies, we have been working with Dr. Ken Nakayama's group to evaluate a class of cholinesterase inhibitors that might be applicable in the treatment of neurodegenerative diseases such as Alzheimer's. Ken Law and Dave Benton, both graduating seniors, reported their results at the recent ASBMB meeting in Boston. Dr. Nakayama and I are very excited about using these compounds to delineate the role of cholinesterases in normal neuron development.

This summer, I taught a workshop entitled "Phage Display: Principles and Applications." This is a powerful technology for looking at protein/protein interactions. Moreover, it can be used to generate "designer antibodies" with unique binding properties without the use of animals.

I will be on leave next year. My goal is to spend the year in the lab, working on the stem cell project and writing proposals. Finally, my group and I would like to invite everyone to stop by and see our new surroundings. We're buying lunch!

CHRISTOPHER BRAZIER

My research on the visible jet-cooled emission spectrum of boron dimers continued this year with the assistance of Jose Ruiz, a junior chemistry major. While I had observed some of the bands previously, the results with the instrument I have constructed here were so much better that we decided to repeat the earlier observations. The work is now complete, but the data analysis is ongoing. We are beginning the search for a



Dr. Acey's research group. From left: Dave Benton, Simon Moon, Axel Kirchhof, Gwen Jordaan, Srividya Raman.

new, so far unobserved, molecule: silicon bond. This project is supported by a grant of \$35,382 from Research Corp., beginning this past May.

This fall, I had the pleasure of teaching General Chemistry 111A for the first time. This is the first, and sometimes only, time that students see college chemistry, so I have tried to imbue the students with a sense of the wonder and joy of chemistry. I have continued to teach the 371A/B sequence of physical chemistry and co-teach the physical chemistry laboratory with Peter Baue. I also had the chance to teach a full graduate course in spectroscopy, and we were able to cover all of the details required to understand how the properties of a molecule are displayed in its spectrum.

JEFF COHLBERG

I've continued my research on the role of superoxide dismutase (SOD) aggregation in amyotrophic lateral sclerosis (ALS, Lou Gehrig's disease). The work of Zeynep Oztug, a grad student in the lab, has shown that SOD forms amyloid, a type of fibrillar aggregate associated with many other diseases such as Alzheimer's and Parkinson's disease. SOD forms amyloid under conditions that promote loss of the copper and zinc ions associated with the protein and is accelerated by mutations linked to ALS. A manuscript describing our results will have been submitted (and hopefully published) by the time you read this. Co-authors include undergraduates Sean Downes and Chris Bowman, as well as our technician Shelby Padua, along with members of Chuhhee Kwon's lab in the Physics Department and Joan Valentine's lab at UCLA.

A new graduate student, Stan Walls, is joining the group this fall. Our new technician is Krista Ehrenciou. Krista replaces Shelby, who will be starting UCLA dental school. Sarah Wilkins, another undergraduate in the lab, will be at Duke University Medical School this fall.

The work continues to be supported by the ALS Association.

We're very much enjoying being in the new building, and our work has been very much helped by our new Jasco J-810 spectropolarimeter (for circular dichroism measurements), funded by the equipment fund for the building. (Awesome signal-to-noise ratio!)

I had the pleasure of teaching Chem 302, the organic-biochemistry course for nursing majors, for the first time this past spring. While not all the students in the class have a positive attitude towards chemistry, many of the students had a youthful energy that made the course fun. It was quite a change of pace from Chem 441AB.

LIJUAN LI



Dr. Li with Nail Senozan

Activity of Mononuclear Iron and μ -oxo Diiron Complexes with Ligand 2,6-bis (N-methylbenzimidazol-2-yl) Pyridine." *Inorganic Chemistry*, 42, 7799-7808, (2003); L. Li, N. Reginato, M. Urschey, M. Stradiotto and J. D. Liarakos, "The Synthesis and Crystallographic Characterisation of Linear and Cyclic Dinuclear Complexes Containing Bis(phosphine) Bridging Ligands." *Canadian Journal of Chemistry*, 81, 468-475 (2003). She has also given two invited talks on iron nitrosyl compounds at the American Chemical Society Western Regional meeting, which was held in Long Beach in October 2003. In addition, her students and postdoctoral associates have presented six papers at this meeting and nine papers at the National Meeting of the American Chemical Society in Anaheim in 2004.

Dr. Li writes, "Four of my students graduated this year. Peter Do finished his M.S. degree and will attend Nova Dental School in Florida. Eric Sundberg, Malin Backlund and Kara Schones all finished B.S. degrees and are going to join Medical School at Stanford University, Ph.D. program at UC Irvine and Boeing Co., respectively. Jennifer Aral, who started working in Angen in fall 2003; Gian Gacho, who joined the Ph.D. program at USC in spring 2004; John Liarakos, who joined Varian Co. in 2004; and Moe Shaaban, who is working in Irvine, are all writing their M.S. theses. I am so proud of them."



Dr. Li and her research group. From left: Dr. Ximeng Wang (post doctoral researcher), Kara Schones (undergrad), Eric Sundberg (undergrad), Dr. Li, Peter Do (grad), Gian Gacho (grad) Chatalie Sheth (undergrad), Malin Backlund (undergrad), Jasmine Shaw (undergrad) and Rosmary Tajiboy (grad).

Last year Dr. Li published two papers with her students and postdoctoral associates: X. Wang, S. Wang, L. Li, E. B. Sundberg and G. P. Gacho, "Synthesis, Structure and Catalytic

MARCO LOPEZ

Among the most significant changes in Chem 420, we made the exams take-home and issued them through BeachBoard. Since these exams are largely tests of students' abilities to derive molecular structures from spectroscopic data, limiting them to one hour was an artificial constraint and did not reflect how practicing chemists solved problems.

During the last year, the research activities of the "Heme Team" focused on methods for measuring and analyzing UV-vis data to yield binding constants of substituted imidazoles to hemes (iron porphyrins). Cynthia Ybarra supervised all laboratory activities. In addition to the binding constants, a number of experiments were done during the semester by Marcelle Dibrell and, during the summer, by Deyell Finney and Lillian Castaneda under Cynthia's supervision. We have also worked to improve the operation of the nitric oxide delivery system and the flash photolysis kinetics apparatus, including the nanosecond laser.



Dr. Marco Lopez with research associate Cynthia Ybarra installing their laser equipment.

Last fall, I organized a symposium on recent developments in bioinorganic chemistry with emphasis on nitric oxide chemistry. This symposium was a part of the 38th Western Regional Meeting of the American Chemical Society, which was held in Long Beach. Finally, we published the M.S. thesis work of Nancy Gardner in the journal *Inorganica Chimica Acta*.

We recently received news that our application to the RISE program is to be funded. People who helped plan and write the grant included Margaret Merryfield, Laura Kingsford, Edite Charakhanian, Henry Fung and Ruth von Blum. We requested \$2.8 million over four years for the purpose of increasing the number of students from under-represented minority groups going on to doctoral programs in the biomedical sciences. We hope all of our requests will be funded, and we will know by early fall if they are.

TOM MARICICH

This past year, I took a one-semester sabbatical in residence to continue work on my research projects. In my absence, Jeff Cohlberg coordinated the department seminar program. Now that I'm back, please contact me at tmaricic@csulb.edu, if you would like to present a departmental seminar in 2004-05.

My research students continue to make progress on their projects. Andrea Chen, at the publication date of this newsletter, will have completed her master's thesis and is teaching classes at CSULB this fall. Daniel Savino, a Howard Hughes Medical Institute Scholar, and Douglas Thai are working on a new route to sulfonimides by the reaction of chloramines with sulfinate esters. Alethea Poste and Orno Aisagbonhi, both HHMI Scholars, have developed better methods of synthesizing ethyl and methyl sulfonimides and studied alkylation reactions of N-acetylcysteine and cholesterol. Both entered medical school programs this past summer. I was also very fortunate to have Sylvia Kim join our group this summer on vacation from Wellesley College in Massachusetts. She is a local honor student from Torrance, who is preparing for pharmacy school and contributed to the project on alkylation of cholesterol.

On a personal note, my past year was somewhat complicated by a pancreas transplant I received last October (in the middle of my sabbatical). I was insulin free for about six months, but the pancreas was rejected. Fortunately, my original pancreas is still there, and I'm managing my diabetes better. I want to thank all of my colleagues, staff, students and friends who have been so supportive during this past year. Of course, my wife and family were always there for me, too.

I'm looking forward to a great year and wish the same for you.

DOUGLAS McABEE

The 2003-04 academic year was quite busy for me and for members of the lab. Most notably, several students finished their work to move on to new ventures. Within a week of each other this last spring, Cathie Overstreet and Pat Pierce successfully defended their respective M.S. theses. Cathie has been in the doctoral program in molecular and cell biology at the University of California, Irvine for the past year and, not surprisingly, is really enjoying the work and environment. Pat's thesis was voted outstanding thesis from the department this year. He has been able to take on more instructional responsibilities in the department as a lecturer. Grace Jung left the lab last fall to join a research team at UCLA

Medical School. She is still finishing up her thesis on expression and characterization of lactoferrin-transferrin recombinant hybrid proteins. Vincent Yee also left the lab this past fall and is currently working for a biotechnology start-up company in Riverside. He is in the process of writing his thesis on the effects of in-vivo Fe loading on the activity, expression and dynamics of asialoglycoprotein receptors, the Ca^{2+} -dependent hepatic lactoferrin receptor. The loss of these four graduate students had its effects on the lab because they all left within a few months of each other. They have been missed, but I am very pleased that each of them is doing very well in their current pursuits.

Vanessa Martin and Jennifer Laprise worked in the lab this past year and will continue on this next year. Jennifer spent last summer in England (Oxford University) as a MIRT fellow, working in Dr. Robert Evans' lab. She's brought a lot of enthusiasm to the lab from that experience. Vanessa and Jennifer are working on various aspects of the project that are focused on understanding serum lactoferrin-binding proteins. In particular, Vanessa has been studying the interaction of lactoferrin with complement C4.

We welcomed several new people into the lab this year. Sid Seth, a graduate student, began working in the lab in the fall, taking over the lactoferrin-transferrin hybrid protein project from Grace. Giovanni Castor, Ivan Godinez and Joshua Lawanson joined the lab during the spring 2004 semester. Giovanni is an HHMI undergraduate fellow, and he's working on understanding the Fe-dependent changes in expression of the asialoglycoprotein receptor. Ivan is looking at the interaction between lactoferrin and α_2 -macroglobulin. Josh has focused his attention on comparing changes in lactoferrin-binding proteins isolated from bovine sera at different developmental stages (fetal, calf, adult).

In June and July of this last summer, we relocated our lab from PH3 to our new space in MLSC. My role in this was quite limited. Sid, Giovanni, Ivan, Vanessa and Jennifer, to whom I am most grateful, did almost all the hard work. The only problem right now is that I have essentially no idea where things are!

My main priorities this next year (besides finding out where things are in the new lab) will be to submit a grant to NIH to support our work (October) and finish and submit two manuscripts for publication. I'm looking forward to a productive 2004-05.

MARGARET MERRYFIELD

This year (my 20th at CSULB!), I continued to be heavily involved in university matters; the single

most time-consuming task was chairing the search committee for the associate vice president of Graduate and Undergraduate Programs. Next year, though, will be the most intensive yet, as I begin a term as chair of the Academic Senate. I'm looking forward to this new challenge.

I continued to serve as program director for the HHMI Honors in Biological Sciences program, which involves around 100 students in the Department of Chemistry and Biochemistry and the Department of Biological Sciences. We have one more year of grant funding to support student researchers, curriculum reform and faculty development. One of the projects we plan to implement this year is a faculty-mentoring program for students in their first couple of years at CSULB.

MICHAEL MYERS



Dr. Myers and his research group. Front row from left: Hai Le, Thanuki Ranatunga, Rene Quintanilla. Back row from left: Chon Lai, David Siegel, Dr. Myers, Robert McCone.

This year has been an exciting time of transition for my new lab group. After starting in a temporary lab in the microbiology building two years ago (thanks to space, support and materials given to my group by fellow biochemist Dr. Roger Acey), we are finally in our permanent home in the new Molecular and Life Sciences Center.

At the time of this writing, we are in the final stages of setting up an electrophysiology rig in the new lab. This equipment consists of an Olympus inverted fluorescent microscope mounted on an air isolation table. Using an electrical recording system capable of recording pico amps of current, we will begin to patch clamp and image live cells.

My research involves investigating the structure and function of ion channels with a focus on potassium channels. We are currently looking at ion channel expression in stem cells from the umbilical cord. Using our new equipment, we will be able to detect potassium currents in these cells. With funding awarded to my group by the Research Corporation this year, we will also investigate the effects of Nitric Oxide (NO) on stem cell development and possible modulation

via ion channel activation. Some of this work will involve a collaboration with Dr. Li in the department. We plan to test some of her group's NO compounds on the stem cells. This is an exciting area of research as we strive to understand and possibly modulate how stem cells differentiate into neurons and other tissues. The possibility this research holds for curing human diseases is endless.

My group is also looking at probing potassium channels with fluorescent scorpion venoms to further define their structure. Since the 2003 awarding of the Nobel Prize in chemistry to Rod MacKinnon for his work on solving the crystal structure of a bacterial voltage gated potassium channel, a huge debate has ignited in the field over the true in vivo structure of the channel. Our toxin probes will help to evaluate that structure. We also plan to use them on the stem cells to see if blocking ion channels alters their differentiation.

I have continued my interest in chemistry education here in the Chemistry and Biochemistry Department. My teaching responsibilities include teaching general, organic and biochemistry to the nursing students. With 3E funding awarded to me through the university this year, I will work to create a new integrated chemistry course for the nursing majors. This five-unit lab course will combine two classes into one and streamline the chemistry education of our nurses. The grant will allow me funds to test and evaluate new inquiry-based teaching methods and labs. This active learning approach has proved successful with our pre-service elementary students. Lecturer Nancy Gardner continues to inspire and collaborate with me in this area. We plan to submit this work to the 2005 International Conference on Education in Honolulu, Hawaii. This would be our second and my third year in a row presenting data from the department at this prestigious conference along with other faculty from CSULB. We continue to strive to find the best instruction practices for our students and to be local, national and international leaders in this arena.

I look forward to continuing my research and teaching work with all the graduate and undergraduates students in my group. I would like to thank the college, department, faculty and students who have given their time, finances and support to my new research group over my start-up period. I know I could not have accomplished what I have this year without all of your help and support. We have the best students, faculty and administrators here at The Beach!



Photo by Victoria Sanchez

Dr. Nakayama and his research group. From left: Connie Nguyen, Cameron Smith, Chinda So, Sotiria Contos, Dr. Nakayama, Wendy Shoemaker, Kim Trinh and Ken-Shing Law.

KEN NAKAYAMA

This past academic year, our group has worked very hard to finish the first round of the enzyme inhibition studies, work performed in collaboration with Professor Roger Acey's research group. Undergraduates Ken Law (HHMI and President's scholar), Wendy Shoemaker (HHMI scholar) and Cameron Smith (HHMI and President's scholar) have been working on the synthesis of a series of alkyl phosphates that have shown very interesting cholinesterase inhibition properties. Professor Acey and I are currently writing the manuscript for this work. Meanwhile, Sotiria Contos (M.S. degree candidate) has been completing the synthesis of some optically active trialkylphosphates, to be used soon for inhibition studies. Two other HHMI scholars, Lulu Chen and Salemiz Sandoval, worked tenaciously to successfully solve a problematic step in the synthesis of a series of substituted phenols. Cameron, Lulu and Wendy, along with Sam Marrs (an M.S. candidate starting in the fall), also contributed to our chiral phosphoramidate project during the spring. Ken will be entering the Ph.D. program in chemistry at Yale in the fall. Sotiria has been accepted into the Ph.D. program in chemistry at UCLA, while Salemiz will begin her Ph.D. program in biochemistry at UCLA. I was also very pleased to have Long Nguyen, a post-baccalaureate student join our group to work out the details of an esterification experiment, which we plan to submit to the *Journal of Chemical Education*. It was also a very pleasant surprise to be visited by Randy Goff, who worked in our group as an undergraduate researcher in 1999. Randy is finishing his Ph.D. in bioorganic chemistry at BYU with Professor Paul Savage and is thinking about applying for a postdoctoral position at Scripps Research Institute soon.

The major news in our department this year is the relocation of many of us into the new Molecular and Life Sciences Center.

Personally, our daughter Karissa (five years old) is now quite verbal, being able to construct fairly complex sentences in Japanese, much to the surprise of her parents. Our son Kendall (two years old) is still a man of few words. He is, how

ever, quite active around any electronic equipment, busily "adjusting" the original settings. They continue to be a source of wonder for my wife and me.

HENRY PO

This is my first year on the faculty early retirement program, and I have been able to enjoy my off semester doing some research. A manuscript with Chosu Khin on the kinetics and mechanism of the oxidation of thioamide by Ag(II)-cyclam has been accepted for publication by the *Journal of Coordination Chemistry*. Chosu presented this paper at the 38th ACS Western Regional Meeting last October. Dr. Senozan and I also presented a talk, "The Henderson-Hasselbalch Equation: Its History and Limitations," at the ACS Western Regional Meeting. Recently, I have been collaborating with colleagues at UCI on computational chemistry using various OM softwares. We are studying the mechanism on how tautomers affect the formation of disulfides.

News from former research students: Janet Hunting is finishing her Ph.D. at Cornell University with Dr. Da Salvo in September; Chosu is in her second year at UCSB with Dr. Ford, and she plans to take her oral examination this year; and Dr. Kenneth Huang has accepted a teaching position at Merced College.

KRIS SLOWINSKI

The 2003/04 academic year was full of expected, and sometimes unexpected, events. I spent the last 10 months on a leave of absence from CSULB, working at the General Electric Global Research Center (GEGRC) in Niskayuna, N.Y. GEGRC is one of the largest industrial research laboratories in the world. It employs approximately 2,000 researchers, including over 750 Ph.D.s. I was involved in some interesting nanotechnological approaches to medical imaging.

Even though I was away, my research career at CSULB did not stop. Two undergraduate students from my research group, Roger York and Phuong Nguyen, co-authored a paper in the *Journal of American Chemical Society* (York, Nguyen, Slowinski, 2003; 125, 5948). I am especially proud of this accomplishment because *JACS* is one of the most prestigious (if not the most prestigious) of the chemical journals, and our research was done completely at CSULB and without any external collaboration. Another paper published in 2003 was co-authored by Roger York (York and Slowinski, *Journal of Electroanalytical Chemistry*, 550-551, 327).

In 2003, we also received a SCORE NIH grant for the investigations related to electrical conductivity of 2-D DNA assemblies on elec-

trodes. The grant, which provides \$350,000 for two years, will allow me to purchase a scanning tunneling microscope and expand our research into nano-systems.

Year 2004 started even better. The paper based on the experimental results obtained by my postdoctoral associate at CSULB, Dr. Slawek Sek, was accepted by one of the most prestigious European journals, *Chemical Communications* (Royal Society) (Sek, Bilewicz, Slowinski, 2004; 404-405). Additionally, the editorial office has informed me that our paper was selected to be included in the "hot paper" section of *Chemical Communications*. *Chemical Communications* papers featured in this section have been rated as "very significant" and "in the top 10 percent" of the papers published by expert reviewers in the field.

The editorial written by *Chemical Communications* staff and posted on their Web page states the following: "Krzysztof Slowinski and his colleagues in California and Poland demonstrate in this communication the importance of contact in molecular electronics. They have devised a macroscopic tunneling junction using a self-assembled monolayer of an alkanedithiol on a silver electrode. Because the authors are able to induce the formation of a covalent bond between the thiol and a mercury drop, they can study how the mercury-sulfur bond influences the electrical properties of the system. They discovered that when both ends of the dithiol molecule are bonded to metallic contacts, the intrinsic conductivity of the molecule increases significantly. The authors hope that because the system is assembled in an aqueous environment, their electrochemically controlled junctions could be used to study the electrochemistry of biologically relevant molecules in their natural environment (SA)."

Finally, I was recently awarded the Research Corporation grant for our research related to the properties of monolayers at the air-water interface. This grant provides \$46,000 for two years and will be used to support students and to purchase a new bipotentiostat for electrochemical measurements. This is my fourth grant at CSULB; previously I had been awarded American Chemical Society - Petroleum Research Fund and NATO grants.

During the last academic year, I was also quite busy at national and international conferences. In particular, I gave invited talks at the Electrochemical Society Meeting in Paris in spring 2003 and at the Materials Research Society in Boston in fall 2003. I also conducted several invited lectures at various universities, including San Diego State University, Cal Tech, Marquette University, University of North Dakota, Georgetown University, University of Alabama and City University of New York.

I look forward to reporting similar amounts of news next year.

PAUL WEERS

The year 2003-04 was a successful one. I continued teaching CHEM 441 and 443, and I prepared a new class for our biochemistry graduate program about protein structure and function. During the fall of 2003, my temporary lab started to take shape. Equipment and reagents were purchased, students started their research projects and data were generated. The research, which is still underway, is focused on the structure-function relationship of apolipoproteins, a class of proteins well known for their role in lipid transport, atherosclerosis and Alzheimer's disease. A remarkable invertebrate apolipoprotein is used as a model: apolipoprotein III (apoLp-III). The advantage of this protein is its striking resemblance to mammalian apolipoproteins, the availability of high-resolution structure, unique stability properties (apoLp-III can be boiled!) and the buckets of protein we produce in our bacterial expression system. ApoLp-III binds reversibly to lipid surfaces, and we are trying to understand the structural features of apoLp-III that facilitate this role. We are also exploring an exciting new role these proteins play in immunity.

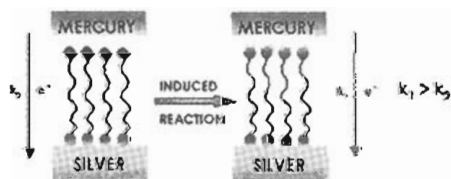
In the last year, six students have been active in various research projects: graduate students Tzu-Chi Hsu and Cindy Pratt, undergraduate students Saleem Sandoval (HHMI scholar), Leonardo Leon (HHMI scholar), Jamie Cabrera and Wazir Ezedine. Tzu-Chi is generating mutant apolipoproteins to study the stability properties of apoLp-III, and he is currently characterizing the

proteins by circular dichroism and fluorescence spectroscopy. Jamie Cabrera and Wazir Ezedine are involved in design, expression and characterization of apoLp-III variants with altered stability. Cindy Pratt was successful in demonstrating binding of apoLp-III to lipopolysaccharides, thereby neutralizing these toxic cell wall components of gram-negative bacteria. Saleem produced important mutant proteins, which will be used in our attempts to crystallize apoLp-III in the lipid-bound form, while Leo is determined to find out which region of lipopolysaccharide interacts with apoLp-III.

In the first week of July, we were very excited to move our research lab to the second floor of the new MLSC and hope to be successful in our research program. In July 2004, I received a three-year Academic Research Enhancement Award from the National Institutes of Health to carry out my research program.



Dr. Weers with his research group. From left: Tzu-Chi Hsu, Saleem Sandoval, Leonardo Leon, Cindy Pratt, Wazir Ezedine and Dr. Weers.



The intrinsic electrical conductivity of α,ω -alkanedithiol is at least 8-95 fold larger if both ends of the molecule are covalently bonded to metallic contacts.

WHERE [EMERITUS FACULTY AND FORMER LECTURERS] ARE THEY NOW

DR. DONALD SIMONSEN, now 82 years old, divides his time between Oregon and Long Beach. Dr. Simonsen was the chair of the Chemistry Department in the early 1960s. Later he became the vice president (there was only a single vice president in those days), then, in 1969, president of the university. Those of us who taught during his administration remember him as a kind and intelligent administrator.

In the spring of 1970, shortly after the killing of several Kent State students by the Ohio National Guard, Dr. Simonsen's thoughtful approach to management spared our campus from considerable anguish. The tension was at a peak that May afternoon when thousands of students gathered on the upper quad, seeking to channel their anger and frustration over Vietnam and Kent State. The administration and the campus community felt threatened. Instead of relying on a show of force to dispel the crowd, Dr. Simonsen simply ordered the gardeners to turn on the sprinklers. It worked. The crowd was first startled, then dissipated. Several of us, now in early retirement, remember that day well.

DR. LES WYNSTON, who taught biochemistry and clinical chemistry from 1965 until his retirement in 1999, lives with his wife Anna in northern San Diego County. They continue to travel frequently. Their latest journey included a cruise with several calls to eastern Mediterranean ports.

Following his retirement in 2000, **DR. JERRY DEJORE** and his wife Anna moved to Orville, Calif., where he now tends his 10 acres of land and studies wine chemistry. His small vineyard is expected to produce its first crop of wine grapes this season.

DR. GENE KALBUS retired in 1999 after 42 years of teaching analytical chemistry. He continues to live in Long Beach, close to the CSULB campus. **DR. VAN LIEU** (retired 2001) also lives close to the CSULB campus. He and Dr. Kalbus still collaborate and publish regularly in the *Journal of Chemical Education*. Another emeritus faculty who is close to the campus is **DR. A. G. THARP**, who returned to Lakewood after experimenting with retirement in the Philippines. Many of our alumni think of Dr. Tharp in unison with Chem 111B, second semester general chemistry, which he taught from 1959 until his retirement in 1987.

Among our former lecturers we heard from Dr. Ephraim Ben-Zvi, Dr. Peggy Kline and Mr. Matt Koutroulis. **DR. BEN-ZVI** taught physical chemistry at CSULB in the 1980s. In a recent letter he wrote, "I still exercise daily in the gym and ride my bicycle, mostly on weekends. I hate to compete for the right-of-way with the SUVs. I also take long walks now and then." Dr. Ben-Zvi lives in San Marino, Calif. **DR. PEGGY KLINE** (1977 UC Irvine, Ph.D. 1982 Brown University)

is a professor of chemistry at Santa Monica College. She writes, "Still teaching at Santa Monica College along with CSULB alums Deborah Schwyter and Jamey Anderson. We continue to attract large numbers of great students despite budget issues. Some of our recent graduates are at, or transferring to Cal Tech, MIT, Cornell, UC Berkeley, UCLA and an assortment of professional schools. It's always amazing when you run into a former student who announces 'I'm a dentist now.'"

Mr. Matt KOUTROULIS taught introductory, general and organic chemistry laboratories at CSULB in 2001 and 2002. In the spring of 2002, his teaching schedule took a hectic turn; in addition to Long Beach State, he taught simultaneously at Cal State Fullerton, Cypress College, Cerritos College and El Camino College. His schedule somewhat eased when, in the fall of 2002, he was hired full time at Rio Hondo College, where he now teaches the organic chemistry sequence and some introductory courses. Mr. Koutroulis wrote, "My experiences at CSULB were instrumental in inspiring me to choose education as a career."

The Molecular and Life Sciences Center was officially opened on Sept. 10, 2004. Chancellor Charles B. Reed of the California State University system and the Honorable Beverly J. O'Neill, mayor of Long Beach attended the opening ceremonies. Also present were Robert C. Maxson, president of the university, and Provost Gary Reichard. Dr. Laura Kingsford welcomed the distinguished visitors and the students, faculty and friends of the college. Dr. J. Mario Molina, President and Chairman, Molina Health-care, Inc., delivered the keynote address. Dr. Molina is an alumnus (1980) of our department. As part of the dedication, Dr. Rita Colwell, former chair of the National Science Foundation, gave a campus lecture on Sept. 9.



Chancellor Reed is cutting the ribbon with Dr. Kingsford. From left: John Webster, chair of CNSM student council, Dr. Molina, Chancellor Reed, Dean Kingsford, President Maxson and Provost Reichard.

Mrs. Greta Nagel unveiling the plaque in memory of Dean Nagel as son Paul and daughter Christina stand by.

AWARDS

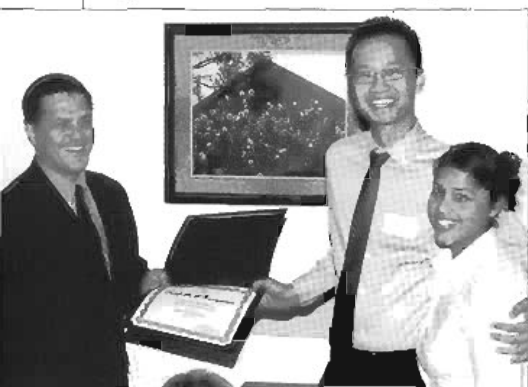
Chemistry & Biochemistry Students



ENDOWED AWARDS

ROBERT B. HENDERSON AWARD

The Robert B. Henderson Award was established by Dr. Henderson's family, colleagues and friends to honor his memory. Dr. Henderson was a member of the Chemistry and Biochemistry Department from 1955-83 and a distinguished scientist and teacher of organic



Photos by Bob Freligion

Dr. Buonora presenting Henderson Award to Ken-Shing Law and Salemiz Sandoval.

and general chemistry. Recipients for this award are chosen from among bachelor's and master's graduates as those best exemplifying Dr. Henderson's scholarship and commitment to the profession of chemistry. This year's award of \$1,000 was presented to **Ken-Shing Law** and **Salemiz Sandoval**. Both Ken and Salemiz are going to graduate schools for Ph.D.s in chemistry; Ken to Yale, Salemiz to UCLA.



Wendy Shoemaker

KENNETH L. MARSI SCHOLARSHIP

This \$1,500 scholarship, established by faculty, staff, family, friends and former students on the occasion of Dr. Ken Marsi's retirement, is used to defray registration fees of outstanding junior and senior chemistry or biochemistry majors. This year's scholar is **Wendy Shoemaker**, a senior, who is doing research in the area of organic chemistry.

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 1968 at UC San Diego in physical organic chemistry. While an undergraduate, he was a research



Kristin Clark

student of Dr. Robert Henderson. He was a distinguished scientist and a member of the faculty at the Saik Institute and subsequently a senior research scientist with Beckman Instruments. Dr. Monahan was also the founder and president of California Medicinal Chemistry Corp. In 1985-87, following his retirement, he served as a lecturer in our department. According to his will, the income from his bequest is to be used to support student research in our department. This is the eighth year this \$2,500 award has been given and the recipient is **Kristin Clark**. Kristin is studying in Dr. Mezyk's laboratory the presence of amines in drinking water and the feasibility of their destruction using advanced oxidative technology.

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 tenth year that the Pathos Award has been granted. The award is made possible by friends of Spyros Pathos IV, who was an undergraduate chemistry major in our department at the time of his death in 1993. **Travis Rodman** is this year's award recipient.



Travis Rodman

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 **Lucia Worsham**. Lucia is planning to go to medical school.



Lucia Worsham

JOHN H. STERN AWARD IN PHYSICAL CHEMISTRY

The Stern Award, consisting of a cash prize, is given in memory of Dr. John H. Stern, 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 Dr. Stern, who was a member of our faculty from 1958 to 1987 and a distinguished teacher of physical and general chemistry. **Cameron Smith** was named as the recipient of the Stern Award for 2004.



Cameron Smith



SUBJECT AREA AWARDS

FRESHMEN CHEMISTRY AWARD:

Greer McMichael

AMERICAN CHEMICAL SOCIETY--POLYMER CHEMISTRY AWARD:

Jasmine Shaw

AMERICAN CHEMICAL SOCIETY- ANALYTICAL CHEMISTRY UNDERGRADUATE AWARD:

Abu-Adas Olfat

ORGANIC CHEMISTRY AWARD:

Jeff Mueller

MERCK AWARD IN ORGANIC CHEMISTRY:

Kathleen High

BIOCHEMISTRY AWARD:

Fernando Gomez



Greer McMichael



Jasmine Shaw



Jeff Mueller



Kathleen High



DEPARTMENTAL AWARDS

TONI HORALEK AWARD FOR DEPARTMENTAL SERVICE:

Kristin Clark and Kathleen High

HYPERCUBE AWARD:

Michael Naffziger

DEPARTMENTAL UNDERGRADUATES HONORS:

Omonigho Aisagbonhi, Kristin Clark and Kathleen High

DEPARTMENTAL GRADUATE HONORS:

Sotiria Contos and Gianpaola Gacho

AMERICAN INSTITUTE OF CHEMISTS

BACCALAUREATE AWARD:

KATHLEEN HIGH

AMERICAN INSTITUTE OF CHEMISTS

GRADUATE AWARD:

Jace Jones



Michael Naffziger



Omonigho Aisagbonhi



Sotiria Contos



Gianpaola Gacho



Jace Jones



COLLEGE & UNIVERSITY AWARDS

OUTSTANDING GRADUATE IN THE COLLEGE OF NATURAL SCIENCES AND MATHEMATICS AWARD:

Tiffany Potter (Please see story on P. 1)

ROBERT B. RHODES AWARD:

Eric Sundberg (Please see story on P. 1)

INITIATED TO PHI BETA KAPPA:

David Benton, Jamie Cabrera, Cassandra Kleve and Jasmine Shaw



Tiffany Potter



Eric Sundberg



Cassandra Kleve

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Kristin (left) and Kathleen

SAACS News

During the academic year 2003-04, Kathleen High and Kristin Clark (co-presidents), Amber Valencia (vice president) and Scott Abling (treasurer) headed the CSULB chapter of Student Affiliates of the American Chemical Society (SAACS), with faculty advice provided by Dr. Stephen Mezyk. The goal of SAACS this year was to further promote the club to the general science student body and to provide tangible benefits to its hard-working members. In addition to the regular student/faculty welcome mixer and end-of-year pizza party, the successes of the club included:

- Hosting the undergraduate program at the Western Regional American Chemical Society meeting held in Long Beach in October 2003. This included organizing the program day and catering the post-movie pizza bash for all undergraduate students attending this conference.
- Providing registration funds for CSULB students to attend both the regional American Chemical Society meetings held in Long Beach and the national meeting in Anaheim (March 2004).

- Inviting two forensic scientists from the Los Angeles Sheriff's department to speak on the role of chemistry in this field. Over 50 undergraduate students interested in forensics as a career attended this talk. Other invited speakers included CSULB faculty members as well as scientific employment/recruitment agencies.

- Participating in the new CSULB recycling program.

- Expanding the traditional weekly coffee/donut hour to further encourage mixing between chemistry faculty and undergraduate students interested in science.

- Presenting chemistry to the general public at the annual Kaleidoscope event at CSULB. To inspire future scientists and show that chemistry can actually be fun, SAACS volunteers made volcanoes and frozen soap bubbles, demonstrating the wonders of catalysis. However, the major highlight of the day was allowing visitors to make their own colored slime, which was a major hit with everyone!

by Stephen Mezyk

Gifts by Individuals



During the 2003-04 fiscal year the department received gifts totaling **\$14,244.50**. Of this amount, **\$12,062.50** was given in cash by individuals. The faculty, staff and students of our department are very grateful for your generosity.

Cash gifts are used for scholarships, awards, the seminar program and purchase of supplies and equipment for which there is not adequate state funding. Also, the costs of publishing the Chemistry and Biochemistry Department Newsletter are met with private giving. You may give an income tax-deductible gift directly to the department by sending a check to:

*CSULB Foundation/Chemistry Fund
Department of Chemistry and Biochemistry
California State University, Long Beach
1250 Bellflower Boulevard
Long Beach, CA 90840-3903*

The Office of University Relations and Development is informed of all gifts, and you will receive a personal letter of acknowledgement from the department. You might investigate the possibility of your company matching employee gifts. In that way, the value of your gift to the department is multiplied.

If you are contacted through the Phone-a-thon program and a gift is requested, please specify the Chemistry and Biochemistry Department as the recipient of your gift, if that is your intention.

Thank you!

Corporate Gifts to the Department

The total value of in-kind gifts to the department during the fiscal year ending June 30, 2004 was **\$1,132.00**.

Companies and foundations contributing in-kind gifts were:

American Chemical Society, Analytical Division
Hypercube, Inc.
Merck and Company, Inc.

Matching gifts totaling **\$1,050.00** were received from the following companies (employees whose gifts were matched are given in parentheses):

Boeing Company* (Dr. Norman Byrd and Dr. Arie Passchier)
McDonald's Corporation (Chris Appleton)
21st Century Insurance Group (John S. and Pamela M. Nelson)

*Companies are members of the Chemistry and Biochemistry Advisory Council

Honor Roll of Individual Donors

(July 1, 2003 – June 30, 2004)

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Nina C. Bao	Dr. Alan Cunningham	Dr. Bette Korber	Dr. Donna Moromisato-Nagata	Dr. Nail M. and Mrs. Diane M. Senozan
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Margaret Carlberg				

Chemistry & Biochemistry NEWS



We very much appreciate the time you have taken to inform us about yourselves and we always enjoy hearing from you. The information that you send us about your careers is often shared with students who are considering professions in chemistry, biochemistry, medicine, dentistry, pharmacy, law, etc. Alumni who have both bachelor's and master's degrees from our department are listed under the year they received their bachelor's degree. To communicate about the newsletter or to send information, write to Dr. N.M. Senozan, Department of Chemistry and Biochemistry, California State University, Long Beach, Long Beach, CA 90840. FAX: 562/985-8557. E-mail: nsenozan@csulb.edu

1961 - 1979

COURTENAY ANDERSON

(B.S. Chemistry 1962, M.S. Chemistry 1964) is a professor of chemistry and the department chair at Santa Rosa Junior College. He writes, "I have completed 38 years of teaching at Santa Rosa College. I really enjoy teaching and am not ready to give it up yet. I was truly inspired by the quality of instruction provided by the Chemistry Department at CSULB (Courtenay did his master's research with the late Professor Stern). The professors provided the model that I have followed for the past 40 years."

CHRIS D. APPLETON

(B.S. Chemistry 1972) is a systems development director, supply chain, at McDonald's. He writes, "My wife and I are retiring this year, and we will be moving back to California. We have an old house (in Santa Barbara) to work on, and then we will rediscover California, see family and go sailing."

DR. FRED DORER

(B.S. Chemistry 1961, Ph.D. 1965 Chemistry, University of Washington) retired in July 1999 from a full-time position as provost and senior vice president for Academic Affairs at CSU Bakersfield. Between 2000 and 2004, he worked part-time as associate director for the Western Association of Schools and Colleges (WASC), facilitating regional accreditation reviews of colleges and universities. Beginning July 1, 2004, he will serve for one year as interim dean of the College of Sciences and Mathematics at California State University, Northridge.



DR. ROBERT FRISBEE

(B.S. Chemistry 1970, M.S. Chemistry 1972, Ph.D. 1978-University of California, Santa Barbara) taught for one year at the California Polytechnic State University (San Luis Obispo) after receiving his Ph.D. He joined the Jet Propulsion Laboratories (JPL) Solid Propulsion Group in 1979 and is now a senior member of the technical staff in the Advanced Propulsion Technology Group. He has been involved in the NASA-funded Advanced Propulsion Concepts Task at JPL since 1980.

Robert has participated in a number of advanced propulsion and mission design studies, including advanced chemical, nuclear, electric and laser propulsion. He has also been involved extensively with studies of the use of extraterrestrial materials. He serves as the technical chair of the annual NASA Advanced Space Propulsion Workshop and the coordinator of the NASA-JPL Advanced Propulsion Concepts Web site. He is the recipient of the American Institute of Aeronautics and Astronautics (AIAA) Nuclear and Future Flight Propulsion Pioneer Award.

Robert often jokes that his job involves "government-funded science fiction," but he then reminds his listeners that so were the trips to the moon 40 years ago. At this year's AIAA Joint Propulsion Conference, he was the recipient of the Nuclear and Future Flight Technical Committee's 2003 Best Paper Award ("How to Build an Antimatter Rocket for Interstellar Missions," AIAA Paper 2003-4696). He has appeared on several television programs that were broadcast on the Discovery and Learning Channels, including a show on the 25th anniversary of "Star Trek" and a segment of the show, "The Science of Christmas," which dealt with the thermodynamics of baking a turkey.

Robert, his wife Maria and son Robert Jr. live in La Canada, Calif. The young Robert has just graduated from Cal Poly Pomona with a double major in physics and chemistry and will begin his Ph.D. work in physical chemistry at the University of California, Riverside.

RICK T. GOYT

(B.A. Chemistry 1977) is retired and lives in Arroyo Grande, Calif. The department wishes to acknowledge Rick's very generous contributions to the Marsi Scholarship Fund.

PETE LADJIMI

(B.S. Chemistry 1974, M.S. Chemistry 1976) is working at ConocoPhillips Company in Wilmington, Calif. His official job title is environmental chemist, and his many responsibilities include calibration and maintenance of analytical instruments, implementation of environmental testing protocols and preparation of periodic "self-monitoring" reports for the appropriate government agencies. Pete's son Gregory graduated this June from the Polytechnic High School in Long Beach with a grade point average of 4.0 and will study architecture at Cal Poly Pomona. His younger son Kevin is a 10th grader at Poly High. Pete writes that he and his wife Joanne "are doing well, fixing up our house almost on a daily basis."

DR. JOHN LANDRUM



Dr. Landrum (far right), wife Eileen (far left) and their children.

(B.S. Chemistry 1975, M.S. Chemistry 1978, Ph.D. Chemistry 1980-University of Southern California) is a professor of chemistry and the associate chair of the department at the Florida International University in Miami. He writes, "Our department has 22 faculty members and offers B.A., B.S., M.S. and Ph.D. degrees. I have just graduated my 11th graduate student with an M.S. degree; she completed her thesis over the summer. My research now is focused on the

study of carotenoids, specifically, the xanthophylls, lutein and zeaxanthin. Lutein and zeaxanthin are found in the human macula and protect the retina from photogenerated oxyradicals. This work has been a collaborative study with Professor Richard A. Bone (biophysics) at FIU. Our interests have spanned quite a range of topics; we were the first to apply modern methods to demonstrate the presence of lutein and identify zeaxanthin in the retina in the early 1980s. George Wald (Nobel Prize 1967 - medicine) had published initial studies on this in the 1940s and again in the early 1960s. Our work was the first to identify these components using HPLC, UV-vis, and chemical derivatization and later MS. In a paper we published in 1988, we mapped the distribution of the carotenoids in the human retina and reported on how the levels vary during life.

"In the 1990s, we were able to study the carotenoid concentrations in post-mortem retinas. Based on these data we concluded that low levels of carotenoids are correlated with a higher risk for age related macular degeneration (AMD). In more recent work we were able to show that it is possible to increase macular pigment levels in the retina by ingesting the carotenoids. A major NIH intervention trial is now being organized to study whether lutein/zeaxanthin will reduce the number of cases of AMD in a treated group as compared to placebo subjects. As a result of my research I have been able to see a number of interesting parts of the world. I have been invited to speak in Spain, Switzerland, Japan, Canada and Australia to present our results to health practitioners and researchers. In Tokyo I spoke to an audience of 6,000+ sales representatives for a company that sells these carotenoids as a health supplement."

Dr. Landrum was the vice-chairman of the 2004 Gordon Research Conference on Carotenoids and will be chairman for the 2007 conference. He also organized the presentations for the recent Carotenoids Research Interest Group, held in Washington D.C. in conjunction with the annual Experimental Biology meeting. He has authored or co-authored some 40 papers and several patents and has received nearly \$1.5 million in grants.

On the personal side, he writes, "My oldest son James is in his third year at Georgia Institute of Technology where he is majoring in computer science. My daughter Elizabeth has just begun as a freshman at Cornell University in Ithaca N.Y. She is the recipient of a Robert C. Byrd scholarship and is planning to major in biophysics and hopes ultimately to attend medical school. She is taking a heavy load of physics, chemistry, math, English and swing dance (they require all freshmen to take P.E.) but she is having a great time! Jeffrey, my youngest son, is a sophomore this year at Everglades Ransom H.S. He is learning to drive and is active in the robotics club and takes Tai Kwon Do. He is enjoying the start of the school year. My wife Eileen (B.S. Microbiology 1975, M.S. Microbiology 1978) works at Beckman-Coulter. She is a senior scientist and has worked at Beckman-Coulter since 1980 when we first came to Miami.

"This morning (Sept. 4) we are working around the house waiting out Hurricane Frances, which has been providing us very gusty tropical storm force winds for the last 48 hours or so, and we expect them to continue for the next 24 at least. Hurricanes are certainly one of the least attractive things about living in Florida and we are having quite a year!"

DR. LUIS A. LOMELI

(B.A. Chemistry 1978, M.D. 1983-UCLA) was honored during his postgraduate training from 1983-86 at Scenic General Hospital in Modesto, Calif., as "The Most Outstanding Physician." He continues to work as a physician/activist/medical writer in Ontario. In a recent communication with us he writes, "My son Nathan L. Lomeli will be attending Stanford. He just completed high school (number one in his class, with a GPA of 4.7). My daughter Danica just completed her second year at Stanford (biology) and will be going to Australia this fall via Stanford to continue her studies in biology. In the fall Lomeli™'s Data Systems will become more active in publishing my large collection of medical data." Luis expresses his best wishes for "CSULB's Dr. Marsi—my favorite professor," and he kindly tells us, "If I were to be born again, I would again attend CSULB."

PATRICK MCKAY

(M.S. Biochemistry 1979) is a scientist at Genentech, Inc., 1 DNA Way, South San Francisco.

DR. ERCAN UNVER



Zehra, Peri, Beril and Dr. Unver.

(M.S. Chemistry 1976, Ph.D. 1982-Ege University) is vice president of technical operations at Diagnostic Products Corp. in Los Angeles. Ercan joined DPC 18 years ago as a scientist and soon became director of biochemistry, then senior director of research and development. DPC is an internationally renowned company in the field of diagnostic immunoassays. It grants annually a scholarship to a gifted chemistry or biochemistry student at CSULB.

Ercan lives in Cypress with his wife of 25 years, Zehra, and their daughters, Beril and Peri. Beril graduated in June with honors in international relations/political science from the University of California, Irvine and is now working in Washington, D.C. Peri is a gifted eighth grader, who cannot decide between becoming a veterinarian or the president of the U.S.

ERNEST J. VALFRE

(B.A. Chemistry 1978) is an information systems specialist and senior project manager at Baxter.

ROBERT K. BLAIR

(M.S. Chemistry 1980) is a chemist at Senn Chemicals USA in San Diego. He writes, "As an employee of BioResearch, Inc., since 1980, located in sunny San Diego, I assisted in synthesizing and using urethane protected N-carboxyanhydrides (UNCAs). The importance of this stable, storable form of activation has caught the attention of the industry and has been in the market for many years. The assets of BioResearch have been sold to Senn Chemicals of Switzerland, a company that does worldwide sales of synthetic precursors for the peptide industry."

DR. JOY BONDE (CONDON)

(B.S. Chemistry 1985, Pharm.D. 1990-University of Southern California) is a pharmacist at the Long Beach Memorial Medical Center. She completed her clinical practice residency at the same institution in 1991. She lives with her husband Craig and two children in southern Orange County.

DR. BETTE KORBER

(B.S. Chemistry 1981, Ph.D. 1988-CalTech, Fellow at Harvard School of Public Health) is a staff scientist in the Theoretical Division of the Los Alamos National Laboratories. She continues her work on sequence analysis, phylogenetics and evolution, and regularly publishes in such journals as *Science*, *Virology* and *Nature*. Bette also holds the Elizabeth Glaser Professorship at Santa Fe Institute, a non-profit multidisciplinary research and education center devoted to creating a new kind of scientific research community. The Elizabeth Glaser Award recognizes groundbreaking research on AIDS in children. It is funded by the Pediatric AIDS Foundation, which offers each recipient about \$700,000. Bette was one of the five recipients.

KATHY KURJAN



Kathy and Rick in the Canadian Rockies.

(B.S. Chemistry 1986) is a manager in process chemistry, at Allergan. She writes, "I've been working at Allergan 18 years. Rick and I have been married for 13 years. Rick too has a B.S. in chemistry (1982) from RIT and has been at Allergan for 21 years. His title is manager, Global Technical Operations, and he does technology transfer from R&D to production."

Kathy's job as manager frequently takes her on trips around the world. Last year she traveled to

Japan, Australia and the United Kingdom – several times – including England, Wales and Scotland. Rick and Kathy have also managed to take a few short vacations. The picture is “from Moraine Lake, one of the many turquoise lakes in the (Canadian Rockies).”

DR. DAVID MOROMISATO

(B.A. Chemistry 1982, M.D. 1986-Loyola University) is a physician at the Keck USC School of Medicine.

DR. THERESA ROHR-KIRCHGRABER

(B.A. Chemistry 1984, M.D. 1988-Cornell University) is associate professor and associate chief of medicine at Morehouse School of Medicine. She writes, “We moved to Atlanta last July, and in January I started at Morehouse School of Medicine. (The school) was established 25 years ago as a primary care medical school for minority students who would then continue to serve their community. I enjoy the work even though I get frustrated at times by the lack of services and the tremendous needs of the people.

“My kids continue to be my inspiration even as they continue to be my challenge. They are now 14, 12 and 9 and keep us busy running to various events, lessons, games and practices. My husband Paul is medical director for a contract research organization and enjoys the more corporate side of medicine.”

Theresa concludes her message by writing, “Without the support of the taxpayers, who made sure the opportunity was there, plus the faculty, who gave their time and dedicated their lives to teaching, many of us would not have had the opportunity to succeed. Best regards to everyone, and please relay my thanks for a ‘job well done.’ May y’all continue to inspire and excite your students to achieve.”

YÜCEL (BURDURLU) TAVOLARA

(M.S. Chemistry 1986) is a research chemist at ICI Paints in Ohio. In December 2003, she received the prestigious Innovation, Creativity, Excellence in



Yücel with her son and husband.

Science and Technology (ICEST) award. The award is given annually to a “team whose project demonstrates most clearly how science and technology differentiate a business and provide benefits to

that business.” Yücel was honored for developing EZ Track Ceiling paint. The paint goes on as pink but turns white as it dries. A Cleveland newspaper article prominently reported that “the (EZ Track Ceiling) paint makes it easier for contractors and homeowners

alike to coat white ceilings without missing a spot, which can be easy when you’re perched atop a ladder, neck craned skyward and with little light to see what has been painted and what hasn’t.”

Yücel’s EZ Track Ceiling paint has also received a glowing review in the February 2004 issue of *Consumer Reports* and has won this year’s Editor’s Choice Award from *Popular Mechanics* magazine at the National Hardware Show in Las Vegas.

Yücel lives in Strongsville, Ohio, with her husband Jerry and son Thomas-Erol.

DR. CARTER J. WHITE

(B.S. Chemistry 1989, Ph.D. Chemistry 1994-Iowa State University, J.D. 2001-University of Houston) is a patent attorney in Houston. He writes, “After several years of working in a law firm environment, I have become in-house patent counsel for M-I SWACO. M-I SWACO is a world leader in the oil and gas exploration industry.”

1990 - 2004

OMONIGHO AISAGBONHI

(B.S. Chemistry 2004) is in the M.D./Ph.D. program at Vanderbilt University.

JASON ATALLA



Jason (right) with his brother (not twin).

(B.S. Biochemistry 1995, M.S. Biochemistry 2002) is a technical sales consultant with Beckman Coulter, Inc., working in the company’s Biomedical Research Division. He is responsible for all aspects of sales of particle characterization instrumentation, including technical presentations, demonstrations and application support. The products he sells include cell counters, cell viability analyzers, particle counters and size analyzers, laser diffraction particle size analyzers, zeta potential analyzers and surface area analyzers. On the personal side, he writes that he has nothing new to report. “I am unmarried, no children and still haven’t bought a home.” In terms of future aspirations, “I still very much would like to get back into teaching at the college level.”

LARISSA BALOGH

(B.S. Biochemistry 2003) writes, “Over the last year I moved to Seattle and began a Ph.D. program in medicinal chemistry at the University of Washington. I really love living in Seattle, and I am enjoying graduate school. I just completed my first year of the program, which mainly involved course work and laboratory rotations. I did three rotations, one of which

focused on NMR spectroscopy of P450 enzymes, while the other two rotations entailed projects regarding the P450 metabolism of benzodiazepines and xylenes. I have now chosen as faculty advisor Dr. William Atkins in whose laboratory I will be doing my dissertation research involving glutathione S-transferases.”

NINA C. BAO

(M.S. Chemistry 1994) received her single subject teaching credential from CSULB in 2002 and has taught chemistry and mathematics at Renaissance High School in Long Beach. She found “offering chemistry classes for the first time at the school site, while the maintenance crew was installing safety showers, eye wash stations and flammable solvent cabinets” to be challenging. She spent a good deal of her time ordering glassware and chemicals.

Nina will not be able to return to Renaissance High School. Her supplementary authorization will not qualify her to teach math, and teaching chemistry alone in a small high school like Renaissance does not accrue enough hours to qualify for health benefits. So, she is considering returning to her previous employer, Softgei Technologies.

DELINA BRASSARD

(B.S. Biochemistry 1994, B.S. Accounting 2000-University of Minnesota) is a tax accountant at the Toro Company in Minneapolis.

NENG CHHEAN

(B.S. Biochemistry 2002) has finished her second year in the Doctor of Optometry program at the New England School of Optometry in Boston.

ROBERT CURIALE

(B.S. Chemistry 1991, M.S. Chemistry 1994-University of Nevada, Las Vegas) writes, “After completing the B.S. program at CSULB, I was hired as the quality assurance officer for the Las Vegas Water Pollution Control Facility. Later I attended UNLV and received an M.S. in chemistry. I then worked as an environmental consultant to the U.S. Department of Energy at the Nevada Test Site. During the evenings, I taught freshmen chemistry labs and an introductory chemistry course at the Community College of Southern Nevada. I enjoyed the teaching job immensely. I also studied and became a certified environmental manager in the State of Nevada.

“After 15 years in the Las Vegas desert, I grew tired of the blazing summer heat and moved back to California. I took a job at the DeMenno/Kerdoon (D/K) refinery in Compton, reviewing hazardous waste profiles. D/K is the largest recycler of oil and antifreeze in the western United States. I was laid off almost two years ago. The job market was depressed and I knew I liked teaching, so I decided to pursue a teaching career. I will complete a single subject teaching credential program at CSULB in spring 2005. I plan on teaching chemistry to high school students.” Robert can be reached by email at robert.curiale@verizon.net.

THANG DINH



Thang on a fishing trip off Baja.

(B.S. Chemistry 1995, M.S. 1998-University of California, Irvine) has been promoted to "scientist" at the Discovery Research Division of Allergan Pharmaceuticals in Irvine. Thang holds nearly a dozen patents (some pending) from his work at Allergan. The pharmaceutical company is also sponsoring Thang's M.B.A. studies at USC, which he expects to complete by next spring.

DR. DANIEL FARNEY

(B.S. Biochemistry 1996, Pharm.D. 2001) writes, "I am currently working as a clinical pharmacist in the field of pediatrics and neonatology at the Children's Hospital of Wisconsin in Milwaukee."

DR. SHARON MCKELVEY HANSEL

(B.S. Biochemistry 1991, D.O. 1996-Western University Health Sciences) is a self-employed physician in Aurora, Colo. She writes, "I am enjoying the challenges of balancing work and family as mother, physician and business owner. I have two great kids, and the fun never ends. I love Denver but miss The Beach."

CHARLES I. JOHN

(B.A. Chemistry 2000) is specialized in calibration and maintenance of analytical instruments. He is senior maintenance and qualifications engineer at LabMetrix Technologies—U.S. Division. He writes, "The education and professionalism that I learned from the Chemistry and Biochemistry Department faculty and staff helped me when it came to figuring out ways/methods for trouble shooting at my job. The principles, lab work and exercises taught me discipline and respect for the subject matter. I will always be glad that I 'toughed' my college years out with chemistry and biochemistry from CSULB. Thank you, professors, for believing in us and guiding us."

AMY KELLER



(B.A. Communication Studies, Minor: Chemistry 2003) has completed her first year in the Pharm.D. program at the University of the Pacific, Stockton. She writes, "I currently hold a position as vice president of industry affairs in the pharmacy student government, and as part of my office, I am also on the board of trustees for the California Pharmacist's Association."

TERESA PHAN

(B.S. Biochemistry 2003) is in her second year of medical school at the University of Cincinnati. She writes, "First year was hard because of all the material crammed in and the pace was fast. Second year will be the toughest academically (and the pace will be even faster). But it's year three that I'm looking forward to; that's when we do rotations, assuming we pass the boards. I remember talking to some friends and professors about 'certificate students,' and I see it here. Those that understand the material have a much easier time going through med school than those struggling to memorize everything. That's why I'd tell everyone who wants to do med school or any professional school, you have to learn how to absorb and understand classroom material AND apply it to life, before you can spit answers out on the test and pass. Med school can be fun and rewarding at times, especially when we get to apply our clinical skills to real and standardized patients. I love it. I feel like I've made the best choice in my life coming here."

KEVIN PHILLIPS

(B.S. Chemistry 2000) has completed the third year of his Ph.D. studies at Harvard University. Kevin and Rosemary (formerly Ms. Leal) married in 2002. He writes, "I'm currently working on manipulating protein-protein interactions in order to dissect signaling networks responsible for cellular processes. I'm also interested in the relationship between protein stability and the kinetics of protein folding and aggregation."

ALETHEA POST

(B.S. Biochemistry 2004) has started medical school in Guadalajara, Mexico.

BRIAN SIPPEL

(B.S. Biochemistry 2002) has become a licensed paramedic and joined the Fire Academy at the Sacramento Fire Department.

ROBERT M. STEVENS

(B.S. Biochemistry 1993, J.D.-Lewis and Clark College) is a real estate agent with RE/MAX of Montecito. He resides in Santa Barbara.

DR. GREG WHITAKER

(B.S. Biochemistry 1990, D.P.M. 1996-W.M. Scholl College of Podiatric Medicine, D.O. 2001-Nova Southeastern University College of Osteopathic Medicine) is an anesthesiology resident at the University of Tennessee Medical Center. He writes, "One more year of residency training, then I'm off to the U.S. Army Medical Corps for four years to pay back my commitment. All is well."

An annual publication of the Department of Chemistry and Biochemistry for the past and present students and friends of the department. News items, feature articles, photos and comments are eagerly invited. The newsletter and other departmental news and information may be accessed on the Internet at the following address:

<http://www.chemistry.natsci.csulb.edu>

Ken Marsi founded the newsletter in 1976 and served as its editor through 2001. This issue of the newsletter has been compiled by the joint efforts of Gina DeFinis, Joyce Kunishima, Douglas D. McAbee and Nail Senozan.

To send information about yourself, please e-mail the editor or use the enclosed form and envelope. Please indicate your CSULB degree, your major and year of graduation. We would be delighted to hear from you.

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After serving three years as editor of the newsletter, I conclude my responsibilities with this issue. I wish to express my sincere thanks to all the alumni and friends of the department who have made this position such a rewarding experience. Please continue sending your correspondence to me. I will see to it that they promptly reach our new editor.

N. M. SENOZAN

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