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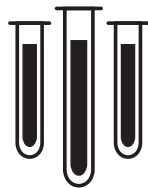


# Badger Chemist



THE NEWSLETTER OF  
THE UNIVERSITY OF WISCONSIN - MADISON

CHEMISTRY DEPARTMENT



THE NEWSLETTER OF THE UNIVERSITY OF WISCONSIN-MADISON

# CHEMISTRY DEPARTMENT

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### 2005 BADGER CHEMIST

**Matthew Sanders**

Editor

Designed by the Instructional Media Development Center  
School of Education, University of Wisconsin-Madison

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2005



# From the Chair

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**January 2006**

Dear Badger Chemists,

I am now well into my second year as Chair of the Chemistry Department. I am grateful for the strong support the Department has received from the College of Letters and Science, and for the support I have received from my colleagues in the Department. As a result my eighteen months as Chair have been rewarding (and stimulating and busy!).

The Badger Chemist, under the exceptional editorship of our Executive Director, Matt Sanders, is a wonderful vehicle for communicating our activities to alumni and friends. This issue of the Badger Chemist highlights our activities of the 2004-05 academic year, and indeed, there were many!

On the teaching front, we continue to make significant efforts to excel. These efforts include training TAs in the fall, mentoring new faculty, and securing federal funding for research in education. Some of our successes were celebrated at our annual Teaching Awards Ceremony in January 2005, at which we presented Outstanding TA awards to six graduate students, and the James W. Taylor Excellence in Teaching Award to Rodney Schreiner. In addition, faculty members Marty Zanni and Clark Landis received university-wide teaching awards.

I am continually proud of the very substantial outreach and service activities in our Department. Many of the former are organized and implemented by our own Wisconsin Institute for Scientific Literacy (WISL), directed by Bassam Shakhshiri, and Institute for Chemical Education (ICE), directed by John Moore. In the service arena, John Moore, Laura Kiessling, and Bob McMahon serve as editors of the Journal of Chemical Education, ACS Chemical Biology, and the Journal of Organic Chemistry, respectively. In addition, Fleming Crim has been Chair of the ACS Committee on Professional Training, and Chuck Casey has been ACS President.

Our research enterprise is thriving, as evidenced by the near-record number of graduate students in our program, and the excellent success rates of obtaining federal grants. Last year we were fortunate to have hired three outstanding new assistant professors, Tehshik Yoon, Joshua Coon, and Frank Keutsch, in the areas of synthetic organic, bio-analytical mass spectrometry, and environmental/atmospheric chemistry, respectively. We are also fortunate to be able to make offers again this year, and will do so shortly in the areas of inorganic, materials, and organic chemistry.

These are difficult financial times for the University of Wisconsin, as we are still trying to recover from recent budget cuts. As a result we as a Department must rely more and more on our own resources. This issue of the Badger Chemist lists various trust funds and departmental accounts set up and maintained by the UW Foundation to which you can contribute if you are so inclined. We are all truly grateful for your past and future generosity.

The next few months promise to be stimulating and busy, as we put together faculty offers, and begin the graduate student recruiting process once again. We hope that your scientific pursuits continue to be rewarding. Keep in touch!



Jim Skinner  
Chair, Department of Chemistry  
[chair@chem.wisc.edu](mailto:chair@chem.wisc.edu)



# Current Chemistry News

## ARRIVALS

**Josh Coon** began his appointment as an Assistant Professor of Chemistry this August. Josh did his undergraduate studies at Central Michigan University (1994–1998, Mt. Pleasant, MI) with a major in Chemistry and a minor in Anthropology. Immediately following graduation he moved



Josh Coon

to Gainesville, Florida and attended graduate school in the Department of Chemistry at the University of Florida (1998–2002, Willard Harrison). After finishing his Ph.D., he moved to Charlottesville, Virginia and began working as an NIH-NRSA Post-Doctoral Fellow with Donald Hunt at the University of Virginia. In July of 2005 Josh and his wife, **Heather Coon**, moved to Madison. The Coon research group will develop mass spectrometry-based technology to characterize proteins, from a variety of biological sources, on a global-scale. To do this they are exploring reactions of gas-phase peptide/protein cations with small-molecule anions for rapid whole protein sequencing on a sub-second time-scale. With automation, these reactions, followed by mass spectrometric analysis, have great potential to allow rapid and direct characterization of whole proteomes (the protein complement expressed by the genome of an organism).

**Frank Keutsch** joined the faculty in August 2005 as a new assistant professor. He received his Diploma in chemistry from the Technische Universität München, Germany in 1997, under the supervision of Vladimir E. Bondybyev, followed by a Ph.D. in physical chemistry from the University of California at Berkeley in 2001, under the direction of **Richard J. Saykally** (PhD '77, Woods). His graduate research focused on the hydrogen-bond-breaking and tunneling

dynamics of water clusters. As a research associate in Jim Anderson's group at Harvard, he worked in atmospheric chemistry developing and using high-altitude *in situ* aircraft instruments for studies of chemistry and transport in the lower stratosphere. His research group in Madison is focused on questions related to climate change and tropospheric chemistry. The research is in part motivated by the question "What impact will the existing industrialized nations, such as the US, and the rapidly growing economies, such as China and India, have on tropospheric pollution chemistry and on regional and global climate?" The group is integrating state-of-the-art spectroscopic methods into compact portable field instrumentation for *in situ* measurement of atmospheric species. These measurements will subsequently be incorporated into models to test and improve our current understanding of anthropogenic and natural emissions of greenhouse gases and tropospheric chemistry both in urban and remote areas.



Frank Keutsch

**Matt Martin** joined the ranks of the Instrument Makers in May 2005. Matt is a recent graduate of the 2-year Industrial Maintenance program at MATC. Prior to that, he had been employed as a Senior Engineering Technician at Planar Systems in Lake Mills, WI.

**Tehshik Yoon's** graduate career was more eventful than most. He began his graduate education at Caltech under the mentorship of Erick Carreira, but when Carreira accepted a job at the ETH in Zürich two years later, Tehshik elected to move to Berkeley, where he helped to start up David MacMillan's fledgling research group. Two years after that, MacMillan was offered a position at Caltech, from which Tehshik ultimately earned his Ph.D. After a postdoc with Eric Jacobsen at Harvard, Tehshik

joined the faculty in July 2005 as a new assistant professor. His research interests span organic synthesis, reaction discovery, and mechanistic analysis, but the central focus of his group is the development of new catalysts that can control the relative and absolute stereochemistry of small, highly functionalized organic molecules. This research is motivated not only by the need for new, more efficient, more selective, and more environmentally responsible methods for molecule construction in pharmaceutical science, chemical biology, and materials science, but also by the desire to discover interesting new catalysts with fundamentally novel modes of activity.



Tehshik Yoon

## FACULTY AND STAFF NEWS

**Helen Blackwell** was awarded both an NSF CAREER Award and a Research Corporation Cottrell Scholar Award in 2005 for her research and teaching efforts in organic chemistry and chemical biology. She is using the awards to fund her expanding research program in the area of bacterial communication pathways and to assist in her redevelopment of the Chemistry 346 curriculum, the department's intermediate organic chemistry lab course.

**Thomas Brunold** finished in 5th place in the September 2004 Wisconsin Ironman Competition held in Madison. This event is one of the most grueling in the world – 2.4 miles of swimming, followed by 112 miles of cycling, then a 26.2 mile run. Thomas finished in 9:12:29, beating his performance from last year (when he finished 8th) by 20 minutes. He was the top local finisher. Thomas also won the Madison Marathon in May 2005, with a time of 2 hours, 31 minutes, 17 seconds; he had come in second the previous two years.



**Robert Kirchoerfer**, an undergraduate student working with **Silvia Cavagnero**, won a Hilldale Award this year, and a Kimberly-Clark Award for pursuing undergraduate research. **Tha Chia Thach** was awarded an NSF-REU fellowship Funds for pursuing undergraduate research in protein folding in our group. He also got special funds to pursue summer research as a McNair Scholar. **Taya Scheirer** was awarded a Sheet Metal Workers Local 565 Scholarship through her father's company to recognize her academic excellence in coursework and research.

Graduate student **Senapathy Rajagopalan** was awarded the ISOTECH Student Sponsorship Award to present the results of his research on protein folding in the presence of the Hsp70 chaperone at the ICMRBS Conference on Nuclear Magnetic Resonance of Biological Systems in January 2005.

**Joseph Huang**, a postdoc in the Cavagnero group, won the Taiwan Merit Scholarship (TMS). This scholarship is awarded to encourage outstandingly talented Taiwanese recent PhD graduates to go abroad to undertake studies or research in the world's best academic institutions.

**Mark Ediger** was Chair of the Polymer Physics Gordon Conference last summer. He traveled in the fall to Oxford (England) and Wittenberg (Germany) for meetings on glass forming materials. Later in the year Mark gave talks at UC-Berkeley and North Carolina. He and his group have been busy the last two summers organizing an outreach program for high school students through UW-Madison's PEOPLE program.

**Sam Gellman** was the Treat B. Johnson Lecturer at Yale University in Dec 2004. He was the Apotex Pharmachem Lecturer at Queen's University (Canada) in April 2005. Beginning July 2005, Sam was the **Ralph F. Hirschmann** Professor of Chemistry.

**Bob Hamers** was recognized with the 2005 Arthur Adamson Award for Distinguished Service in the Advancement of Surface Chemistry from the American Chemical Society. The award included a gold medal, cash award, and a 2-day special symposium in Bob's honor at the National Meeting. The symposium was organized by **John Wright**, **Jennifer Hovis** (PhD '99, Hamers) and John Russell from the US Naval Research Labs. The symposium

featured 22 invited talks, including Nobel prize-winner John Polanyi. Bob was also named the Irving Shain Chair of Chemistry.

Bob organized the 2005 Physical Electronics Conference here at Madison. This interdisciplinary conference was attended by 110 scientists with an interest in chemistry and physics at surfaces. **Gil Nathanson** was one of the featured speakers, and Gil Nathanson, **Song Jin**, and **Mark Eriksson** (Physics) assisted in the conference organization.



**Bob Hamers receiving the 2005 Arthur Adamson Award.**

Bob did a lot of international travel this year, as a plenary speaker at the 15th European Conference on Diamond in Riva del Garda, Italy, an invited talk at the Interpacific Workshop on Nanoscience and Nanotechnology in Hong Kong, a Bioelectronics Symposium in Munich, Germany, a plenary talk at the Symposium on Bioelectronics in Okazaki, Japan, and an invited talk at a NATO workshop on Nanomaterials, in Greece.

One of Bob's current Ph.D. students, **Beth Nichols**, won the best student poster prize at the Applied Diamond Conference / Nanocarbon 2005 in Chicago, and Beth also won best student poster at the 2005 Gordon Conference on Chemistry of Electronic Materials. **Kevin Metz**, **Drew Mangham**, **Anne Bentley** (PhD '05, Ellis), **Maggie Phillips**, and several other UW students organized a symposium at the 2004 Fall ACS meeting in Philadelphia on "Creating Complete Scientists: Graduate Student Visions of Doctoral Reform".

**Laura Kiessling** was named the first editor of the new ACS journal on the chemistry-biology interface, *ACS Chemical Biology*. "Laura Kiessling's advocacy for this field and her vision of its future make her the ideal candidate to lead the ACS's efforts to serve chemical biologists as they expand the frontiers of science," says ACS Senior Product Development Manager Jennifer Cho. "We fully expect her editorship of *ACS Chemical Biology* to usher in a new beginning for the

society at the chemistry-biology interface."

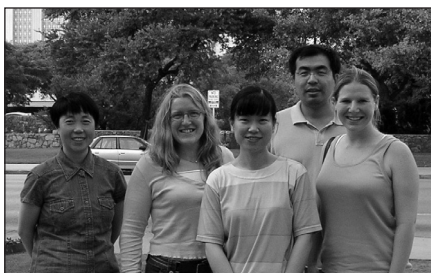
Laura received the Tetrahedron Young Investigator Award; the award was given in Bordeaux France this past June. In November Laura traveled to Kyoto, Japan, to speak at RIKEN and in the Japanese Agricultural and Biotechnology Meeting. In March she was an organizer of a symposium at the San Diego ACS Meeting entitled *Frontiers in Bioorganic Chemistry and Chemical Biology*. This symposium was connected to a celebration of Peter Dervan's 60th Birthday. She also spoke in two other symposia, including one organized by former Wisconsin PhD **Tyler McQuade** (PhD '98, Gellman) who is now a faculty member at Cornell. After a short 2-week visit in Madison, she headed back out to San Diego where she gave lectures at the meeting of the American Society for Biochemistry and Molecular Biology and at the meeting of the American Association of Immunology. Laura was the Lilly Lecturer at Emory this past April. In May, she presented a Friday Afternoon Lecture at Rockefeller University. In July, she participated in a FEBS course entitled "Chemistry Meets Biology" on the Greek Island Spetses. Graduate students **Erin Carlson** and **Ratmir Derda** graciously also attended this meeting. (It was not hard to convince them to travel to a Greek Island for this meeting.) Laura also presented a lecture at the Protein Society Meeting in August, where **Ron Raines** received the Emil Kaiser Award in Protein Chemistry.

Students receiving their PhD degrees this year (2004-2005) include: **Michelle Soltero-Higgin** (Michelle is currently a postdoctoral associate at the National Institute of Environmental Health Sciences in North Carolina) and **Jason Pontrello** (who recently moved the upstate NY area).

Professor **Lingjun Li** received a highly competitive NSF CAREER award, entitled: "Development of Integrated MS Strategies for Probing Peptidergic Signaling". This five-year grant will support aspects of Lingjun's research on mass spectrometric studies of neuropeptides. The Faculty Early Career Development (CAREER) Program is a Foundation-wide activity that offers the National Science Foundation's most prestigious awards in support of the early career-development activities of those teacher-scholars who are most likely to become the academic leaders of the 21st century. CAREER awardees are selected on

the basis of creative proposals that should build a firm foundation for a lifetime of integrated contributions to research and education. This is a great honor that endorses Lingjun's scientific program in a strong term.

The Li Lab gave four poster presentations and an oral presentation at the 53rd American Society for Mass Spectrometry (ASMS) Conference in San Antonio, TX in June 2005.



Some of the Li group in San Antonio

**Jim Maynard's** Demo Lab was as busy as ever this year, with a full lecture schedule, outreach activities, SPICE, WISL, and numerous special presentations, including the 35th Annual Christmas lecture, some support for the morning WKOW science segment, the PEOPLE program, the Engineering Summer Program, the PIPEline summer program, and the successful upgrade of Seminar Hall. As always, there have been some new faces added to the students who work here. I am always proud of the fact that many of my new students are chemistry majors, and some go on to work "upstairs" as we call it.

We have come up with improvements to some tricky demos, and some new demos are starting to show up in the repertoire of Wisconsin professors. The April 19th explosions lecture given by **Dr. Allen Clauss** at UW-Whitewater was truly memorable. I love to hear that nervous laugh that accompanies some of my more, shall we say, "Active" demos?

Another accomplishment I am truly proud of is the distribution of the premier issue of "The Demoist", a free electronic newsletter inspired by my tour of Big Ten schools' lecture demonstration facilities. We have a list of over 120 educators involved, and the list is growing, with subscribers from schools and colleges all over the world. If you need this sort of free newsletter cluttering up your inbox, send to maynard@chem.wisc.edu and ask for your subscription today!

I was also peripherally involved with

last year's ACS National Chemistry Week activities, assisting **Allen Clauss** and **Diane Nutbrown** with a classroom demonstration set focused on Health and Wellness. We did activities on Vitamin C, Hemoglobin, the iron content in cereal, and the use and operation of a GE Medical pulse oximeter. The Local ACS section was selected as a finalist for a category of the 7th annual Chemlunary Awards. Dianne and I presented a poster at the session prior to the event. The category is "Most Original Hands-on Activity or Chemical Demonstration".

I would also like to mention two folks in particular who spent a lot of time down here. One is **Amit Nimunkar**, who taught a section for both the PIPEline program and the engineering summer program for the second year. He took on a lot of the responsibility for setting up and performing his own demonstrations this year, and did a fantastic job. The other person I would like to thank is **Dave Delach**, a student from my lab. He is a hard worker, a good student, and is in the National Guard. He got called to active duty this August, and he will most certainly face some adversity after he gets sent east. I wish him the best of luck. He has everything else he needs. I am hopeful he will come back and take his spot on my roster.

**Bob McMahon** is a co-organizer for the series of workshops funded by the NSF Organic Chemistry Dynamics program. The workshops afford the opportunity for research discussions among early-career faculty, established faculty, and members of the NSF organic chemistry program staff. The 2005 workshop was held in Bodega Bay, California. Bob presented an invited lecture at the International Symposium on Reactive Intermediates and Interesting Molecules (Edinburgh, Scotland). He presented research seminars at Univ. of Texas-Austin, Trinity Univ., Truman State Univ., Marquette Univ., and the Center for Photochemical Sciences at Bowling Green State Univ. Bob was a eulogist at the memorial service for his Ph.D. mentor, Orville Chapman (UCLA), who passed away in Los Angeles. Bob, Ken Houk and Arlene Russell co-organized a day-long scientific symposium in memory of Chapman at UCLA in September 2004.

As with the 3rd and 4th editions, **Cathy Middlecamp** was a member of the authoring team for the 5th edition of Chemistry in

Context (released February 2005), a project of the American Chemical Society. In 2005, she presented workshops for faculty new to the pedagogical approach of the text at Harvard, McGill, and the University of Alaska at Fairbanks.

In addition to her work as Associate Editor of the *Journal of Chemical Education*, **Betty Moore** has been appointed to head the Outreach Office of the ACS Division of Chemical Education. In this capacity she works with organizers of ACS regional meetings, conferences, workshops, teacher symposia, and other meetings to provide publicity about the Division of Chemical Education, its committees and task forces, the ACS DivCHED Examinations Institute, and the *Journal of Chemical Education*. During the past year about 5000 people were reached by outreach publications and activities under the aegis of the Outreach Office. If you will be hosting any kind of meeting, feel free to contact Betty at [jce@chem.wisc.edu](mailto:jce@chem.wisc.edu).

**John Moore** gave invited, plenary talks at the Chemical Education Section of the 87th Canadian Chemical Conference and Exposition in London, Ontario (The *Journal of Chemical Education* and First-Year Chemistry Innovations), at the University of Georgia Chemistry Colloquium (The *Journal of Chemical Education* and the National Science Digital Library: Carrying Neil Gordon's Vision into the 21st Century), and at the Gordon Research Conference on Visualization in Science and Education, Oxford, UK (Using Visualizations from the *Journal of Chemical Education* in Chemistry Classes). John gave several talks at the 18th Biennial Conference on Chemical Education (BCCE) at Iowa State University. He was the banquet speaker for the Physical Chemistry Online project, described the use of course-management systems in general chemistry at UW-Madison, and participated in a panel on chemical education journals. Together with **Jon Holmes** of the *Journal of Chemical Education* (JCE), John organized a symposium on digital libraries at the BCCE. The symposium involved one representative from each National Science Digital Library (NSDL) subgroup that is associated with chemistry. Attendance was good, the presentations were interesting, and many collaborations were begun. Former UW-Madison undergraduate **Eric Todd** (BS '01), who is now a graduate student at the

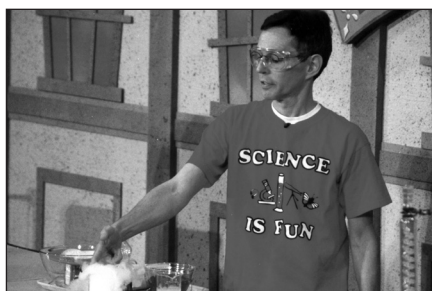
University of Illinois at Urbana-Champaign, invited John to speak about the NSDL and about how to publish in *JCE* before a new organization for graduate students interested in chemical education at UIUC. John also gave two presentations at the annual meeting of the National Science Digital Library, for which he is vice chair of the committee on project sustainability.

**Hans Reich** gave a plenary lecture at the 7th International Conference on Carbanion Chemistry in Alicante, Spain in July 2004. Also speaking at the conference were **Janine Cossy** (PD Trost) and **Barry Trost** (former faculty member, 1965-1987). Hans plans to host the 8th ICCS in Madison in the summer of 2007. During this trip he also visited the University at Aachen, where **Prof. Carsten Bolm** (MS '84, Reich, Organic Visiting Professor '92) was his host, and had lunch in Hannover with five former Organic Visiting Professors: **Ian Fleming** (1980), **Ernst Schaumann** (1980), **Andreas Kirschning** (1997) and **Markus Kalesse** (PD '98, Burke, Kiessling). Hans lectured at the University of Missouri, Columbia, and at the Physical Organic Gordon Conference in Holderness, NH, chaired by **Gary Weisman** (PhD '76, Nelsen). Also speaking at the Gordon Conference were **Natia Frank** (MS '90, West, now on the faculty at University of Victoria), **Armin DeMeijere** (Organic Visiting Professor 1972, Goettingen), **Luis Echegoyan** (PD '74-'75, Nelsen, Clemson University), **Ed Clennan** (PhD '77, Nelsen, University of Wyoming), **Igor Alabugin** (PD '96-'00, Zimmerman, Florida State University) and **Tyler McQuade** (PhD '98, Gellman, Cornell University). Several former students stopped by during the last year to visit the campus and admire the new Chemistry building: **Marco Medina** (PhD '95, Reich), **Dafni Amirsakis** (BS '97), **Sue Wollowitz** (PhD '80, Reich) and her husband **Nathan Haese** (PhD '81, Woods).

**Dan Rich** was awarded an "Outstanding Alumni Achievement Award" from the Institute of Technology of the University of Minnesota-Minneapolis. Dan graduated from Minnesota with a BS in Chemistry in 1964 and 40 years later was back to address the Senior Chemistry Major convocation, to his amazement and probably the faculty amazement as well. The award was only one of three presented to IT graduates in 2004 and was presented at IT commencement in

May 2004. Dan was also awarded the Edward Smissman Award from the ACS Division of Medicinal Chemistry on August 30, 2005 at the Washington DC ACS meeting. The Smissman Bristol Myers Squibb Award in Medicinal Chemistry honors individuals who have made major contributions to research and teaching of medicinal chemistry over many years.

**Rodney Schreiner** (MS '73, PhD '81, Shakhshiri) received the Chemistry Department's James W. Taylor Award for teaching, delivering the Taylor Lecture in January 2005. During the fall semester, Rodney taught two sections of Chemistry 103 (with a total of 740 students) and he taught one section during the spring semester. Rodney has been teaching in the department since earning his PhD. Rodney is also Associate Director of the Wisconsin Initiative for Science Literacy and, along with Professor Bassam Z. Shakhshiri, is writing the fifth volume of *Chemical Demonstrations: A Handbook for Teachers of Chemistry* and a revision of the booklet *Chemical Equilibrium*.



Rodney Schreiner

When Rodney teaches basic chemistry, he doesn't just tell students about the characteristics of different plastics, he shows them. He doesn't just tell students how a Geiger counter or smoke alarm works, he shows them. Rodney's favorite part of lecturing is chemical demonstrations, which is also a favorite of the students. He says chemistry and art history are among the few fields in which teachers can show students what they are talking about, and he admires superb teachers who don't have anything to show students. Rodney learned from his favorite philosophy professor at Marquette University that you have to tell a story to make the subject interesting and put it in a context anyone can understand.

Science is just one of Rodney's interests. He's also a classical pianist, a gardener and an art collector. Born in Milwaukee, Rodney got his bachelor's degree from Marquette

University with a triple major: chemistry, mathematics and philosophy. He was interested in logic, and courses were cross-listed under both mathematics and philosophy. At the time, Marquette required all undergraduates to complete at least 15 credits in philosophy, and Rodney figured he might as well go on and make it another major.

Rodney's hero is Isaac Asimov, the prolific author known mainly for his science fiction novels. But he hasn't read much of the science fiction—he prefers Asimov's many books on scientific topics. Rodney says Asimov was able to explain science (and many other topics) in an extraordinarily lucid fashion accessible to any well-educated person. He says research by itself is not motivating enough. "I like to figure things out", he says, "but not just for myself—I get pleasure from explaining science to others who may not be experts. And it keeps my feet on the ground."

Rodney took up the violin at age five and studied piano from age 7 to 22. He thought of pursuing a career as a concert pianist but found that he did not have the personality to be a performer—he hated competitions and auditions. Fortunately, Rodney's aversion to performing does not extend to the classroom—he seems perfectly at ease before a class of 300. Rodney lost motor control of his left arm due to an auto accident in 1973. He's almost fully recovered but had to re-learn the movements for playing the piano, and now plays only for himself. Rodney also has a collection of about 3000 compact discs of classical and serious contemporary music.

Rodney has an extensive and totally eclectic art collection, which includes almost every style and medium. His most recent purchase was a screen print bought at a student art show. Some scientists collect science-related art, but Rodney's collection has little to do with science. The fool-the-eye drawings of M.C. Escher are popular with scientists, but Rodney says they are like mathematical puzzles—once you have figured them out, they are no longer interesting, while good art reveals something new with every viewing. He says science asks questions which have definite answers, while art asks questions which have no answer. Rodney buys what he likes and has just one rule—he only buys the works of living artists. He says, "The person who created the work should get the reward, and I want to encourage people to keep creating."



Rodney has an extensive flower garden and takes photos of his flowers to decorate his office. He prefers photographing flowers rather than people because, he says, people don't hold still long enough while pictures of flowers can be carefully framed and composed. Rodney does not grow vegetables—he lives near Madison's Capitol Square, which has a weekly farmer's market that furnishes all his needs. Like many chemists, Rodney is also a good cook. He says it seems to go with the territory.

As for future plans, Rodney says the goal of WISL, explaining science to the general public, is exactly what he likes to do. Rodney says science is fascinating and wonderful, and he wants to share his enthusiasm. He says, "The enthusiasm must come first because if people are not interested, they won't learn."

**Bassam Z. Shakhshiri** was given the rare honor of being elected to the Alpha Chi Sigma Hall of Fame. Only 30 people have been so honored in the 100-year history of the professional chemistry fraternity, which was founded in Madison, and only 4 are alive. Bassam said at the induction ceremony in August 2004: "it is better to be inducted in person than posthumously!" Other honors bestowed recently on Bassam include:

- 2005 Madison Metropolitan School District Distinguished Service Award for Citizen
- Fellow of the Wisconsin Academy of Sciences, Arts and Letters
- 2005 CHEMICAL PIONEER Award from the American Institute of Chemists (AIC) in recognition of "pioneering scientific work and innovative contributions to science education."
- 2005 ACS Helen M. Free Award for Public Outreach for "lifelong accomplishments and for explaining and demonstrating science with charisma and passion"
- 2005 UW Professor, 2005 Reader's Choice, Capitol Times Newspapers

It is satisfying and rewarding to work with excellent collaborators dedicated to the mission of the Wisconsin Initiative for Science Literacy. The hard and productive work of **Rod Schreiner** (MS '73, PhD '81),

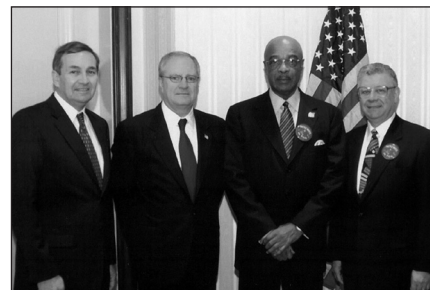
**John Powell, Laurens Andersen, Alan Muirhead, June Shakhshiri, and Worth Vaughan** along with staff, graduate and undergraduate students makes it all enjoyable and effective.



CEO Chad Halliday and Chief Technology Officer Thomas Connelly enjoying light sticks presented by Bassam Shakhshiri.

Bassam and co-author Rod Schreiner recently completed revisions of the *WORKBOOK FOR GENERAL CHEMISTRY*, *Chemical Equilibrium*, and *Chemical Kinetics*, all published by Stipes Publishing in Champaign, Illinois.

Since January of 2004 Bassam has given about 70 invited presentations to audiences in 15 states, in Europe, the Middle East, and Asia. He was the keynote speaker at the UNESCO International Conference on the Teaching of Science at the University Level held in Beirut. While in Lebanon he gave additional talks at universities and was interviewed on TV in Arabic—the language he has not spoken regularly since he moved to America in 1957. At the Singapore Science Center he gave a dozen presentations to thousands of students, teachers, and the general public. He was the featured speaker at DuPont's Science Excellence Awards ceremony in Wilmington, Delaware where the Lavoisier Medal of Honor and the Bolton/Carothers Award for Innovative Science are given to top DuPont scientists and engineers who have made extraordinary technical accomplishments and creative scientific inventions or discoveries. He gave plenary or named lectures at Penn State, Maryland, Southern Illinois Univ., St. Louis Univ., Iowa State, and other universities. Along with **Randy Guschl** (BS '69) he participated in the 2004 US Secretary of Education Science Summit in Washington, DC. Bassam is engaged in numerous activities such as the Intel Science Talent Search, Science Olympiad, the Army National Museum, National Science Teachers Association, and the American Association for the Advancement of Science,



At the 2004 Education Summit, Randy Guschl, President's Science Advisor John Marburger, Secretary of Education Rod Paige, Bassam Shakhshiri.

and ACS. He organized major national events including the OXYGEN Symposium at the 2004 annual AAAS Seattle meeting where **Carl Djerassi** (PhD '45, Wilds) and **Shannon Stahl** were among the speakers. This symposium was featured on National Public Radio's Science Fridays with host Ira Flatow. At the 2004 Fall ACS meeting in Philadelphia Bassam organized a presidential symposium on Science, the Arts, and the Humanities with Roald Hoffmann, Carl Djerassi, Oliver Sacks, and Felice Frankel as speakers. ACS president **Chuck Casey** hosted this event. In the fall of 2005 Bassam was featured at the Perugia Science Festival in Italy – a week of science hands-on programs both on city streets and indoors in a beautiful and historic city. Bassam and Rod Schreiner discussed the chemistry of fireworks, with demonstrations at the Memorial Union Terrace just prior to the annual Rhythm&Booms fireworks display across Lake Mendota. Along with students and staff from the Wisconsin Initiative for Science Literacy Bassam kept up his usual pace with presentations at Hilldale Mall, Kids EXPO, Science Expeditions, Engineering EXPO, College for Kids, UW Parents Weekend, family science night, Science in the Capitol, schools, and many other locations. Bassam was a panelist after a reading of COMET HUNTER at University Theatre along with the playwright, Chiori Miyagawa, and the director of the Madison Repertory Theatre. UW head football coach Barry Alvarez invited Bassam to be a guest coach at the 2003 home finale against Iowa. Even though Bassam called "a couple of good plays from the sidelines" the Badgers lost!

**Jim Skinner** has just finished his first year as Chair of the Chemistry Department. He delivered the Brian Kohler Memorial Lecture at UC Riverside in April.

**Ben Shen's** biggest news of the year is best told in an article from July 20, 2005 by Terry Devitt of University of Wisconsin-Madison Communications.

## Scientists to mimic nature for newest cancer drugs

The natural world has been medicine's most effective arsenal, providing life-saving antibiotics and our most potent anti-cancer drugs.

Now, with help from the National Cancer Institute (NCI), a consortium of UW-Madison scientists will embark on a five-year program of drug discovery by copying and improving nature's designs to develop new medicines to treat colon, breast, cervical and pancreatic cancer.

The new effort will involve faculty and staff scientists from the UW-Madison School of Pharmacy, the McArdle Laboratory for Cancer Research, and the UW Comprehensive Cancer Center.

"Natural products, especially those from microorganisms, have been a valuable source of new cancer drugs for many decades," says Ben Shen, a UW-Madison professor of pharmaceutical sciences and chemistry and the leader of the new National Cooperative Drug Discovery Group. Shen, working with Michael Hoffmann, Richard Hutchinson, Paul Lambert, Jon Thorson, Lynn Van Campen and other faculty and staff, will direct the \$5.6 million multidisciplinary program to produce and test analogs of natural compounds that have potential as anti-cancer drugs.

The new program will help fill a drug-discovery void as pharmaceutical companies have largely abandoned natural products research. Identifying and synthesizing the very complex molecules that make up the biologically active compounds found in microbes, marine organisms and plants is a difficult process, Shen says. New drugs are needed desperately to replace and improve existing medicines, and to provide new avenues for treating cancers that resist treatment with current drugs.

"Some people believe the tank of natural products for drug use has run dry," says Shen. "But we don't think that's true at all."

He notes that 60-75 percent of drugs approved to treat infectious disease and cancer over the past 25 years are of natural origin.

New technologies, together with exist-

ing libraries of previously discovered natural compounds, will help the UW-Madison group identify and evaluate molecules that may have value in the fight against cancer. Techniques to genetically manipulate microbes and synthesize their biologically active products, plus novel mouse models of cancer and real-time tumor imaging methods, will underpin much of work in the new NCI-funded program.

In nature, biologically active compounds produced by plants and animals almost always have potential as medicines because they are effective at killing microbes or, in the context of runaway cell growth that is cancer, can inhibit the ability of cells to multiply and grow. But the molecules that make up those natural compounds are very complex and, frequently, generate problematic side effects.

The task of the new UW-Madison group will be to construct molecules that mimic natural anti-cancer agents, but that have been altered to reduce side effects and improve their efficacy.

"Mother Nature made these products, but not for us to use as a cancer drug," Shen explains. "The goal is to build molecules that maintain their biological activity but whose side effects have been limited."

With new compounds in hand, the group of researchers will first test them in drug screens in the lab and, for promising candidates, in new mouse models for the cancers the group is targeting.

"No one has been putting these compounds into the tests for use as cancer drugs in the way we plan," says Shen.

With traditional UW-Madison strengths in chemistry and biology, Shen believes the new program will flourish on campus. "We have a set of new technologies that will help us take some of these natural products to the next level of cancer drug discovery."

The ultimate goal, he says, is to establish a pipeline of natural-product analogs that will appeal to the pharmaceutical industry as ripe for development for the next generation of anti-cancer compounds.



**Bob West** maintained his active schedule of international travel during 2004-5. In October he presented talks on silicon chemistry at seven universities throughout Japan, and gave a lecture at the annual meeting of the Japan Chemical Society. In December, he lectured at Israeli universities in Haifa, Jerusalem and Be'er Sheva. Then in March he traveled to Lebanon to take part in their third international conference, "Research Trends in Science and Technology". This put him in Beirut during the excitement of the huge demonstrations, which led to the end of the Syrian occupation of Lebanon. After this he spent three days at Jordan University of Science and Technology in Irbid, Jordan. This university, although quite new, has 15,000 students from 20 different middle-eastern countries: 50% are women.

Two new programs have been started in Bob's Organosilicon Research Center. Polysiloxane electrolytes, which were developed at the Center, are now being used experimentally for lithium batteries in implantable devices for nerve stimulation, to treat spinal cord damage, epilepsy, and intractable pain. The great thermal and electrochemical stability of these electrolytes makes them ideally suited for use in supercapacitors, and prototype devices of this sort have recently been made at the center. A spin-off company, Polyron Inc., has been established to develop the technology. In addition, the Center has begun research on silicon-containing drug molecules, and one of these shows promising activity against pancreatic cancer.

In 2005, Bob was elected to Fellowship in the World Innovation Foundation, where he joins many distinguished scientists such as Dr. Buzz Aldrin, Professor Ron Breslow, Professor Malcomb Chisolm, Professor Henry Lardy, Professor Glenn Seaborg, Professor Rosalyn Yalow, Professor Richard Zare and Professor **Howard Zimmerman** to name just a few.

Bob continues to be an avid airplane pilot, now with 2500 hours as pilot-in-command. In addition to his licenses as an instrument rated private pilot, he has recently earned a Canadian pilot's license. He says the Canadian airspace regulations are amazing.

**Prof. Howard Zimmerman** spoke at the Schuster Emeritus Symposium at NYU. **David Schuster** (PD '60-61, Zimmerman) was Zimmerman's first Wisconsin postdoc in the period when it was demonstrated that photochemical reactions could be



**Nelsen Alumni at the 65th Birthday celebration.** Row 1 (left to right): Mark Teasley (PhD '87), Gary Weisman (PhD '76), Steve Nelsen, Luis Echegoyen (PD '74-75), Chris Hollinsed (PhD '79), Pat Hintz (PhD '71), Ryo Akaba (PD '79-81). Row 2: Silas Blackstock (PhD '85), Tom Ippoliti (PhD '87), Ed Clennan (PhD '77), Glen Cunkle (PhD '84), Peter Gannett (PhD '82), Rustem Ismagilov (PhD '98), Tim Frigo (PhD '88). Row 3: Maria Yunta (PD '91-92), Jim DeFilippis (PD '90-92), Hieu Tran (PhD '98), Hao Chang (PhD '92), Michiko Iwamura (PD '68-69)

understood on the basis of the reactant electronic structures; Dave was part of the early research. Zimmerman has been kept busy with three chapters summarizing his research on theoretical aspects of organic chemistry, solid-state reactivity, and photochemistry – as well as writing the usual research papers. A major effort has been spent on the organization of the Pacificchem 2005 “Symposium on Organic Photochemistry – Reactions and Mechanisms”. There are 34 speakers from the U.S., Canada, Japan, England, Germany and Italy. The Pacificchem Congress is in December in Honolulu. Most recently Zimmerman’s Hilledale Chair has been continued for another five years; this is in addition to the A. C. Cope Chair.

The 2005 Madison Organic Chemistry Symposium was held June 3-4, 2005 at the Department of Chemistry, UW-Madison, in celebration of the 65th birthday of Chemistry Professor **Stephen F. Nelsen**.

Former students, colleagues, families, and friends from across the globe gathered in Madison to enjoy two days of scientific presentations and celebration. The scientific program entertained the attendees with a wide range of topics in contemporary

chemistry: electron transfer, computational methods, biochemical mechanisms, electrochemistry, DNA chemistry, materials chemistry, and history of science. The program was highlighted with a presentation by Professor Nelsen himself on “Using Koopmans’ Theorem for Optical Spectra”.

Among the speakers, several are Professor Nelsen’s long-time collaborators and friends: **Roger Alder** (UW Visiting Professor, 1978), **Tim Clark** (UW Visiting Professor, 1984 and 1991), **Dennis Evans** (UW Professor, Analytical, 1966-1986), **Hiizu Iwamura** (PD '67-68, Zimmerman), **Mike McBride**, **Jack Pladziewicz**, **Raj Rathore**, **Ffrancon Williams**, and **Jeff Zink**.

In addition, many former students and postdocs enjoyed returning to Madison, especially in the warm weather of the month of June, to visit their former supervisor and old friends: **Ryoichi Akaba** (PD '79-81), **Si Blackstock** (PhD '85), **Hao Chang** (PhD '92), **Ed Clennan** (PhD '77), **Glen Cunkle** (PhD '84), **Jim DeFelippis** (PD '90-92), **Luis Echegoyen** (PD '74-75), **Tim Frigo** (PhD '88), **Peter Gannett** (PhD '82), **Pat Hintz** (PhD '71), **Chris Hollinsed** (PhD '79), **Tom Ippoliti** (PhD '87), **Michiko**

**Iwamura** (PD '67-68), **Rustem Ismagilov** (PhD '98), **Gaoquan Li** (MS '00), **Laurie Reinhardt** (PhD '94), **Mark Teasley** (PhD '87), **Hieu Tran** (PhD '98), **Gary Weisman** (PhD '71), and **Maria Josefa Rodriguez Yunta** (PD '91-92). This was also a delightful experience for Steve’s current graduate students, **Yun Luo**, **Kevin Schultz**, and **Mike Weaver**, who enjoyed meeting their predecessors in the Nelsen group.

Special elements of the conference program included the Conference Banquet at Nadia’s restaurant on State Street, which also featured a program in celebration of Professor Nelsen’s 65th birthday, with remarks by Gary Weisman, Mike McBride, and Hans Reich. Many pictures taken over the years were presented at the program, some of which had never been made public! Wonderful weather, a delightful dinner, and a first-rate scientific program combined to create a memorable evening for our guests.

Professors Si Blackstock (Alabama), Ed Clennan (Wyoming), Pete Gannett (West Virginia), and **Bob McMahon** (Wisconsin) served as the organizing committee.







# Our Awards

UW Chemists continue to garner significant awards.

## FACULTY AND STAFF AWARDS

**Helen Blackwell** received an NSF CAREER award. This highly competitive and prestigious award for young faculty will fund aspects of her research for five years. Helen also won a research Corporation Cotrell Scholar Award for 2005. Only 13 such awards were given nationally.

**Judith Burstyn** and **Gil Nathanson** both won Vilas Associates awards. These very competitive UW awards provide substantial funds for research.

**Fleming Crim** won the ACS Irving Langmuir Award in Chemical Physics. This is well-deserved recognition for his pioneering and seminal research in chemical dynamics and spectroscopy.

**Padma Gopalan** received an NSF CAREER award. Padma is an Assistant Professor in the Materials Science and Engineering Department, and a member of our Materials Chemistry PhD program. She received this award from the polymer program of the Division of Materials Research.

**Bob Hamers** was elected a Fellow of the AAAS in October 2004. This signal honor was bestowed for Bob's "pioneering applications of tunneling microscopy and surface modification techniques to the study of surfaces of organic and biological materials for electronics, sensing, and actuation."

**Frank Keutsch** received a 2005 Camille and Henry Dreyfus New Faculty Award.

**Laura Kiessling** received the first ever Tetrahedron Young Investigator Award in Bioorganic and Medicinal Chemistry, sponsored by Tetrahedron Publications (a division of Elsevier).

**Clark Landis** won a 2004-05 UW Distinguished Teaching Award. Clark has been active in a number of different efforts in the chemical education area, and is a great teacher.

**Daesung Lee** received a 2005 Sloan Fellowship, a competitive award for outstanding young scientists.

**Lingjun Li** received an NSF CAREER award. Her proposal was for "Development of Integrated MS Strategies for Probing Peptidergic Signaling."

**Sue Martin-Zernicke**, a program assistant in the General Chemistry Office, received one of the five Classified Staff Excellence Awards given by the College of Letters and Science for 2004-05. These awards recognize people in the College who demonstrate outstanding performance, service and contributions.



**Gil Nathanson** was elected a Fellow of the AAAS in October 2004. His citation reads: "For pioneering development of techniques for scattering molecules from liquid surfaces and their application to fundamental and practical aspects of interfacial interactions."

**Ron Raines** won the 2005 Emil Thomas Kaiser Award from the Protein Society. This national award is given each year to recognize "a recent, highly significant contribution in applying chemistry to the study of proteins."

**Tom Record** was recently selected as one of six Biophysical Society Fellows, an award to be presented at the annual meeting in February. The award was made to recognize Tom's "important contributions to the study of the biophysics of nucleic acids and their interactions with ligands and proteins."

**Dan Rich** won the 2005 Smismann Bristol-Myers Squibb Award from the ACS Division of Medicinal Chemistry.

**Matt Sanders** (PhD '83, Wirth) won the 2005 L&S Academic Staff Mid-Career Achievement Award. This award recognizes individuals who demonstrate "outstanding performance in their position, show substantial promise of future contributions, and demonstrate a high degree of professionalism."

**Dr. Rodney Schreiner** was selected as the 2004 recipient of the **James W. Taylor** Excellence in Teaching Award. This award, made possible by a generous endowment from the Pharmacia Corporation, was presented at the Excellence in Teaching Symposium in January 2005.

**Bassam Shkhashiri** was awarded the "MMSD Distinguished Service Award for Citizen: District Wide" at the 2005 Awards Recognition Program on April 25, 2005, at LaFollette High School in Madison. The MMSD Board of Education cited Professor Shkhashiri for his science education and cultural contributions to the community through programs such as Conversations in Science, SCIENCE IS FUN presentations, Science Saturdays, Conversations on Creativity, and other local activities of the Wisconsin Initiative for Science Literacy.

Bassam also was named a Fellow of The Wisconsin Academy of Sciences, Arts and Letters, a recognition conferred on men and women of extraordinary lifetime accomplishment.

**Lloyd Smith** received the 2005 ACS Award in Chemical Instrumentation, sponsored by the Dow Chemical Foundation. He presented his award address at the fall ACS meeting.

**Marty Zanni** won the Benjamin Smith Reynolds Award for Excellence in Teaching of Future Engineers. This award is presented by the UW School of Engineering, for his outstanding teaching in Chemistry 109. This is the first time the award has been won by an assistant professor.

## STUDENT AWARDS

Student scholarships and research awards are made possible by generous donations from alumni, friends, and companies that recognize the value of awards allowing both graduate and undergraduate students to spend more time on research, one of the strengths of this institution. Gifts like these from alumni, faculty, and friends of the Department allow us to make a difference in the academic and professional lives of our students.

Teaching awards come from both Departmental and campus sources, and recognize the Department's second fundamental mission – exceptional teaching at both the undergraduate and graduate levels. In this section we salute not only the fine students who have worked hard to earn these honors, but also the donors who have made them possible.

The Outstanding TA Awards for 2003-04 were presented in January 2005 at the Excellence in Teaching Symposium. TAs and Faculty Assistants are selected to receive these awards each year on the basis of excellent teaching evaluations from students and faculty. Awardees included **Eric Benedict**, **Lynn Gehrmann**, **Reece Jones**, **Yi Jin Kim** (Lee), **Revati Kumar** (Skinner), and **Andrew Mangham** (Hamers).

Graduate scholarships and fellowships come from industrial and alumni donors, and also from the Graduate School and outside organizations. Awards and the students who received them during 2004-2005 included: A Merck Fellowship went to **Eric Fulmer** (Zanni). **Jordan Schmidt** (Skinner) continued on the Hertz Fellowship. **Laura Wysocki** (Burke) received a Lucent Fellowship. **Arianne Baker** (Hamers), **George Barnes** (Crim), **Anne Bentley** (Ellis), **Andrew Crowther** (Crim), **Adam Fiedler** (Brunold), **Jonathan Grimm** (Lee), and **Adam Van Wynsberghe** (Cui/Wiesshaar) were all National Science Foundation Fellows. **Emily Payne English** (Gellman), **Eve Hindin** (Hamers), and **Joe Binder** (Raines) were National Defense Science and Engineering Fellows; **Matt Shoulders** (Raines) was a Department of Homeland Security Fellow. **Michael Santiago** (Burstyn) received an NRSA fellowship from NIH. **Soo Hyuk Choi** (Gellman) continued his Fellowship from Samsung,

and **Sang-Hee Shim** (Zanni) received a fellowship from the Kwanjeoung Educational Foundation in Korea.

**Amanda Brooks** (Brunold), **Jamie Ellis** (Cavagnero), and **Colin Ingram** (Weisshaar) were Biophysics Trainees during 2004-05. **Heidi Behrens** (Li), **Emily Dykhuizen** (Kiessling), **Wayne Kontur** (Record), **Luke Lavis** (Raines), **Sannali Matheson** (Markley), **Justin Murray** (Gellman), **Susan Reslewic** (Schwartz), and **Brian Smith** (Denu) were Biotechnology Trainees. **Katie Alfare** (Kiessling), **Heather Johnson** (Thorson), **Kimberly Kutz** (Li), **Chris Marvin** (Burke), **Erin McElroy** (Kiessling), **Kim Peterson** (Gellman), and **Josh Price** (Gellman) were Chemistry-Biology Interface Trainees. **Josh Mandir** (Smith) was a Genomic Sciences Trainee. These traineeships come from NIH.

Divisional Awards for Excellence in Research were presented to **Anne Bentley** (Materials, PhD '05, Ellis), **Adam Fiedler** (Inorganic, Brunold), **Yiyong He** (Physical, PhD '05, Ediger), **Sarah Maifeld** (Organic, Lee), and **Susan Reslewic** (Analytical, PhD '05, Schwartz). Excellence Award recipients are advanced graduate students in each division who are selected as leaders in their fields. **Annabel Muentzer** (PhD '04, Nathanson) received the first Leah Cohodas Berk Award for Excellence in Chemistry Research. These research awards are made possible through donations to the Department.

**Beth Nichols** (Hamers) received the "Best Student Poster Award" at the Applied Diamond Conference/Nanocarbon 2005 in Chicago. **Stephanie DeKeyser** (Li) was selected to receive the Merck Travel Award to support her travel to the 54th ASMS meeting next year.

**Eric Hansen** (Lee) will be the 2005-06 Abbott Laboratories Fellow in Synthetic Organic Chemistry. **Jennifer O'Neill** (Blackwell) is the 2005-06 Novartis Fellow in Organic Chemistry. **Qiang Fu** (Li) is the 2005-06 Merck Fellow. **Sarah Baker** (Hamers) has received the Leah Cohodas Berk Graduate Research Award for 2005-06. **Erin Carlson** was the recipient of the first Ralph F. Hirschmann-Daniel H. Rich Graduate Award for 2005-06.

Undergraduate research support was provided during Summer 2004 from the following sources: the Edwin M. and Kathryn M. Larsen Scholarship was presented

to **Richard Arts** (Zimmerman), who also received support from the Richard Fischer Scholarship and the Edward Panek Memorial Scholarship; the Walter and Young-Ja Toy Scholarship was given to **Krupa Ramasesha** (Crim); **Elissa Hobert** (Kiessling) received the Mabel Duthey-Reiner Scholarship; **Jesse Wilkins** (Kiessling) received the National Starch and Chemical Foundation Scholarship; and **Ryan Baxter** (Gellman), **James Krier** (Nathanson), **Mohammed Shekhani** (Lee), **Jesse Wilkins**, and **Calvin Wysocki** (Burke) were awarded Student Support Scholarships.

The following undergraduate students received scholarships during the 2004-05 academic semesters: **Genc Berisha** and **Stacy Johnson** were incoming students from East High School who received Ackerman Scholarships. **Laura Luther** received the Margaret McLean Bender Scholarship. **Mohammed Shekhani** received the Don Brouse Memorial Scholarship. **James Krier**, **Kari Midthun**, **Krupa Ramasesha** and **Calvin Wysocki** received Andrew Dorsey Memorial Scholarships. **Amy Huchthausen** and **Carolyn Rosewall** received Mabel Duthey-Reiner Scholarships. **Jayson Kempinger** and **Nicole Temple** received Eugene and Patricia Kreger Herscher Scholarships. **Jennifer Yang** won the Kimberly-Clark Scholarship. **Melissa Ecker** and **Peter Throm** received Edwin M. and Kathryn M. Larsen Scholarships. **Ryan Baxter** and **Steven Kehoe** received National Starch and Chemical Foundation Scholarships. Wayland Noland Undergraduate Research Fellowships went to **Richard Arts** and **Brian Pujanauski**. **Amanda Bowman**, **James Krier**, and **Matthew Leathen** received Student Support Scholarships. **Melisa Shiroda** and **Jesse Wilkins** received Walter W. and Young-Ja C. Toy Scholarships. **Richard Arts** and **Mohammed Shekhani** received Alfred Wilds Scholarships.

Undergraduate research support was provided during Summer 2005 from the following sources: **Mikhail Wolfson** (Cui) received the Don Brouse Memorial Scholarship. **Laine Stewart** (Casey) received the Mabel Duthey-Reiner Scholarship. The Eugene and Patricia Kreger Herscher Scholarship was given to **Sean Andrews** (Hamers). The Margaret McLean-Bender Scholarship

(Continued on page 12. . .)



# New Badger Chemists

PHD

## AUGUST 2004

### Yan Chen (*Smith*)

Direct SNP Genotyping on Surface Invasive Cleavage Arrays

### Wendy Anne Deprophetis (*McMahon*)

Combined Matrix Isolation and Computational Studies of Reactive Organic Intermediates

### Christopher George Elles (*Crim*)

Vibrational Relaxation and Photodissociation Dynamics in Solution

### Terry T. Goodrich (*Corn*)

Ultrasensitive Nucleic Acid Detection Using Surface Plasmon Resonance Imaging Measurements Via a Novel Surface Amplification Process and Microfluidic Networks

### Kevin Ladean Jantzi (*Reich*)

I. Solution and Chelation Properties of Ortho-Substituted Phenyllithium Derivatives; II. Solution and Chelation Properties of 3-Substituted 2-Thienyllithium Derivatives; III. Development of a Quantitative Measure of Chelation Strength...

### Cara Lee Jenkins (*Raines*)

I. Insights into the Determinants of Collagen Triple Helix Stability  
II. Inhibition of Rnase A by Analogs of 3'-Uridinemonophosphate

### Asgeir Konradsson (*Nelsen*)

Adiabatic Electron Transfer in Aromatic Bridged Bishydrazine Radical Cations

### Susie C. Martins (*Casey*)

Understanding the Origin of Selectivity in Hydroformylation

### Kent Albert Meyer (*Wright*)

Frequency-Scanned Ultrafast Spectroscopic Techniques Applied to Infrared Four-Wave Mixing Spectroscopy

### Gordon Allan Shaw (*Ellis*)

The Nanoscale Mechanical Properties of Nickel-Titanium Shape Memory Alloy

### Xingping Su (*Smith*)

Surface-Based DNA Computations

### Matthew G. Woll (*Gellman*)

Efforts Toward Understanding Secondary and Tertiary Structure in Polypeptides

## DECEMBER 2004

### Christopher John Ciolli (*Belshaw*)

Modulating Biological Activity of Engineered Receptors Via Proximity-Accelerated Alkylation

### Thomas Patrick Clark (*Landis*)

Synthesis of 3,4-Diazaphospholanes and Their Application to Asymmetric Catalysis

### Eileen Tayag Dimalanta (*Schwartz*)

A Novel System for the Rapid Analysis of Whole Genomes

### John Domenic Fisk (*Gellman, Biophysics*)

Development of Model Systems for the Study of Thermodynamics and Cooperativity in Parallel  $\beta$ -Sheet Folding

### Timothy Alvin Jackson (*Brunold*)

Investigations of the Active-site Properties of Iron and Manganese Superoxide Dismutases Using a Combined Spectroscopic/Computational Approach

### Jeffrey Bruce Johnson (*Casey*)

Analysis of a Hydroxycyclopentadienyl Ruthenium Hydride Ligand-Metal Bifunctional Catalyst: Reactivity, Mechanistic Studies and the Development of More Active and Selective Catalysts

### Valerie Ann Keller (*Burke*)

Symmetry and Synthesis: Applications in Spiroketal Formation and in Synthetic Efforts Towards the C22-C36 Subunit of Halichondrin B

### Jonathan Robert Lai (*Gellman, Biophysics*)

Structure and Function in Peptides with Natural and Non-Natural Backbones. (I) Exploration of Hydrophobic Core Malleability in Coiled-Coils via Phage Display. (II) Engineered Protegrin-1

Analogues for Structure-Activity Relationships. (III) Insights into the Secondary and Tertiary Structures of  $\beta$ - and  $\gamma$ -Peptides.

### Sang Alex Lim (*Schwartz*)

Single Molecule Systems: Advancements and Applications to Microbial and Human Genome Analysis

### Annabel Helen Muentner (*Nathanson*)

Reactions of Deuterium Chloride With Pure and Salty Glycerol

### Eric Allan Voigt (*Burke*)

Desymmetrization by Ketalization/Ring-Closing Metathesis: Rigid Templates for Efficient, Stereocontrolled Total Synthesis

### Tian Wu (*Schwartz*)

Transchip: A New System for Studies of In Vitro Transcription of Whole Genomes

## MAY 2005

### Galina Anvarovna Bikzhanova (*Casey*)

Hydroxycyclopentadienyl Ruthenium Hydride Hydrogenation Catalysts: Mechanism of Imine Reduction and Development of a More Active Catalyst

### Tami Lasseter Clare (*Hamers*)

Functional Monolayers for Direct Electrical Biosensing

### Tolga Sinan Gulmen (*Sibert*)

Vibrational Energy Relaxation of Methanol in Solution

### Christine Mei-Ling Morales (*Landis*)

Transition Metal and Excited State Electronic Structure Calculations Employing a Localized Bonding Perspective

### Kevin Patrick Weidkamp (*Hamers*)

Surface Chemistry of Pentacene on Clean and Chemically Modified Silicon (001) Surfaces

### Wensha Yang (*Hamers*)

Biologically Modified Diamond Thin Film for Biosensing Applications

MS

## AUGUST 2004

Eric Samuel Benedict (*Raines*)  
 Danielle Elizabeth Curran (*Brunold*)  
 Ming Li  
 Sannali Matheson (*Gellman*)  
 Salwa Sami Salah (*Reich*)  
 Judy Mi Suh (*Burke*)  
 Tian Wu (*Schwartz*)  
 John Yi (*Moore*)

## DECEMBER 2004

Linda Nicole Fanis (*Jin*)  
 Bryan Charles Katzenmayer (*Casey*)  
 Keunho Kim (*Burke*)  
 Andrea J. Lee (*Burstyn*)  
 Ryan Dennis Otte (*Lee*)  
 Karin Michelle Otte (*Stahl*)  
 Christopher Paul Pawela (*Farrar*)  
 Samuel Robert Pazicni (*Burstyn*)  
 Ting Zheng (*Smith*)

## MAY 2005

Arienne Lisbeth Baker (*Hamers*)  
 Stephanie Anna Chan (*Reich*)  
 Jonathan Blandon Grimm (*Lee*)  
 Jenna Emily Harang (*Stahl*)  
 Amanda Joy Hennip (*Hamers*)  
 Eve Anna Hindin (*Hamers*)  
 Dennis McGillicuddy (*Landis*)  
 Christopher Joseph Painter (*Shakhashiri*)  
 Patricia Sue Schaefer (*Cui*)

Lianne Elizabeth Schroeder (*Shen*)  
 Kimberly Anne Smith (*Reich*)

BS &amp; BA

## AUGUST 2004

Lyndsay Francine Higgins  
 Matthew Manuel Reiter  
 Jacqueline Ann Viau

## DECEMBER 2004

Richard James Arts  
 Tamara Lynn Backus  
 Wesley Allen Freund  
 Bret Michael Glembocki  
 Meranda Marie Gudenschwager  
 Craig Robert Holler  
 Jeremy Thomas Kedziora  
 Michael David Lindow  
 Jeffrey John McClain  
 Thanhha T. Phan  
 Teresa Danielle Vondrak

## MAY 2005

James Henry Avruch  
 Ryan David Baxter  
 Amanda Catherine Bowman  
 Lindy Marla Carlstrom  
 Tsz Yan Clement Chan  
 Robert Alerames Darling  
 Krysten Angela Dorman

Chad Colin Eichman  
 Jacob Allen Engel  
 Kari Lynn Esselman  
 Youa Her  
 Jeremy Logan Hosler  
 Edward Alan Kabara  
 Matthew Jooho Kim  
 Andrew J Kolste  
 Ryan Drew Linder  
 Mark Loyd Lueneburg  
 Laura Marie Luther  
 Angie Anna Marik  
 Tyler James Mark  
 Kirk Albert McNamara  
 Peter Joseph Milosevic  
 Alexis Tracey-Lynette Morris  
 Brian Hugh Morrison  
 James Dale Neunaber  
 Cassandra Nicole Nielsen  
 Lauren Marie Olson  
 Erin Katherine Otte  
 Lena Elizabeth Pons  
 Brian Gerard Pujanauski  
 Catherine Irene Sharpe  
 Anne Marie Simon  
 Conor Sylvester Smith  
 Nathan Ambrose Smith  
 Cassandra Jean Splinter  
 Jeannine Robin Szczech  
 William Martin Vanderheyden  
 Zachary Edward Vandenheuveel  
 Aaron John Wallander  
 Jennifer Wen-Chian Yang



## Our Awards (continued from page 10)

was given to **Amber Janda** (Zimmerman). Wayland Noland Undergraduate Research Fellowships went to **Sean Andrews** and **Kevin Beier** (Record). **Kevin Allen** (Burke) received the new Novartis Undergraduate Research Scholarship. **Amber Janda** received the Edward Panek Memorial Scholarship. **Steven Kehoe** (West) and **Mikhail Wolfson** were awarded Student Support Scholarships. **Carolyn Rosewall** (Reich) received the Martha Gunhild Week Scholarship. **Mikhail Wolfson** was further supported by an Alfred L. Wilds Scholarship.

The following undergraduate students are benefiting from scholarships during the 2005-06 academic year: **Andrea Showers** from East High School received the new student Ackerman Scholarship; **Sean Andrews**, **Blake Carlson** and **Reece Goiffon**

are continuing students supported by Ackerman Scholarships. **Melisa Shiroda** received a Mabel Duthy-Reiner Scholarship. **Elissa Hobert**, **Carolyn Rosewall** and **Melissa Yatzek** received Henry and Eleanor Firmin-hac Scholarships. **Amber Janda** received the Richard Fischer Scholarship. **Kevin Allen** and **Johanna Wendlandt** received Kimberly-Clark Undergrad Scholarships. **Kevin Beier** and **William Fleming** received Edwin M. and Kathryn M. Larsen Scholarships. **Kari Midthun** and **Krupa Ramasesha** received Walter W. and Young-Ja C. Toy Scholarships. **Melisa Shiroda** received the Martha Gunhild Week Scholarship.

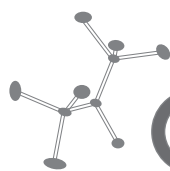
2005 Daniel L. Sherk Awards for Excellence in Undergraduate Research were given to **Amanda Bowman** (Landis), **Jeremiah Wilke** (Weinhold) and **Melissa Yatzek**

(Sahai). Awards from the Wisconsin Section of the American Chemical Society went to **Thomas Mueller** (Excellence in Analytical Chemistry); **Elizabeth Gordon** (Excellence in Inorganic Chemistry); **Barrett Crowther** and **Joseph Wolfe** (Excellence in Organic Chemistry); and **Krupa Ramasesha** (Excellence in Physical Chemistry).

Excellence in General Chemistry classes is recognized with several sets of awards. **Nicholas Guldan**, **Corey Hart**, **Victoria Lee**, and **Kittikuhn Wangkanont** received John and Elizabeth Moore Awards. **Katherine Gielissen**, **Agnieszka Kubica**, **Michael Olson**, **Jason Pinger**, and **Taya Schairer** received Krauskopf Chemistry Awards. **Joseph Wildenberg** received the Hypercube Scholar Award for Scholastic Excellence in Chemistry.







# Other Notable News

## DEPARTMENT LECTURE SERIES

Look for announcements of Departmental seminars on the web at <http://www.chem.wisc.edu/areas/newsletter/seminars-list.html>. We have highlighted below some of the named and special seminars held at the Department in the preceding year, but many other stellar talks are given each week by faculty, students and guests of the Department.

The first Chemistry Colloquium of the year was presented by **Laura Kiessling**, who spoke about "Multivalency: A new dimension for understanding cellular function." **Joanna Aizenberg** from Bell Laboratories (Lucent Technologies) spoke about "Multi-level control of inorganic crystallization by organized organic assemblies." Dr. Aizenberg's visit was sponsored in part by the Graduate Women in Chemistry group. **George Atkinson**, Science Advisor to the Office of the Secretary of State and Professor of Optical Sciences at the University of Arizona, presented "Science and Technology in Twenty-First Century International Diplomacy" in December. In March **Clark Landis** and **Frank Weinhold** talked about the evolution and themes of their book, "Valency and Bonding: A Natural Bond Orbital Donor-Acceptor Perspective". April's speaker was **Professor James Thomson**, a member of The Genome Center of Wisconsin and a pioneer in stem-cell research. **Isiah Warner**, Professor of Analytical and Environmental Chemistry at Louisiana State University, gave a talk in May titled "Transformation of Louisiana State University: The Best University in the Country for African Americans to Earn PhDs in Chemistry."

**Hideo Tomioka** (Mie University) gave the 2004 **Ralph Hirschmann** Lectures (see profile page 27) in October. The talks were titled "Triplet Carbenes: From Fleeting Existences to Useful Molecular Units" and "Phenylene Bis(diradical); How does the Nature of the Diradical Subunit Affect the Overall Electronic Configuration?"

## MCELVAIN SEMINAR SERIES

The McElvain seminar series continued to sponsor talks from a variety of speakers across industry and academia. **Geraldine Richmond** (Physical) from the University of Oregon presented a talk in October. **Tom Krupenkin** (Physical) from Bell Labs and **Professor Jonathan Sweedler** (Analytical) from the University of Illinois spoke in February. The Analytical McElvain speaker in April was **Dr. Steven Hofstadler** from Ibis Therapeutics. **Charles M. Lieber** from Harvard spoke on Nanoscience and Nanotechnologies in May.

## LINCOLN SEMINAR SERIES

This student presented seminar series continued in 2004-05, with talks from senior students in a variety of organic research groups. The seminars are named after **Azariah Thomas Lincoln**, the first person to be awarded a chemistry Ph.D. at the University of Wisconsin-Madison. **Eric Hansen** (Lee), **Amanda Jones** (Reich), **Neil Strotman** (Casey), **Erin McElroy** (Kiessling), **Jack Sadowsky** (Gellman), **Susan Przybylinski** (McMahon), **Brian Lucas** (Burke), **Sannali Matheson** (Markley), **Matt Soellner** (Raines), and **Justin Murray** (Gellman) all gave talks. In addition, **Dr. Rob Zambias** (Fisher Scientific/ACROS) spoke to the group in May.

## ABBOTT PROCESS LECTURE

Through a generous donation by **Abbott Laboratories Process Chemistry Group** (North Chicago, IL), we were able to host the Abbott Process Chemistry symposium, which consisted of a (1) student award lecture, (2) a seminar by **Dr. Tony Haight** (a process research chemist at Abbott Laboratory) and (3) the Abbott Process Chemistry Lecture by **Prof. Alois Fürstner**, director at the Max-Planck-In-

stitut für Kohlenforschung in Mülheim, Germany. **Jodie Brice** (Stahl) was selected as the winner of the Abbott Laboratories Organic Synthesis Award from among several outstanding nominees from a number of research groups within the Division of Organic Chemistry. Professor Fürstner presented the 2004-2005 Abbott Process Chemistry Lectures in talks entitled "Venturing into Catalysis-Based Natural Product Synthesis"; and "Strained Silacycles: A Powerful Platform for Asymmetric Product Synthesis."

## HIRSCHFELDER PRIZE

**Casey Hynes** (University of Colorado and Ecole Normale Supérieure-Paris) gave the 2004-05 Hirschfelder Prize Lectures in October 2004. Titles were "The Curious Incident of the Dog in the Night-Time, or Adventures in the Theory of Reactions in Solution," "Chemistry in a Cold Climate: Heterogeneous Reactions Important in Atmospheric Ozone Depletion," and "Solvation and Electronic Funnel: Polar Environment Impacts on Conical Intersections." **Professor Fritz Schaefer** (University of Georgia) will give the 2005-06 lectures on October 10-12, 2005.

## BADGER CHEMIST ONLINE!!

We are excited to announce that the 1953-2003 issues of the *Badger Chemist* are now available online. The issues have been digitized and are part of the University of Wisconsin Collection. You can do full text searching of the title or browse the issues page by page.

To browse the *Badger Chemist* go to: <http://digicoll.library.wisc.edu/cgi-bin/UW/UW-idx?type=browse&scope=UW.BADGERCHEMIST>. Each issue is listed. Once you click on an image, a page with a search box and a listing of the contents of that issue appear. Either fill in the search box or select a chapter from the table of contents.

To search the entire 1953-2003 *Badger Chemist* go to: <http://digicoll.library.wisc.edu/UW/Search.html>. From there, type in your search terms (select Entire Work, Titles or Authors) and select the *Badger Chemist* from the drop-down menu "Search within a specific title." Other searches can be performed using the Boolean Search or Proximity Search options.

When searching Entire Work, the results set appears in a hierarchical or nested manner. The book or issue title, section or chapter title, and page(s) on which your search term(s) can be found are displayed. This structure provides a context for search results. Follow the various links to find the exact region containing the match, the first page of the article or section, or the electronic table of contents for the corresponding book or issue.

The *Badger Chemist* has been processed using OCR, so you may view the corresponding unedited page text. Displaying page text allows you to locate your search term within the page text. Search terms will be highlighted. Click Display Page Text (in the left navigation bar) to view page text.

For more information contact Sharon Mulvey ([smulvey@library.wisc.edu](mailto:smulvey@library.wisc.edu)) or Emily Wixson ([ewixson@library.wisc.edu](mailto:ewixson@library.wisc.edu)).

## JOHN FERRY TRIBUTE ISSUE

The Dec. 20, 2004 *Biophysical Chemistry* (Vol. 112, issues 2-3) is a special issue, "A Tribute to John D. Ferry." **John Ferry** was an emeritus faculty member in this department, and a founding father of modern Polymer Science. John died October 18, 2002 (see *Badger Chemist* No. 47 (2002), p. 34). Articles in the issue were written by colleagues, students and experts in fields that John Ferry influenced. **John Schrag** and **Tom Record** are among those who contributed articles to the issue.

## RAPID INJECTION NMR

Two of Hans Reich's students, **Aaron Sanders** (PhD '01), and **Marty Bevan** (PhD '03), with the help of the machine shop, electronic shop, and NMR facility have built a Rapid Injection NMR apparatus (RINMR) for use on the 360 MHz NMR

spectrometer. This allows dual injections of reactants into NMR sample tubes at temperatures as low as -140 C, stirring, and measurement of NMR spectra of reactants and products on a 0.25-1 sec time scale. Current student **Amanda Jones** is using the apparatus to study the reactivity of various aggregates and mixed aggregates of n-butyllithium and other lithium reagents.



Amanda Jones Uses the RINMR

## CHARTING THE FUTURE OF GRADUATE EDUCATION

Graduate students **Anne Bentley** (PhD '05, Ellis), **Matt Bowman** (Blackwell), **Andrew Mangham** (Hamers), **Kevin Metz** (Hamers), **Sam Pazicni** (Burstyn) and **Maggie Phillips** (Smith), with the guidance of **Cathy Middlecamp** and the support of the Division of Chemical Education organized the symposium "Creating Complete Scientists: Graduate Student Visions of Doctoral Reform." This symposium consisted of invited and contributed talks from industry, government and academia, which outlined the need for reform in graduate education. The heart of this symposium was a set of talks given by graduate students concerning their opinions on what changes need to be made and suggestions on how to make them.

This symposium was unique in two ways. First, it was organized and facilitated solely by graduate students. Second, it sought to be a forum for graduate students. In this regard "Creating Complete Scientists" provided information for graduate students on the need for doctoral reform and it gave graduate students a voice in the national debate over these reforms.

Originally "Creating Complete Scientists" was intended to be part of the technical program for the Division of Chemical Education. However, the decision was made to merge it with the Presidential event "Responses to Changing Needs in Doctoral Education." As part of the Presidential pro-

gram "Creating Complete Scientists: Graduate Student Visions of Doctoral Reform" was cosponsored with Committee on Science, Division of the History of Chemistry, Division of Chemical Education, Division of Professional Relations, Society Committee on Education, Women Chemists Committee, Younger Chemists Committee, Committee on Minority Affairs, and Committee on Professional Training. This level of co-sponsorship made the platform for graduate student voices that much larger.

"Creating Complete Scientists: Graduate Student Visions of Doctoral Reform" was well attended and well received. Numerous new insights were offered from the graduate student presenters. Additionally the importance of graduate student opinions in charting the direction for changes in doctoral education was solidified. A complete review of the Presidential event can be found in the *Journal of Chemical Education* (*J.Chem.Ed.* **2004** 81 1698).

## JOHN MUIR - BADGER CHEMIST

**Nathan Haese** (PhD '81, Woods) sent an email in July pointing out that John Muir studied Chemistry when he was here at the University of Wisconsin in the 1860s. Nathan had been at a performance about the life of John Muir out in California, and was intrigued by references to chemistry in Muir's past. Nathan sent me to: <http://www.library.wisc.edu/etext/WIReader/WER0149-1.html>, which is the beginning of Muir's chapter about his time at the University from *The Story of My Boyhood and Youth*. (The Wisconsin Electronic Reader is a cooperative digital imaging project of the University of Wisconsin-Madison General Library System and the State Historical Society of Wisconsin.) On page 5, Muir writes that he had to earn money to purchase "acids and retorts, glass tubing, bell-glasses, flasks, etc." In writing about one of his inventions, he said "I had only to place a teaspoonful of powdered chlorate of potash and sugar on the stove-hearth near a few shavings and kindling, and at the required time make the clock, through a simple arrangement, touch the inflammable mixture with a drop of sulphuric acid." In describing his course selection, Muir wrote that he "picked out what I thought would be most useful to me,

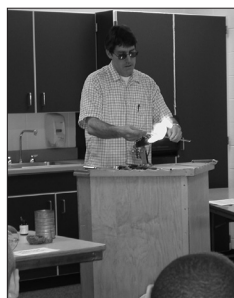


particularly chemistry, which opened a new world, and mathematics and physics, a little Greek and Latin, botany and geology.” John Muir was a Badger Chemist!

## NEWS FROM THE GLASS SHOP

There have been some interesting projects in the glass shop this year, including a new dual bank manifold design, from C. Ciesla and Yves-Marie Savoret of the University of Guelph in Ontario, and a stopped flow NMR project with **Matt Christianson** and **Anton Mlinar** of the Landis group.

In addition to his in-house duties, **Tracy Drier** has also continued doing outreach



The Wisconsin Firewagon in Action

with the portable glassblowing podium, which has been dubbed “The Wisconsin Firewagon”. The podium was built with a grant from the Institute of Chemical Education. Tracy has made presentations to elementary and middle school classrooms, highlighting the role of glass and glassblowing in science. His presentations are always well received by both teachers and students, and there are always plenty of questions. Tracy continues to develop presentation materials for outreach education. The photograph shows the Wisconsin Firewagon in action for the 5th graders at Cambridge Elementary School.

Every year, the American Scientific Glassblowers Society hosts a national symposium. Tracy was heavily involved with the program this year. He was the seminars chairman, helping to organize 2 days of technical seminar programs. He also presented a paper on the design and construction of the Wisconsin Firewagon, and did a hands-on demonstration on a variety of petri dish modifications. This symposium is an opportunity to develop skills as well as stay current with new developments in the field of scientific glassblowing.

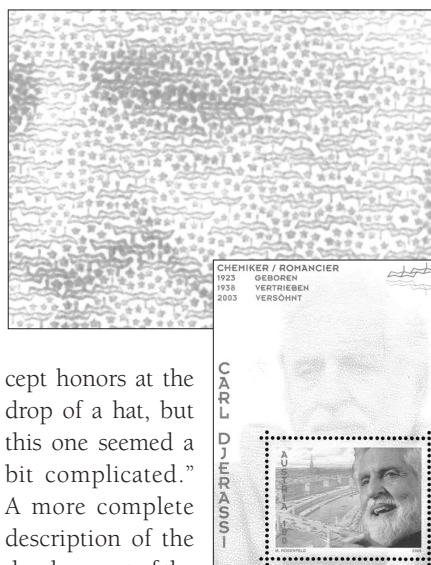
On the artistic side, Tracy continues to work with the UW Art Department glass lab, demonstrating during their open house events. He also won the 1st annual flame-off

competition that was hosted by The Vinery, here in Madison. It brought in glassblowers from around the region with the finished artwork being auctioned off for charity. He also participated in the Brew City Glass Exhibition in Milwaukee, which is a benefit for the National Breast Cancer Foundation.

## CARL DJERASSI HONORED WITH UNIQUE POSTAGE STAMP

The Austrian Post Office has honored **Carl Djerassi** (PhD '45, Wilds) with a unique stamp featuring his face as a background image made up of microscopic steroid structures, specifically enantiomeric images of the cyclopentanoperhydro-phenanthrene skeleton. (A good magnifying glass is needed to appreciate the complicated chemical designs.) Carl was the first to synthesize a steroid contraceptive for which he received the National Medal of Science. Carl also received the National Medal of Technology for contributions to the field of insect control and has received 19 honorary doctorates.

Carl was born in Vienna but, along with his family, was expelled (vertrieben) by the Nazis in 1938 and moved to the United States. The Austrian Post Office initiated plans for the stamp in 2003 and has printed an edition of 400,000. Carl says, “Kudo-happy scientists—an enormous group to which I also belong—usually are willing to ac-

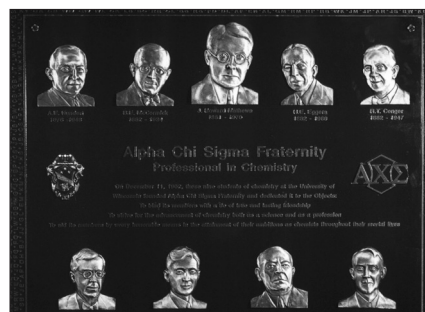


cept honors at the drop of a hat, but this one seemed a bit complicated.” A more complete description of the development of the stamp is available on Carl’s web site, [www.djerassi.com](http://www.djerassi.com).

Austrian Stamp Honoring Carl Djerassi

In recent years Carl has turned his attention to writing what he calls “science-in-fiction,” publishing several novels, and “science-in-theater,” with several plays that have been produced in many countries. In 2003, the Wisconsin University Theatre produced the play “Oxygen”, which Carl co-authored with chemistry professor Roald Hoffmann, a Nobel Laureate who teaches at Cornell. The play imagines the awarding of retroactive Nobel Prizes for past discoveries, and examines who should get credit for the discovery of oxygen.

## ALPHA CHI SIGMA - 100 YEARS OLD



Plaque Commemorating the Founding of Alpha Chi

Visitors to the building may have noticed the new plaque in the northeast lobby. It was installed in a ceremony in Fall 2004. The plaque commemorates the founding of Alpha Chi Sigma Chemistry Professional Fraternity. The Fraternity was started by nine chemistry majors at the University of Wisconsin in 1902. Their vision and enthusiasm created an organization that has lasted for over 100 years and that is active on more than 50 campuses across the country. One of those founders, **J. Howard Mathews**, went on to lead the Chemistry Department at the University of Wisconsin for many years. It is particularly fitting that the plaque is located in the **Farrington Daniels** Building named after Mathews’ successor as department chair because Daniels was also very active in the Fraternity and is a member of the Fraternity’s Hall of Fame. Professor Bassam Shkhashiri is the most recent inductee into the Hall of Fame and thus the tradition of Alpha Chi Sigma brothers serving as leaders in the Wisconsin Chemistry community continues to this day.



# Institute for Chemical Education

## Nanoscale Science and Engineering Center Outreach

The Institute for Chemical Education (ICE) is organizing outreach and education programs for a new, major project at the UW-Madison, the Nanoscale Science and Engineering Center (NSEC). With a five-year grant of approximately \$13 million, the NSEC has four interdisciplinary research thrusts that explore complementary concepts around a central theme of self-assembly at the nanoscale. The thrusts, together with chemistry faculty involved in each, are *Directed Self-Assembly and Registration of Nanoscale Chemical Architectures* (Bob Hamers, Song Jin); *Templated Chemical Synthesis of Sequence Specific Heteropolymeric Nanostructure* (Sam Gellman, Shannon Stahl, Arun Yethiraj); *Driven Nano-Fluidic Self Assembly of Colloids and Macromolecules* (David Schwartz, Arun Yethiraj); and *Research in the Societal Implications of Template Synthesis and Assembly at the Nanoscale*. As of April 2005 the entire project has involved 27 faculty from science, engineering, and public policy departments, 8 postdocs, 35 graduate students, and 3 undergraduates. NSEC education and outreach program aims to cultivate the next generation of nanoscale science and engineering experts, building on the UW's



vast experience in science education and infrastructure provided by the Institute for Chemical Education. Several education and outreach programs are under way, each led by a chemistry graduate student.

Diane Nutbrown is organizing a new program called SCI ENCountErs that collaborates with the Madison Boys and Girls Club to capture the interest of middle-school and high school students from areas of the city that have large proportions of underrepresented minority students. The program involves undergraduate and graduate students as volunteer mentors for children who come to the Boys and Girls Club. Some photos of enthusiastic children in the SCI ENCountErs program appear on this page.

Under the NSEC grant, graduate student Caroline Pharr is working on a project called Today's Science for Tomorrow's Scientists. Caroline is creating Web sites that describe the research of UW-Madison faculty in terms that can be understood by middle school and high school students. Each research group's work is examined so that a theme can be derived that is aligned with the National Science Education Standards. Then lessons are developed around the theme and information is also supplied for teachers so that the lessons can easily be adopted. In addition to supporting the National Science Education Standards, the Web sites aim to make young people more aware of cutting edge research in chemistry and other sciences, to illustrate why researchers receive funding and how their findings impact people, and to show that research is done by real people working together in a group environment. The prototype Web sites will be evaluated in fall 2005 by cooperating teachers and their students.



With NSEC support, Janice Hall is just beginning a project to create an online course on nanoscience and nanotechnology. Janice is working with an open source course management system called Moodle, which should provide a means for the course she develops to be used at any educational institution that can provide a server computer to run it. Assistant Professor Song Jin is collaborating in this project, providing much needed expertise in nanoscience and nanotechnology. We expect that by the end of 2005 this online course will be ready for beta testing.

## New ICE Chem Camps

ICE continues its highly popular summer Chem Camps for middle-school children, but with a new look. ICE Outreach Specialist Diane Nutbrown has revamped this program in a highly effective way by creating two new Chem Camp themes: Fun with Forensic Science and Fun with Chemistry Inventions. The goal is that children who are excited by an initial experience with one Chem Camp can come back for a second year and have a completely different camp experience.

In the Fun with Forensic Science camp, daily activities are grouped to highlight themes in forensic science. On the first day, campers encounter a simulated problem that requires various printing techniques to solve: fingerprinting, lip printing, DNA profiling and handwriting analysis. Campers face several scenarios related to substances on the second day: drug testing, fiber analysis, soil testing, and sampling for lead contamination. Ballistics day exposes campers to methods for detecting gunshot residue and identifying the presence of various metals in bullets. Participants also work to match bullets using a Web-based virtual comparison microscope, and they use a ballistic pendulum to calculate the speed of a projectile. The fourth day focuses on fraud: check fraud, art forgery, and counterfeit money. Finally, the camp ends with a scenario that takes several tools to solve. Campers learn blood-typing, bloodstain pattern analysis, and urine analysis for glucose. They also get to assemble a composite sketch using an official computer software program.



## Beta-test Site Coordinator Workshop

Provided an opportunity to practice experiments, discuss logistics of camp operation, & network with other coordinators.

April 8-10, 2005



After testing this new Chem Camp in summer 2004, ICE was ready to disseminate it via ICE Affiliates at many other institutions. Diane Nutbrown led a one-day workshop on April 9, 2005, for program coordinators from various sites nationwide who agreed to implement the Fun with Forensic Science camp this summer. Attendees practiced experiments, discussed the logistics of camp operation, and networked with other coordinators. All have carried out their camps this summer, and feedback from their beta testing has been quite favorable.

Participating sites and contacts include:  
 Ashland University, OH – Matt Arthur  
 OSM Tech Center, MI – Jim Bugg  
 University of Connecticut – Joy Erickson  
 Sanborn Regional Middle School, NH – Christine Grillon  
 University of Tennessee-Knoxville – Al Hazari  
 Aldine ISD, TX – Nathan Kuehl  
 University of Nebraska-Omaha – Connie O'Brien, Clint Wutzke  
 Clinton High School, OK – Marie Pool  
 John Carroll University, OH – Faith Whitworth, Mike Nichols  
 West Georgia Youth Science and Technology Center – Amanda York

The Fun with Chemistry Inventions camp was first run this summer. Daily themes for this camp are:

- Heat and temperature
- Batteries
- Food inventions
- Nanotechnology
- Presentations by groups of campers of their original ideas for inventions

Diane Nutbrown also organized this camp and will be disseminating it in a similar fashion to the Fun with Forensic Science camp. If you are interested in beta testing either camp, contact Diane at [nutbrown@chem.wisc.edu](mailto:nutbrown@chem.wisc.edu). Booklets describing how to do both camps will be available from ICE in a year or so. If you would like to carry out a camp sooner than that, draft manuals or more information can be obtained from Diane.

### National Chemistry Week

ICE's Outreach Specialist, Diane Nutbrown, served as National Chemistry Week Coordinator for the ACS Wisconsin Section, collaborating with section chair Allen Clauss and chemistry department Lecture Demonstrator Jim Maynard. During the week of October 17, 2004, National Chemistry Week celebrations across the country focused on the theme "Health and Wellness". Our local ACS section sponsored outreach activities with two area middle schools to demonstrate the fascinating role that chemistry plays in our health. Diane and Jim Maynard developed a series of hands-on activities that focused on the chemistry of blood and the role of vitamins and minerals in our health. They were joined by a group of 22 volunteers from among our local ACS members who participated in the school visits. The demonstrations included reversible oxygen binding by hemoglobin (with impressive color changes), the role of vitamin C as an antioxidant, magnetism of iron in cereal flakes, and having students measure their

own blood oxygen levels using medical pulseoximeters generously provided by Datex Ohmeda Division of GE Healthcare (see photograph).

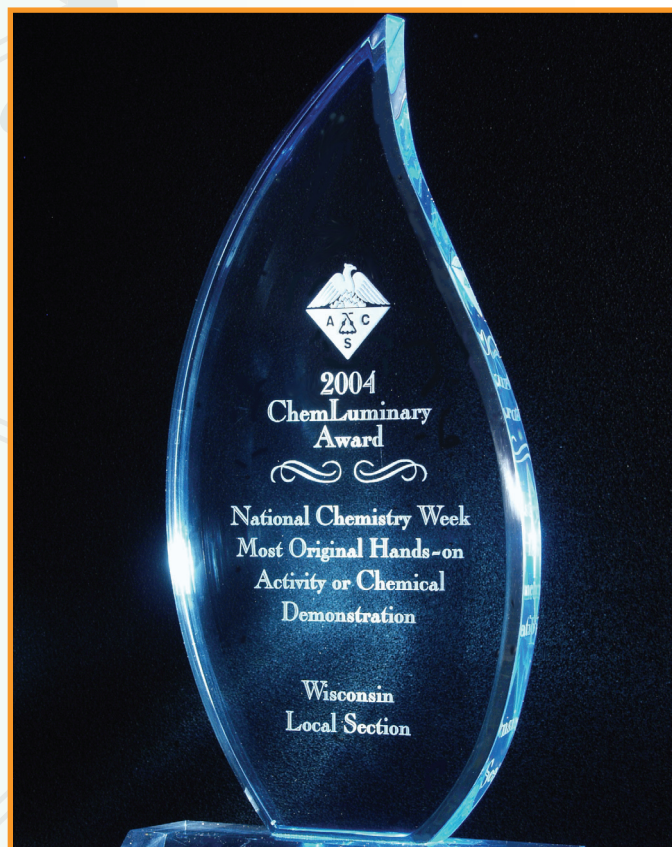
The ACS Committee on Community Activities has selected the Wisconsin Local Section as a finalist for a ChemLuminary award in the category: "Most Original Hands-on Activity or Chemical Demonstration." The demonstration being recognized is the use of medical pulseoximeters with middle school students during our National Chemistry Week outreach activities. Diane Nutbrown and Jim Maynard represented our section and presented a poster on our activities at the ACS National Meeting in Washington D.C. on August 30.





## The ACS Chemluminary Celebration Fall 2004

At the ACS ChemLuminary celebration in Washington DC, graduate student Diane Nutbrown and Lecture Demonstrator Jim Maynard accepted the ChemLuminary Award from the ACS Committee on Community Activities for the Most Original Hands-On Activity or Chemical Demonstration on behalf of Wisconsin Section chair Allen Clauss. The award honored the section's originality in demonstrating a pulsoximometer to middle school students in connection with National Chemistry Week 2004, illustrating the ACS theme, Chemistry: Health and Wellness.

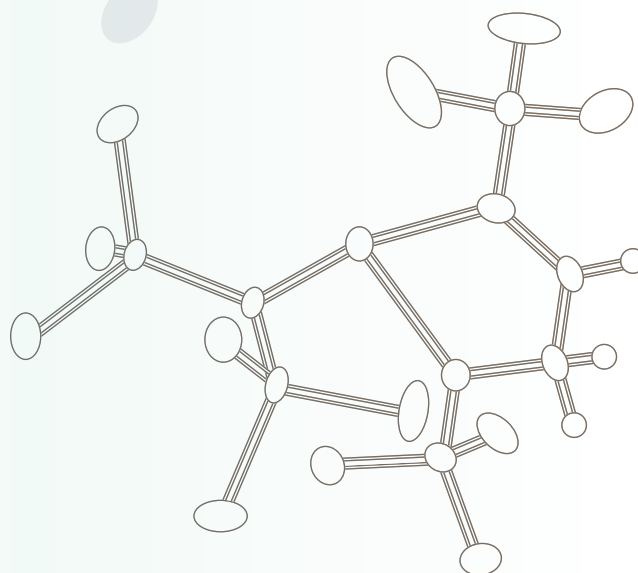


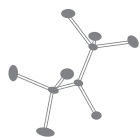




Attendees from Wisconsin (l-r): Jim Maynard, Ieva Reich, John Moore, Bassam Shakhshiri, Diane Nutbrown, Martha Casey, Chuck Casey, Betty Moore.

Graduate and undergraduate students who are interested in working with the ACS local section on National Chemistry Week activities should contact Diane Nutbrown, as should anyone interested in participating in outreach activities.





# Wisconsin Initiative for Science Literacy

During the 2004-2005 school year, the Wisconsin Initiative for Science Literacy, directed by Chemistry Professor Bassam Shkhashiri, continued to offer programs and events for many audiences. These are some of the activities.

## Science is fun presentations

The graduate and undergraduate students who make “Science is Fun” presentations participated in more shows than ever before during the past school year. They get academic credit through an independent study course (Chem 299/699) which is open to all students, though all of the participants this year had chemistry or chemistry-related majors. The course was taught the first semester by **Dr. Linda Zelewski** (PhD Water Chemistry '99), who went on to Concordia University Wisconsin to earn her teaching certificate. During the second semester, course instruction was taken over by **Mike Boll** (BS '04) who was also a graduate teaching assistant for Chemistry 103 and 104. Mike was a student in the course last year and says becoming the instructor improved his own demonstrations because he watched others more critically. Most of the students had little or no previous experience making public presentations and Mike says many were nervous at first, but by the end of the year everyone was more comfortable before an audience. Sixteen students (7 women and 9 men) earned one credit each semester and all participated in at least one presentation.

Mike's favorite demonstration is the Briggs-Rauscher oscillating reaction, in which a liquid being stirred in a beaker

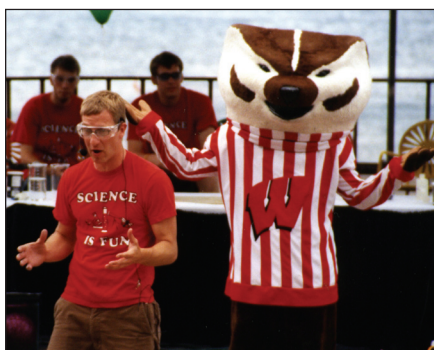
turns yellow, then dark blue, then back to yellow. Like Professor Shkhashiri, Mike times the reaction so that he is always looking away from it when the mixture is yellow as he asks the audience what color it is. They yell out “yellow”, but it's always blue when he looks at it. Mike says it's fun to get kids in the crowd screaming when they want him to look at the reaction and worth the practice it takes to perfect the timing (it's a few seconds between color changes, which happen very quickly). The immediate message from this experiment is the importance of constant observation, but it also opens a discussion about the nature of science. The demonstration was discovered by the two science teachers for whom it's named, but it took chemists ten years to figure out exactly what happens in the complicated reaction.

The student demonstrators went on an overnight trip for the first time when Mike, **Shelby Repinski** (BS '06) and **Paul Ellison** (BS Chemistry and Mathematics '06) did three presentations for middle and elementary schools in the Kewaunee school district. Mike says the overnight brought home the need for meticulous planning. At Kewaunee they planned to explode methane filled balloons but the gas cylinder was emptied for the balloons for the first show and they didn't have methane balloons for

the second show. Mike says, “We forget at least one thing or run out of something at every show, and improvisation is a necessary skill.” Mike says participating in Science is Fun demonstrations as a student and an instructor has solidified his plan to become a high school science teacher.

Paul co-taught the courses the second semester working as a student hourly employee. Paul, who took the course last year, will be a senior this fall with a double major in chemistry and math. Paul plans to go to grad school in chemistry and wants to teach at some level, and says the course helped develop his public speaking skills. Paul's worst grade in college was in a speaking course, Comm. Arts 100. Prior to that, his only speaking experience was in high school English where Paul says he almost fainted from nerves before his first presentation. Like most of the other students, Paul now enjoys presentations and has become quite good at it. He says it's all about confidence and pacing (like many inexperienced speakers, he spoke too fast at first).

Student **Sarah Haerle** (BS '07) says, “Science is Fun has been an incredible experience. Nothing beats having a room full of children and adults oohing and ahing when you light a dollar bill on fire, or turn



Bucky solicits answers from the audience as Mike Boll makes a point during the Science is Fun presentation at the Memorial Union Terrace Fest.



Paul Ellison presides at the hands-on table at Science Expeditions.



Sarah Haerle demonstrates super-absorbent polymers at a Science is Fun demonstration.





Shelby Repinski puts dry ice into cylinders containing acid-base indicators, causing color changes.

a liquid into a solid. This has also given me a lot of great ideas of how I could make my own class a little more interesting, as I am hoping to become a teacher one day.”

Shelby has taken the course for four semesters. Shelby says, “Every semester further emphasizes how much I look forward to becoming a science educator. I get such a natural high from feeling like I’m really making a difference in some of the children’s minds or teaching them something that they may think is neat and/or interesting.”

During the 2004-2005 school year, Science is Fun demonstrations included four presentations over two days for Kids Expo at the Alliant Energy Center in Madison, two presentations plus a hands-on table for Science Expeditions, a show and a hands on session for the ASPIRE program for underprivileged children in Madison, two hands on sessions in conjunction with Women of Science, four Saturday afternoon presentations at Hilldale Mall in Madison and shows on the Memorial Union Terrace. A very timely Terrace presentation was on the chemistry of fireworks just minutes before the annual Rhythm and Booms 4th of July fireworks display at Warner Park across Lake Mendota which said to be the biggest fireworks display in the Midwest.

### 2004 Christmas lecture

The 2004 **CHRISTMAS LECTURE**, “Once Upon a Christmas Cheery in the Lab of Shakhshiri”, played to capacity crowds in four showings in a 350 seat lecture room. The annual Christmas Lecture is also recorded by Wisconsin Public Television for later telecast throughout Wisconsin and on other PBS and cable stations across the country. Guest demonstrators in 2004 included UW-Madison mascot **Bucky Badger** and **Chancellor John Wiley** who saluted Bas-



Professors Mark Fink on oboe and Mark Vallon on bassoon, and Middleton High School sophomore Krista Stewart on violin.

sam on the occasion of the 35th anniversary of the Christmas Lecture. One special feature in the 2004 lecture concerned the science of sound and music with demonstrations and performances by Music Professors **Marc Fink** on oboe and **Mark Vallon** on bassoon, and Middleton High School sophomore **Krista Stewart** on violin. The following week Krista soloed at Carnegie Hall during a concert by the National Youth Orchestra.

### Celebrating women of science

“Celebrating Women of Science” was the theme of a day’s activities at the University of Wisconsin-Madison Chemistry Department Saturday, April 9, sponsored by the Wisconsin Initiative for Science Literacy. During the morning, five distinguished University scientists described their cutting-edge research. Physics **Professor Gelsomina De Stasio** talked about “Curing Incurable Cancers.” Psychiatry **Professor Ann Kelly** discussed “Brain Chemistry and Food: Neural Control of the Need to Feed.” New nanoscale technology was the subject of Engineering Physics **Professor Wendy Crone**: “Poking and Prodding Materials at the Nanoscale.” Chemistry **Professor Judith Burstyn** presented a talk on “Life’s a Gas: How Tiny Molecules Control Your Cells” and Chemistry **Professor Laura Kiessling** discussed “Carbohydrates: What Do They Do?” The morning program was free and open to the public.

During the afternoon, students from middle school to college and their families shared the wonder and excitement of science in thought-provoking hands-on activities. Eight different activities were offered and students could participate in up to three of them. These activities ranged from observing microbes to surveying the sky at many wavelengths. While young women and girls



The five scientists who made presentations at “Celebrating Women of Science” pose with Chancellor John Wiley. From left: Chemistry Professor Judith Burstyn, Chemistry Professor Laura Kiessling, Chancellor John Wiley, Engineering Physics Professor Wendy Crone, Psychiatry Professor Ann Kelly and Physics Professor Gelsomina De Stasio.



Professor Bassam Shakhshiri demonstrates a thermite reaction on the Memorial Union Terrace. Preceding the “Rhythm and Booms” fireworks show, the demonstrations focused on the chemistry of fireworks.

were especially invited to participate, all students and their families were welcome.

Also celebrating Women of Science was a special traveling exhibit, “Her Lab in Your Life: Women in Chemistry”, displayed in the Chemistry Building lobby this spring. The display features the lives and research of famous women chemists from the past and many who are working today, including Professor Kiessling. The exhibit was borrowed from the Chemical Heritage Foundation in Philadelphia.

### Science in the city

As part of Science in the City offerings, WISL once again provided intensive chemistry workshops during the summer of 2005 for inner city students from Milwaukee, Racine, Kenosha and other school systems, offered in conjunction with the PEOPLE Program. PEOPLE (Precollege Enrichment Opportunity Program for Learning Excellence) is a college pipeline for minority

and disadvantaged students offered by the UW-Madison. **Dr. Rodney Schreiner** (MS '73, PhD '81) wrote the curriculum for the courses. Along with Rodney, co-teachers this year were **Mike Boll** and **Paul Ellison**. Also assisting at the PEOPLE workshops were undergraduate volunteers who took the "Science is Fun" chemical demonstration course. Junior high students in the PEOPLE program got three hours of chemistry laboratory instruction every day for three weeks. Senior high students attended for two hours a day for one week.



Three junior high school participants in the 2005 PEOPLE program work on an experiment in the chemistry lab.

During the afternoon, students from middle school to college and their families shared the wonder and excitement of science in thought-provoking hands-on activities. Eight different activities were offered and students could participate in up to three of them. These activities ranged from observing microbes to surveying the sky at many wavelengths. While young women and girls were especially invited to participate, all students and their families were welcome.

### **Communicating science and art to the public**

During the last school year, WISL organized and co-sponsored three appearances involving four distinguished writers.

#### **Carl Djerassi and Diane Middlebrook**

In October, WISL and The Center for the Humanities presented a unique joint appearance by Professor **Carl Djerassi** (PhD '45, Wilds) and his wife, Professor Diane Middlebrook. Few people are as well qualified to talk about science, art and literature. Djerassi, a longtime chemistry professor at Stanford, is best known as the father of the birth control pill, but has also published several novels and plays in a

genre he calls "science-in-fiction". All the science in his works is real, and his avowed intention is to "smuggle" science to the general public in the form of entertaining stories. Middlebrook, an *emeritus* professor of English at Stanford, is the author of several books, most recently *Her Husband* (Viking 2003), the story of poets Sylvia Plath and Ted Hughes and their troubled marriage. Their appearance was part of the 2004 Wisconsin Book Festival.

#### **Science Writer Philip Ball**

Philip Ball is the author of many books including *Bright Earth: Art and the Invention of Color*. Ball's illustrated lecture on March 29 was titled "A Look at the Use of Color in Western Art Through the Eyes of a Scientist." Until the development of modern chemistry, artists were limited by the natural pigments available to them and the invention of new colors transformed art. Ball, who holds a degree in chemistry from Oxford University and a Ph.D. in physics from the University of Bristol, is Consulting Editor of *Nature*, has contributed to many other publications, radio and TV programs, and is Science Writer in Residence at the Department of Chemistry, University College London.

While in Madison, Ball also lectured Professor Shakhshiri's Chem 104 class, and met with science faculty and science writing students. His visit was sponsored by WISL, the Center for the Humanities, the Arts Institute, and the College of Engineering.

#### **Nobel Laureate Chemist Roald Hoffmann**

Professor Roald Hoffmann of Cornell University, a Nobel Laureate in chemistry, spoke at the Elvehjem Museum of Art on "Chemistry and Ceramics: Shared Ground, Common Fire" in conjunction with an exhibit of ceramics by emeritus art professor Don Reitz. Hoffmann, a published poet and playwright as well as an art collector, said, "Chemistry is about the transformation of one substance into another and ceramics is transformation by fire." Hoffmann's talk on April 25 was sponsored by the Elvehjem and WISL. Elvehjem Director Russell Panzenko welcomed the audience saying, "It's gratifying to see such a large crowd, and not the usual crowd seen at the Elvehjem." Professor Shakhshiri, who has always insisted that the gap between science, the arts and humanities is not as large as many people

perceive, suggested the joint event to focus on the relationship between art and science, and the ceramics exhibit seemed particularly appropriate. Both sponsors plan to provide similar events in the future.

### **Conversations in science for teachers**

Conversations in Science for Teachers has completed its fifth year. The series is open to all Dane County teachers and offers them a two-hour conversation with top University researchers. The purpose is to re-invigorate the teachers' enthusiasm for science by exposing them to cutting-edge research, and to encourage researchers to communicate with a broader audience. The series is co-sponsored by WISL, which arranges for the presentations, the Madison Metropolitan School District, which enrolls the teachers, and Edgewood High School, which provides the auditorium in the new Sonderegger Science Center. All presentations are recorded by the school district and shown on cable channel 10 in Madison. The presentations in 2004-2005 were:

Professor of Civil and Environmental Engineering **Kenneth Potter**, "Challenges of Managing Urban Storm Water."

**Dr. Kevin Strang**, Department of Physiology, "Ethanol: The Dose, Effects and Side-effects of the World's Second Most Popular Drug." (He says caffeine is number one.)

Professor of Chemistry **Sam Gellman**, "Proteins and Protein-like Molecules: Extrapolating from Nature."

Professor of Pathology and Laboratory Medicine **Michael Stier**, "Medical Forensics from an Examiner's Standpoint."

Professor of Geology and Geophysics **Herbert Wang**, "From Geophysics to Environmental Justice."

Professor of Zoology **Patricia McConnell**, "The Other End of the Leash."

Professor of Psychology **Lyn Abramson**, "Cognitive Vulnerability to Depression."

Assistant Professor of Engineering Physics **Wendy Crone**, "Nanotechnology: The Next Big Thing, Only Smaller."

(Continued on page 36. . .)



# Journal of Chemical Education

The *Journal of Chemical Education* (*JCE*) has published more than 100 issues since the editorial office moved to Madison in 1996. Many of the current staff have been with the *Journal* since the first issue was prepared here. Despite this continuity of staff, there is no resting on laurels—innovations abound!

## National Science Digital Library Project

We continue to develop the *JCE* Digital Library (*JCE* DLib), a collection of the National Science Digital Library (NSDL, [nsdl.org](http://www.nsdlib.org)), a project funded by NSF. *JCE* DLib has seven collections. All can be found at <http://www.jce.divched.org/JCEDLib/index.html>.

- **JCE ChemInfo**  
Online Data and Information
- **JCE DigiDemos**  
Tested Demonstrations
- **JCE LivTexts**  
Living textbooks of chemistry, available online
- **JCE LrnCom**  
Learning Communities Online
- **JCE QBank**  
Resources for Student Assessment
- **JCE SymMath**  
Symbolic Mathematics in Chemistry
- **JCE WebWare**  
Web-Based Learning Aids



Our association with NSDL has provided invaluable information as to what *JCE* must do in order to reside on the “virtual shelves” of a digital library. It takes some extra work to institute these new, online collections and to maintain them, but we think that the effort is worthwhile and will help to maintain *JCE*'s relevance in the world of digital journals and libraries.

All items in *JCE* DLib are catalogued and recorded in what is referred to as a meta-

data repository. Data from this repository are made available to the NSDL and other digital libraries in a standardized format. This allows the items to be found by users of many digital libraries throughout the world. (This work is overseen by Darin Burleigh, Ph.D. 1993 Sibert.) We have divided *JCE* DLib collections into open review and peer-reviewed content. *JCE* DLib open-review collections are accessible by anyone. Peer-reviewed collections are available only to *JCE* subscribers, and *JCE* publishes (in print) a summary of each peer-reviewed item so that the authors receive publication credit.

Several new collections have been added to the four originally proposed to the NSF (and described in the *Badger Chemist*, 2003). *JCE* ChemInfo consists mainly of Web-based material supplied by Hans Reich, who maintains a site devoted to data of special interest to organic chemists. Examples are NMR chemical shifts and  $pK_a$  values in non-aqueous solvents. If you have collected data or similar information in any area of chemistry, we would be happy to have you contribute to this online collection. *JCE* LivTexts consists of dynamic, living, digital textbooks of chemistry. The first of these is a physical chemistry text, LivPChem. It currently consists of “Quantum States of Atoms and Molecules” by David Hanson, Erica Harvey, Robert Sweeney, and Theresa J. Zielinski. LivTexts in other areas of chemistry are being solicited, so if you are developing Web-based materials, please let us know. *JCE* LrnCom, edited by Theresa J. Zielinski (Monmouth University) and George Long (Indiana University of Pennsylvania), includes comprehensive projects in chemistry that engage students and teachers in collaborative, interdisciplinary research that cuts across traditional boundaries. Students interact via the Web and need not all be at the same institution.

All four original *JCE* Digital Library collections continue to add resources and we encourage you to contribute to them. *JCE* QBank has available for download thousands of test and homework questions for student assessment. The organic chemistry questions are being edited by Ieva Reich

and general chemistry questions are overseen by Rachel Bain. *JCE* SymMath now includes Mathematica and Maple documents in addition to Mathcad. A new open-review SymMath collection has been developed from the Symbolic Mathematics Documents for Physical Chemistry site of Theresa Zielinski. The *JCE* WebWare collection has both an open-review and reviewed collections of Web-based instructional units. For example, a recently accepted peer-reviewed item is an excellent visualization of symmetry elements and symmetry operations authored by Greek chemists Nickolas Charistos, Constantinos Tsipis, and Michael Sigalas. The *JCE* DigiDemos collection is built on the model of a discussion forum for each published demonstration. Discussions concerning new published chemical demonstrations are available and waiting for your input. Many of the demonstrations previously published in *JCE* and collected in the Gilbert and Alyea reprint volumes also have discussion forums, but a significant amount of editing remains before all of these will become available.

During the Spring semester of 2005 Theresa Zielinski of Monmouth University in New Jersey was a visiting faculty member with John Moore and the *Journal of Chemical Education*. Theresa is collaborating with *JCE* on collections of teaching materials for physical chemistry that use symbolic mathematics software such as Mathcad and Mathematica (*JCE* SymMath collection). She has also contributed to the *JCE* LrnCom collection and to the *JCE* LivText physical chemistry online text. In addition to all of this, Theresa found time to help with writing the next proposal to the NSF to support the *JCE* DLib. Thanks, Theresa!

## Chemistry Teacher Connection

During the past year *JCE* has developed a collaboration with ACS President Bill Carroll to provide high school teachers with membership in the ACS Division of Chemical Education and an online-only subscription to *JCE* at a special low price of \$40. The subscription gives online-only access to those articles that are marked by a



triangle in the *JCE* table of contents as high school articles. In addition it gives teachers access to selected articles from *Chemical and Engineering News* through a special arrangement with *C&EN* editor Rudy Baum. Bill Carroll rolled out CTC at the Spring ACS meeting in San Diego in his plenary presentation at High School Day and through a joint poster with *JCE* and DivCHED. Carroll has also highlighted CTC in a presidential comment in *Chemical & Engineering News* (July 4, 2005, p 35). *JCE* has moved the CLIC material to a new online area that can only be accessed by the special high school subscribers and CTC is now available through the *JCE* Online Store, which is at <http://store.jce.divched.org/>.

### JCE Archive Online

*JCE* has embarked on a major project of digitizing back issues. The digitizing team consists of UW-Madison undergraduates working on a pair of computers with scanners located on the first floor of the chemistry building. At present all issues of *JCE* from 1967 to the present are available online in digitized form. These issues can be accessed through searches using the *JCE* Index online and the complete text of each article is available on the desktop computer of any subscriber to *JCE*. All back issues will soon also be available using the Previous Issues link on the *JCE* home page. Thus a *JCE* subscription now includes access to online versions of all back issues from 1967 on. Encourage your colleagues and

students who are not already subscribers to join you in taking advantage of this bargain. Our super-efficient team of students is currently digitizing issues from 1984 through 1996, so that all digitized issues can be in the same (PDF) format. When they finish that task they will work back through the rest of the sixties and continue on to *JCE*'s origin in 1924.

### JCE Software

*JCE* Software has just published another CD in the Chemistry Comes Alive! series of digital videos. CCA! Volume 7 is titled Flames and Explosions, and that's exactly what it contains. With 230 QuickTime movies and more than 6700 still images, this CCA! is our biggest yet. It has what it takes to get your students interested in chemistry. You can use the video clips and stills in your classroom presentations or build them into other materials for your students. For a preview of some of this striking video, go to <http://www.jce.divched.org/JCESoft/CCA/index.html>.

### JCE Online

As part of an effort to maintain contact with chemical demonstrators in other departments, UW-Madison Lecture Demonstrator Jim Maynard has started a new forum, the *Demo Corner*, in the DigiDemos area of *JCE* Online. Jim moderates this forum, which is intended to support discussions involving everyone who carries out lecture demonstrations, whether faculty or staff

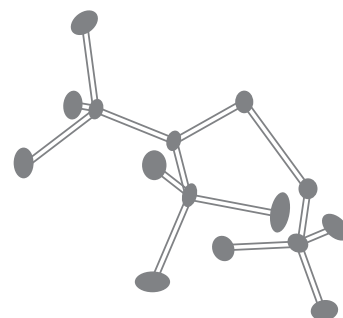
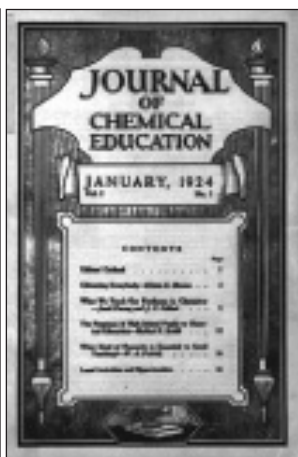
demonstrators. Anyone who sets up and/or carries out lecture demonstrations will find much of interest here. Jim has also begun a newsletter for chemical demonstrators. If you are not on the email list for *The Demoist*, contact Jim ([maynard@chem.wisc.edu](mailto:maynard@chem.wisc.edu)), or get involved by going to the *Demo Corner*.

### JCE-MERLOT Collaboration

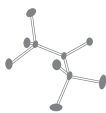
*JCE* is pursuing a collaboration with the MERLOT (Multimedia Educational Resource for Learning and Online Teaching, <http://www.merlot.org/Home.po>) project. MERLOT's goal is to provide access to Web sites suitable for chemistry teachers and students. Each site recommended by MERLOT and listed on their Web site has been carefully reviewed. The MERLOT Web site has a number of features that are not available at *JCE* Online, such as the ability to build your own collection of Web sites for use in your classes and make that collection available to students. *JCE* brings a great deal of experience in reviewing all kinds of chemistry instructional materials and many experienced reviewers. We expect this collaboration will replace the *JCE* Reviewed Web Sites feature with MERLOT Chemistry, so that those looking in *JCE* for good Web sites for their teaching will be able to make use of the useful features of MERLOT.

### Say Hello! At Meetings

As you probably know already, *JCE* always has a booth in the exposition area at ACS National Meetings, Biennial Conferences on Chemical Education, ChemEd conferences, MACTLAC conferences, and UW-System Chemistry Faculty meetings. In addition we often are present at ACS regional meetings, NSTA conferences, and other meetings. If you are attending one of these conferences, please stop by and say hello. We can also transmit your greetings to others here in Madison.



## This n' That



**Igor Alabugin** (PD '96-'00, Zimmerman), of Florida State University received the 2005 I-APS Young Investigator Award from the Inter-American Photochemical Society. Igor was promoted to tenure and Associate Professorship in 2005.

**Ronald Baney** (PhD '60, West) leads a large group doing research on silicone and chitosan-based materials at the University of Florida College of Engineering, Gainesville, FL. His group has discovered novel organosilicon biocides useful as marine antifouling agents and antimicrobial decontaminants.

**Nate Bowling** (PhD '05, McMahon) accepted a position as postdoctoral research associate with Prof. Jeff Moore at the University of Illinois.

**Jarrold Buffy** (PhD '00, West) is a postdoc at the Univ. of Minnesota, learning protein expression/purification and establishing a solid-state NMR facility.

**Wensheng Chen** (PhD '01, Zimmerman) has joined UOP as a Research specialist.

**Steve Corcelli** (PD '02-05, Skinner) finished his NIH postdoc recently and moved to Notre Dame University as an Assistant Professor.

**Wendy deProphetis** (PhD '04, McMahon) accepted a position as Assistant Professor of Chemistry at Wagner College (Staten Island, NY).

**Barry Eichler** (PhD '98, West) is Asst. Prof. at Northwest Missouri State University, Maryville, MO. Recently he presented some of his research on siloles at the North American Silicon Symposium in Boulder, CO.

**Jason Gestwicki** (PhD '02, Kiessling, Biochemistry) is a new faculty member at the University of Michigan in their Pharmacology Department. He joins other Badgers that have moved to Wolverine territory, namely **Robert Owen** (PhD '03, Kiessling), who is carrying out postdoctoral research with Bill Roush; Biochemistry PhD **Allison Lamanna** (PhD '04), who is carrying out postdoctoral research

with Rowena Matthews; and Biochemistry MS **Tonia Buccholtz** (MS '00), who is pursuing graduate studies in Chemical Biology at University of Michigan.

**Greg Gillette** (PhD '88, West) is Manager of the Performance Coatings Laboratory at General Electric Global Research, where he leads a team of 17 researchers in the area of traditional and vacuum coatings. He currently serves as a member of the Executive Committee of the ACS Division of Business Development and Management.

**Michael Haaf** (PhD '00, West) is Assoc. Prof. of Chemistry at Ithaca College, Ithaca, NY. His research is on organosilicon chemistry, particularly that of silylenes.

**Hiizu Iwamura** (PD '67-69, Zimmerman) has taken a new position as Professor at Nihon University in Tokyo. He is the past President of the Japanese Chemical Society. He recently came with his wife, **Michiko** (PD '67-69, Nelsen) to attend the Nelsen Birthday Symposium. He and Michiko stayed on an extra day to spend with his former PD adviser.

**Yong Seol Kim** (PhD '05, McMahon) accepted a position as postdoctoral research associate with Prof. Josef Michl at the University of Colorado.

**Yuxia (Sonny) Liu** (PhD '01, West) heads up organosilicon research at National Starch Co. in New Jersey.

**Tim Lohman** (PhD '77, Record), now a chaired professor in Biophysics and Biochemistry at Washington University School of Medicine in St. Louis, was recently selected as an AAAS Fellow.

**Ed McBride** (PhD '66, Zimmerman) wrote that he has ended 39 years with Dupont at the Jackson Labs and is retiring. He plans to move to Ashland in Southern Oregon

**Jerry Miller** (BS '58, Bender), Professor of Chemistry at University of Maryland, wrote to say that he received a call from University of Maryland President Dan Mote telling him that he would receive the President's Medal at the University's September 21st Honors Convocation this fall. Jerry wrote further about his career:

I'm sorry **Paul Bender** didn't live quite long enough to hear about this! Paul and **Dan Cornwell** were my pchem lab



Jerry Miller

profs in '56-57 and they were both truly excellent and inspiring teachers; their 15-minute oral quizzes on 40% of the lab experiments were really great! I'd already known that I would be a physical chemist before I met Paul and Dan in the Lab and **Farrington Daniels** and **John Ferry** in lecture, but it was really exciting to interact with these first-rate minds! I went on to do my senior thesis with Paul, helping get Wisconsin's first NMR spectrometer up and running well, and we solved the structures of three of the four Diels-Alder adducts provided by **Prof. van Tamelen**. Near the 40 MHz NMR spectrometer room, **Larry Dahl** was just starting his faculty career - and we saw a lot of each other in that hallway in the old Chemistry Building. It was Paul who suggested that I do my Ph.D. with Herb Gutowsky at Illinois - which I did with an NSF Graduate Fellowship that Paul was no doubt influential in my getting. And then I won an NSF postdoctoral fellowship to work with Rex Richards at Oxford before my two years in the Army (ROTC commission from Wisconsin) and taking my position at Maryland in 1965. I was very fortunate in my three research mentors, all of whom saw their faculty responsibilities much more broadly than appearing prepared in class. Paul grabbed on to advancing shared instrumentation very successfully in Wisconsin's Chemistry Department, Herb not only pioneered chemical applications of NMR but led and built Illinois' School of Chemical Sciences for many years, and Rex was chosen as the Dr. Lee's Professor of Chemistry at Oxford as I was winding up my postdoc, shortly thereafter became Warden of Merton College, and then rose to be the head of Oxford University for four years as Vice Chancellor. I always enjoy browsing through the *Badger Chemist* because it brings back so many vivid and positive memories of my two years up at Madison. And I've maintained a few loose ties to Madison. **Paul Treichel** was a classmate and we've had occasional conversations about running shared instrumentation centers in chemistry departments and about teaching

general chemistry. **Tom Farrar** finished his degree with Gutowsky during my first year at Illinois - and was in part responsible for my getting the job here at Maryland when he was at NBS. **Bassam** got his Ph.D. with Gil Gordon here at Maryland about three years after I joined the faculty and we run into each other occasionally as well. I think it's important that departments know just how influential they are in the lives of their graduates and how worthwhile it is to make the extra efforts that make the difference between a "good" and an "excellent" academic program!

**Ron Morse** (PhD '67, Zimmerman) writes he is now retired from the Huntsman Corp. and he and Karen are living in Indianapolis. They have a trip to Switzerland planned this summer and next Christmas.

**Evgueni Nesterov** (PD '98-'02, Zimmerman) is now an Asst. Prof. at LSU and is getting research going as well as giving a graduate course.

**Peter Ogilby** (BS '77, Zimmerman), now Professor at the University of Aarhus, Denmark, and **Laren Tolbert** (PhD '74, Zimmerman), now Professor at Georgia Tech. and JACS Assoc. Editor, are speakers at the 2005 Gordon Research Conference on Organic Photochemistry.

**Aric Opdahl** (BS '96) recently accepted a position at UW-LaCrosse, and is moving back to Wisconsin. His primary course responsibility at UW-L will be the instrumental analysis course. After Berkeley (surface chemistry with Prof. Somorjai), he took a postdoc at NIST working on DNA biosensors. Both were great experiences. Aric reports that **Adrian Hanley** (MS '97, Schrag) lives across town, and is employed as an analytical chemist working for a government contractor. Aric has enjoyed living near him for the past couple of years.

**Don Paskovich** (PhD '62, Zimmerman) reports that he is still working in Ottawa, Canada doing contract research. He notes that he was reading *C&EN* and an article on stabilized carbenes brought back memories of his Ph.D. research affording a highly hindered triplet dimesityl carbene.

**Steven Peake** (PhD '79, Reich) was appointed to the position of Interim President

through December 31, 2005 of Park Electrochemical Corp's FiberCote Industries, Inc. advanced composite materials subsidiary located in Waterbury, Connecticut. He served as FiberCote's Director of Technology and Quality for the past four years. Steve received a BS degree in Chemistry from University of Texas and a Ph.D. degree in Organic Chemistry from University of Wisconsin.

**John Penn** (PhD '81, Zimmerman) writes enthusiastically about his "WE LEARN" web system for doing homework on-line. He has been a Professor at West Virginia since finishing at Wisconsin.

**Al Preuss** (BS '49, PhD '53, Meloche) sent us the news about the death of **Sallie Fisher**, and wrote the obituary. Al also sent these words about his interactions with Sallie:

"When I was discharged from the Air Force after World War II, I continued my education at the University of Wisconsin in Madison. Sallie was my laboratory instructor in Inorganic Quantitative Analysis. She must have done a good job because most of us graduated in Chemistry and, also, most went on to graduate school. Later Sallie and I shared a laboratory, she for her Ph.D. thesis and I for my Senior thesis. In 1952 we were both again in the same laboratory under Dr. Kunin at Rohm and Haas. Others in the laboratory included Frank McGarvey, George Bodamer, Norm Frisch, Al Winger and Charlie Dickert. Sallie and I maintained contact with each other and in 1972, when I started Aldex, she allowed me to use some of her laboratory space at Puricons. I'm honored to chronicle the professional life of this exceptional woman."

Al and Sallie's names are both found on the Chemistry Department's "Wall of Honor" for benefactors, and we appreciate all they have done for the Department.

Long-time departmental collaborator **David Shaw** (PhD '75, Treichel) spent a sabbatical in the Department this Spring semester while on leave from Madison Area Technical College. David worked with **Professor John Moore** and the Digital Library group at the Journal of Chemical Education on some First Year Chemistry tutorials. Specifically, David updated and developed for wider dissemination, several of the Netorials (web-based tutorials on topics such as Stoichiometry

and Electrochemistry) originated here in the Department a few years ago and currently limited to UW students with a campus network connection. In addition, he developed an interactive tutorial and simulation on Limiting Reactions with the help of both **Jim Maynard** (Lecture Demonstrator) and **Jerry Jacobsen** (JCE video and computer guru). David reports that this break from full-time teaching was a wonderful experience, and he enjoyed his many interactions with former professors and other professional colleagues.

**John Shibley** (PhD '93, West) is Manager at Silar Laboratories, a manufacturer of organosilicon compounds. Silar is now part of Wright Corp., located in Wilmington NC. Silar Laboratores was originally founded by **Terry Selin** (PhD '61, West).

**Honglae Sohn** (PhD '97, West) is now assistant professor of chemistry at Choson University, Gwangju, South Korea. There he is continuing research on organosilicon chemistry.

**B. S. Thyagarajan** (PD '58-60, Zimmerman) is now retired from the Univ. of Texas - San Antonio. He writes that he continues to referee manuscripts for journals and is involved in writing commentaries to Hindu scriptures (1000 BC) and analyzing them against the 14th-16th century Christian writings. Also several San Antonio students have received "Prof. B. S. Thyagarajan Endowed Scholarships".

**Gail Underiner** (PhD '89, West) is a research group leader at Rhodia Co., just now moving to Deepwater NJ

**Pengfei Wang** (PhD '04, Zimmerman) has accepted an Assistant Professorship at the University of Alabama and will be moving there in August.

**Drew Weber** (PhD '88, Zimmerman) writes to say that he now is Global Business Director of DuPont Fuel Cells in Wilmington although his home is in Pennsylvania.

**Kevin Welsh** (PhD '78, West) is Vice President of Operations at Calinet Networks, in Goleta, CA. The company builds fiber optic switches using MEMS technology.





# Chemistry Department Support

## from Alumni, Staff and Friends

The Chemistry Department is blessed with many generous alumni and friends, and nowhere is that more evident than in the array of funds of various types that we can draw on for support of our activities. These funds include those that support general operations, scholarships and fellowships for students, lectures, seminars, research, awards and publications. We have listed here all of the funds the UW Foundation administers, plus the trust funds that have been set up to benefit Department activities. For contributions to Foundation accounts, checks should be made out to the UW Foundation, not to the Chemistry Department. Gifts to the UW Foundation are tax deductible, and many companies provide matching contributions, allowing you to multiply the value of your gift. When you send your donations to the Foundation, you can specify that your gift go to Chemistry, and further specify any of the funds. Donations to trust funds must be made out to the Chemistry Department, with the particular trust noted on the memo line.

Donors are acknowledged every year on the pages following our listing of funds. You are all essential to the continued high caliber of the Chemistry Department in its teaching, research and outreach missions. In this and future editions of the *Badger Chemist*, we will profile some of the donors who have done so much for our Department. We will start with the people who have helped us to establish new funds this year (see list of funds below).

**Harlan Goering** did his undergraduate work at Bethel College in Kansas, where he met and married his wife Margaret after her graduation in 1944. He did his graduate work at the University of Colorado, Boulder. He received his Ph.D. from Stan Cristol's group in 1948. Harlan then went to UCLA to join Saul Winstein, a pioneer in the new field of Physical Organic Chemistry. He joined the UW Chemistry Department in 1950 as an Instructor, became an Assistant Professor in 1952, Associate in 1956, and Full Professor in 1959. Harlan was chairman of the Organic Division between 1960 and 1972. In 1972 he was named the McElvain Professor of

Chemistry. At Wisconsin Harlan established a distinguished international reputation as one of the preeminent physical organic chemists of his time. His research pioneered the use of stereochemical and isotopic labels for the careful study of organic reaction mechanisms. He pioneered the use of O18 and deuterium labeling for the detection of otherwise invisible reactions. He directed 50 PhD students and 22 postdoctoral associates, and published 117 research articles. In addition to his research, Harlan taught both undergraduate and graduate organic chemistry courses, and was a well-liked lecturer with a real knack for crystal clear explanations of complex material. Harlan died October 28, 1997. **Margaret**

**Goering** was born August 9, 1922 in Newton, Kansas. She resided in Madison from 1950 to 1999. Margaret received a B.A. in biology from Bethel College in Newton, Kansas, and worked as an X-ray technician in the 1940s. In the 1970s, she returned to school and earned a master's degree in social work from the University of Wisconsin. She then worked as a medical social worker at Madison General Hospital. Margaret established a city-wide Junior Great Books discussion program in Madison area schools and served on the Madison PTA board. Margaret was a great friend of our Department, and arranged for two substantial bequests, one to endow the Organic Visitor, and the second to endow a Graduate Fellowship. Margaret Goering died Tuesday Jan. 2, 2003 at the age of 80.

**Ralph Hirschmann** (PhD '50, Johnson) received his Ph.D. in chemistry from the University of Wisconsin in 1950. He took a position at Merck, where he rose over the years to become Head of Research and Senior Vice President of Research. Among his many achievements during those years was the first design of a pro-drug, the first total synthesis of an enzyme using solution methods, and the establishment of an outstanding Peptide Chemistry Group at Merck. This group has been responsible for many fundamental advances in chemistry and biology. Hirschmann retired from Merck in 1987, at which time Merck established the Hirschmann Lecture

series in organic chemistry at UW-Madison in his honor. After leaving Merck, Hirschmann began a second career, as Research Professor of Chemistry at the University of Pennsylvania. This career has been very fruitful, leading to many important publications on the synthesis, structure and activity of peptides and synthetic molecules intended to mimic peptides. Hirschmann has received many honors, including the Arthur C. Cope Award in Organic Chemistry, the E. Smismann Award in Medicinal Chemistry, the National Medal of Science and an honorary doctorate from UW-Madison. Hirschmann is a member of the National Academy of Sciences. He has been a warm supporter of chemistry at UW-Madison.

**Norman Gustav Mailander** (BS '47, Wilds) was born in Milwaukee and spent many years working as a chemist for S.C. Johnson and Company. Most recently he was living in Sun City, AZ. Mr. Mailander was proud of his UW degree, and included a donation to the Chemistry Department in his will. Norman Mailander died March 13, 2003, at the age of 83.

**Pei Wang** (PhD '52, Larsen) was profiled in the Summer 2004 *On Wisconsin* magazine in an article by Chris DuPre. He arrived in this country from mainland China in 1947, received a PhD in 1952, and went on to a productive career as an electrical engineer, spending seventeen years with Sylvania and more than twenty years with Texas Instruments. Pei Wang was particularly affected by Chemistry **Professor Edwin Larsen**, who died in 2001. Professor Larsen's generosity, wisdom and friendship had much to do with Pei Wang's desire to make this gift to the Chemistry Department. Pei Wang died October 10, 2003.

*Address gifts/correspondence to the UW Foundation, 1848 University Ave., Madison, WI 53708 or to the Chair, Department of Chemistry, University of Wisconsin, 1101 University Ave., Madison, WI 53706*

# UW - Foundation Accounts for the DEPARTMENT OF CHEMISTRY



## OF SPECIAL INTEREST IN 2004-2005

Although we appreciate all of our donors, the following funds are of very broad application to Department activities, or had some special event occur in 2004-2005.

<b>Department of Chemistry Fund</b>	1222137
<i>Supports research and teaching activities in the Department</i>	
<b>Chemistry Building Fund</b>	12221293
<i>Supports the construction of the New Chemistry Building Addition, and remodeling of the Mathews and Daniels Buildings. Remodeling was completed in 2003, but bills remain to be paid.</i>	
<b>Community-Building Fund for Chemistry</b>	12223316
<i>Provides funds for receptions, retirement parties, funeral memorials, and other similar activities; established in 2001.</i>	
<b>Harlan L. and Margaret L. Goering Organic Chemistry Fellowship Fund (Grad)</b>	12223951
<i>Established in 2004 by Margaret Goering's will, in honor of her late husband, Professor Harlan Goering. The fellowship will support a graduate student in Organic Chemistry.</i>	
<b>Ralph F. Hirschmann – Daniel H. Rich Graduate Fellowship Fund (Grad)</b>	12224086
<i>Established in 2004 by Ralph Hirschmann to encourage and assist students in the early stages of their research careers; and to honor and to express his high regard for Professor Daniel H. Rich.</i>	
<b>Norman G. Mailander Fund</b>	12224058
<i>Established in 2004 by Norman Mailander's will (see <b>In Memoriam</b>, Badger Chemist #47 (2003)), for special enhancement of the Department of Chemistry in the College of Letters and Science at the University of Wisconsin - Madison.</i>	
<b>Pei Wang Fund</b>	12224225
<i>Established in 2005 by a gift from the estate of Pei Wang (see <b>In Memoriam</b>), to be used for fellowships for students in the Chemistry Department.</i>	



## STUDENT SUPPORT

<b>Ackerman Scholarship Fund (Undergrad)</b>	12223212
<i>Supports undergraduate students in Chemistry, especially those from East High School in Madison.</i>	
<b>Alfred L. Wilds Scholarship in Chemistry (Undergrad)</b>	12220072
<i>Undergraduate scholarship in memory of Professor Al Wilds.</i>	
<b>Andrew Dorsey Memorial Scholarship Fund (Undergrad)</b>	12223281
<i>Undergraduate scholarship in memory of Andrew Dorsey. A musical fundraiser was held on campus in March 2004.</i>	
<b>David F. and Donald G. Ackerman, Jr. Wisconsin Distinguished Graduate Fellowships</b>	12223243
<i>Supports graduate students in Chemistry.</i>	
<b>Don Brouse Memorial Scholarship (Undergrad)</b>	32220536
<i>Undergraduate scholarship in memory of Don Brouse.</i>	
<b>Edwin M and Kathryn M Larsen Fund (Undergrad)</b>	12222308
<i>Supports undergraduate students in Chemistry.</i>	
<b>Elizabeth S Hirschfelder Endowment for Graduate Women in Chemistry</b>	12223191
<i>Supports women graduate students in Chemistry research.</i>	
<b>Eugene and Patricia Kreger Herscher Fund (Undergrad)</b>	12223562
<i>Supports undergraduate students in Chemistry, especially women.</i>	
<b>Farrington Daniels Ethical Leadership Fellowship Fund (Grad)</b>	12223995
<i>Established in 2004 by William G. and Virginia Hendrickson.</i>	

<b>Gary R. Parr Memorial Fund (Grad or Undergrad)</b>	12222192
<i>Scholarship in Bioanalytical or Biological Chemistry, in memory of Gary Parr.</i>	
<b>Harry and Helen Cohen Graduate Research Fund (Grad)</b>	12222250
<i>Supports graduate students in Organic Chemistry.</i>	
<b>Henry and Eleanor Firminhac Chemistry Scholarship Fund (Undergrad)</b>	12223644
<i>Supports Undergraduate students in Chemistry, in memory of Ralph Firminhac's parents, Henry Firminhac and Eleanor Firminhac. First awarded in 2003.</i>	
<b>John and Elizabeth Moore Awards in General Chemistry</b>	12223663
<i>Provides funds for awards to the best students in the Fall Chemistry 108 and Chemistry 109 courses.</i>	
<b>Kimberly-Clark Undergraduate Scholarship</b>	12222807
<i>Supports undergraduate research with an annual award.</i>	
<b>Leah Cohodas Berk Award for Excellence in Chemistry Research (Grad)</b>	12543124
<i>Honors an outstanding female graduate student.</i>	
<b>Norbert Barwasser Chemistry Fund</b>	32225010
<b>Roger J. Carlson Fund (Grad)</b>	12220918
<i>Graduate Fellowship in Analytical Chemistry, in memory of Roger Carlson.</i>	
<b>Student Support in Chemistry (Undergrad)</b>	12222068
<i>Supports undergraduate students from Wisconsin high schools with GPA above 3.0.</i>	
<b>Walter W. and Young-Ja C. Toy Scholarship Fund (Undergrad)</b>	12221917
<i>Supports undergraduate students, with preference for students of Asian descent.</i>	
<b>Wayland Noland Undergraduate Research Fellowship</b>	12222191
<i>Established by Professor Wayland E. Noland to support summer or academic year research by undergraduates.</i>	



## DIVISIONAL SUPPORT

<b>Analytical Chemistry Fund</b>	1222679
<i>Supports research and educational activities in the Analytical Sciences Division, including conferences and grad recruiting.</i>	
<b>Analytical Research Fund</b>	12220448
<i>Supports research and programs in the Analytical Sciences Division — Originally established in 1990 with a gift from the Olin Corporation Charitable Trust.</i>	
<b>Center for Chemical Genomics</b>	12223086
<i>Established in 2001 by a gift from the W. M. Keck Foundation.</i>	
<b>Inorganic Chemistry Seminar Fund</b>	12221344
<i>Supports the Inorganic Division seminar and research programs.</i>	
<b>J. O. Hirschfelder Prize Fund</b>	12220984
<i>Awards an annual Prize to an internationally prominent scientist to recognize outstanding work in Theoretical Chemistry.</i>	
<b>J. O. Hirschfelder Visitors Fund</b>	12220912
<i>Supports visits to the Theoretical Chemistry Institute by outstanding scholars.</i>	
<b>John L. Schrag Analytical Research and Teaching Fund</b>	12223637
<i>Provides funds for activities that will enhance the excellence and humanity of the Analytical Sciences Division.</i>	
<b>Organic Synthesis Fund</b>	1222548
<i>Supports research activities in Organic Chemistry including symposia and visiting lecturers.</i>	

 CHEMISTRY EDUCATION

<b>Institute for Chemical Education Fund</b> <i>Supports activities in Chemical Education</i>	1222929
<b>James W. Taylor Excellence in Teaching Award</b> <i>Established in 2002 and first awarded in 2003, this provides an endowed fund to support awards to outstanding teachers in the Chemistry Department.</i>	12223590
<b>Michael S. Kellogg Chemistry Fund</b> <i>Provides funds to support an annual prize, a lectureship, or other support of science education.</i>	12223655
<b>Project SERAPHIM Fund</b> <i>Supports activities in Chemical Education</i>	12220404
<b>Shakhashiri Science Education Fund</b> <i>Supports activities in Science Education under the direction of Prof. Bassam Shakhashiri</i>	12221133

 LECTURESHIPS/PROFESSORSHIPS

<b>Evan P. Helfaer Fund</b> <i>Provides funds to support endowed chairs in the Chemistry Department</i>	32225081A
<b>H. L. and M. L. Goering Visiting Professorship Fund</b> <i>Provides funds to support a Visiting Professor in Organic Chemistry.</i>	12222391
<b>J. D. Ferry Lectureship in Macromolecular Science</b> <i>Provides funds to support a Lecturer in Macromolecular Sciences.</i>	12222793
<b>John E. Willard Lectureship</b> <i>Funds a special seminar in Physical Chemistry.</i>	1222829
<b>Joseph O. Hirschfelder Professorship Fund</b> <i>Provides funds to support an endowed chair.</i>	12220310
<b>McElvain Seminar Fund</b> <i>Supports the ongoing seminar series organized and run by graduate students in the Department of Chemistry.</i>	12220241
<b>Ralph Hirschmann Lectureship</b> <i>Funds a Visiting Professor in Organic, Bioorganic or Physical Organic Chemistry.</i>	1222295
<b>V.W. Meloche-Bascom Professorship</b> <i>Provides funds to support an endowed chair.</i>	1222889
<b>V.W. Meloche Lectureship</b>	1222825

 GENERAL DEPARTMENTAL SUPPORT

These untargeted funds provide key support for our new initiatives

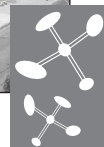
<b>Badger Chemist Fund</b> <i>Provides funds to support the Badger Chemist and other Department publications.</i>	1222534
<b>Farrington Daniels Memorial Fund</b> <i>Funds special projects relating to the benefits of science to society.</i>	1222324
<b>Harry L and A Paschaleen Coonradt Fund</b>	12221413
<b>Jean Irene Love Fund</b> <i>Established in December 2003 by the family of Jean Irene Love and John Edmund Wright, to remember Jean's kindness, her self-sacrifice, and her deep and unconditional love for all people.</i>	12223870
<b>John and Caroline Dorsch Fund</b>	12220322
<b>Les Holt Memorial Endowment</b> <i>A general fund established with a gift from the estate of Professor Les Holt.</i>	12223535

<b>Lloyd L. Withrow Fund</b>	12221190
<b>Paul A. and Jane B. Wilson Fund</b>	3222055
<b>Thomas B. Squire Fund</b>	12221796

 INDIVIDUAL RESEARCH GROUP SUPPORT

(Group; Established by)

<b>Bio-Analytical Chemistry Fund</b> <i>(Lloyd Smith; Upjohn)</i>	12220368
<b>Carbohydrate Chemistry Research Fund</b> <i>(Laura Kiessling; Zeneca Pharmaceuticals)</i>	12221999
<b>Chemistry Catalysis Fund</b> <i>(Shannon Stahl)</i>	12223733
<b>Eastman Kodak Professorship</b> <i>(Hyuk Yu; Eastman Kodak)</i>	12221901
<b>Kocher Award</b> <i>(Thomas Brunold; Kocher-Preis Kommission, University of Bern)</i>	12223165
<b>Lawrence Dahl Research Fund</b> <i>(Larry Dahl)</i>	12222076
<b>Nuclear Magnetic Resonance Research Fund</b> <i>(Tom Farrar; Johnson Controls)</i>	12221877
<b>Organic Chemistry Research</b> <i>(Hans Reich; Bell, DuPont)</i>	12220190
<b>Organic Research Studies Fund</b> <i>(Howard Zimmerman; Alumni and Friends)</i>	12220747



*In addition to the above Foundation accounts, the following trust funds have been established to support Department programs.*

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Belle Crowe Fellowship  
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Edward Panek Memorial Scholarship  
Hoechst Celanese Foundation Chemistry Department Fund  
Krauskopf Chemistry Award  
Mabel Duthey Reiner Scholarship  
Margaret McLean Bender Scholarship in Chemistry  
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Sam Charles Slifkin Award in Chemistry  
Willard W. Hodge Scholarship in Chemistry

### DIVISIONAL and INDIVIDUAL SUPPORT

Arthur C. Cope Scholar Grant (Casey)  
Chemistry Department Special Library Fund  
Chemistry Research Fund (Reich)

Dreyfus Teacher-Scholar Award (Nathanson)  
Hilldale Foundation Funds  
Innovation Recognition Research Fund (Casey)  
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MacArthur Fund (Smith)  
Steenbock Professorship in Chemical Sciences (Record)  
Theoretical Chemistry Institute Fund

### LECTURESHIPS/PROFESSORSHIPS

James M. Sprague Lectureship  
Karl Folkers Lecture Series in Chemistry

### GENERAL DEPARTMENTAL SUPPORT

Chemistry Building Fund  
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*In addition to honoring and acknowledging those people who donate to the Department to help support our Teaching, Research, and Outreach missions, we would like to also honor the people **for whom funds are named**. Many of you have donated to pay tribute to a mentor, colleague, friend, or relative in the Chemistry Department, and we will construct a new area on the first floor to acknowledge all of these people who are named in funds.*



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*We thank each  
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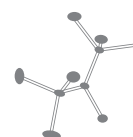
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# In Memoriam



**Paul Bender**

(Emeritus Professor, at UW 1942-1979) died in his sleep Wednesday, December 29, 2004. He was born in 1917 and retired from the Physical Chemistry Division in 1979. He and his wife, Margaret, funded the Margaret McLean Bender Scholarship Fund which provides a scholarship for an outstanding woman majoring in Chemistry. A memorial service was held in March, and a scholarship trust fund was set up in Professor Bender's honor.

**Sallie Fisher**

(BS '45, MS '46, PhD '49, Hall/Meloche) president of Puricons, Inc., in Malvern, PA, died on April 18, 2005, at the age of 81. A native of Green Bay, Wisconsin, Dr. Fisher enrolled at the University of Wisconsin in Madison where she received her BS, MS and PhD (1949) in inorganic, analytical and physical chemistry. Her thesis: "Ion Exchange Separation of Rhenium from Molybdenum". With this introduction to the evolving field of Ion Exchange, it became her passion for her entire professional career. In 1951 she joined Rohm and Haas Company as a Group Leader in Dr. Robert Kunin's Ion Exchange laboratory, where she was involved in processes for the recovery of uranium, cobalt and nickel. Her methods for the evaluation of new polymeric structures are now standard in the industry. In 1960 she joined Robinette Research laboratory in Berwyn, PA, as

Associate Director of Research involved in the synthesis of unusual ion exchange functionalities in powdered resins for application in gas-protective systems.

In 1972 Dr. Fisher cofounded Puricons, Inc., in Malvern, PA, and served as President until her death. Puricons was involved in management programs for evaluating ion exchange performance including powdered resin as well as deep bed systems and radwaste treatment. She consulted with power generating stations concerning selection of and specifications for ion exchange materials, field problems with existing ion exchange systems, and rejuvenation of fouled field samples. In 1974 she received the ASTM Award of Merit, and in 1975 the Max Hecht Award. Dr. Fisher had over 150 publications as well as four patents. Nearly all of these involved some aspect of ion exchange resins. She was an expert in the use of ion exchange resin in ultrapure water, condensate polishing, liquid radwaste treatment, resin fouling, and many other uses. She used her analytical skills in the characterization of all types of ion exchange resins. Dr. Fisher left no living relatives, but will be sorely missed by former colleagues, clients, and many friends.

**Larry Haskin**

(Emeritus Professor, at UW 1960-1973) died March 23, 2005, at the age of 70. Although active until the end, he had been fighting a blood disorder called myelofibrosis for many years, and it finally beat him; he died in his sleep at home. Larry is survived by his wife, Mary Haskin, his son Dierk, his daughters Rachel and Jean, and four grandchildren.

**Dick Hugo**

Long-time employee of the Chemistry Department, died on August 5, 2004, in Madison. Dick started with the University in 1957 and retired in 1989, working most of that time in the Chemistry Department. He was a Lab Technician staffing the research stockroom when he retired.

**Charles R. Naeser**

(BS '31), 94, a longtime chemistry professor at George Washington University, died of congestive heart failure March 5 at Virginia Hospital Center. Dr. Naeser joined the faculty at GWU in 1935, specializing in introductory chemistry and advanced inorganic chemistry. He was chairman of the chemistry department from 1947 to 1973, except for four years in the 1950s. He retired in 1976. Dr. Naeser was known for his humorous Christmas and Halloween lectures in which he used various chemicals to produce solutions in holiday colors. The Naeser Memorial Lecture Hall in Corcoran Hall on the GWU campus was named in his honor in 1978.

Dr. Naeser was born in Mineral Point, WI, and graduated from the University of Wisconsin in 1931. He received a doctorate in chemistry in 1935 from the University of Illinois. In 1940, while working with the U.S. Naval Research Laboratory, Dr. Naeser helped develop a technique to enrich uranium that later was used in the development of atomic power. During World War II, he served in the old Army Chemical Warfare Service. From 1953 to 1956, while on partial leave from GWU, Dr. Naeser was chief of the chemistry group in the geochemistry and petrology branch of the U.S. Geological Survey. In that position, he helped develop standards and techniques for analyzing potential uranium deposits in the United States.

He was vice president of the Washington Academy of Sciences in 1957-58 and, in 1962, received the academy's award for teaching. He received an award for his research in inorganic chemistry from the Washington chapter of the American Institute of Chemists. In 1969, he received the organization's Alpha Chi Sigma Professional Service Award. He was president of the Chemical Society of Washington and held other offices in the organization. Dr. Naeser was a member of the Geological Society of Washington,



the American Chemical Society, the Geochemical Society, the American Association for the Advancement of Science, the American Association of University Professors and various scientific honor societies.

### Warren D. Niederhauser

(PhD '43, Adkins) retired director of research at Rohm and Haas and a former president of the American Chemical Society, died on Jan. 27 at the age of 87. Niederhauser, who became president in 1984 after seven years on the ACS Board of Directors, aimed to develop society programs that would increase the professional value of chemists. He supported tax incentives for scientific research and urged ACS to take a more active role in monitoring federal R&D funding decisions. He also encouraged accountability in industry by convincing the Committee on Public Relations to publish the records of employers that breach ACS guidelines.

In addition to the presidency, Niederhauser was active in a variety of ACS national committees. He was Region III director from 1976 to 1984, chair of the Committee on Professional & Member Relations in 1979, chair of the ACS Award for Creative Invention canvassing team from 1978 to 1980, and secretary of the Committee on Committees in 1975. He also served for several years as a congressional science counselor.

Born in Akron, Ohio, and raised in Gadsden, Ala., Niederhauser received a bachelor's degree in chemistry from Oberlin College, in Ohio, and a Ph.D. in organic chemistry from the University of Wisconsin, Madison. After graduation, Niederhauser joined Rohm and Haas, where he enjoyed a 31-year career. He led research divisions in both Huntsville, Ala., and Spring House, Pa., before retiring in the early 1990s.

Niederhauser held more than 50 patents and, in 1977, was coeditor of a book on the legal rights of chemists

and engineers. He was a member of the Philadelphia Organic Chemists' Club, the American Institute of Chemists, the Society of Chemical Industry, and the American Association for the Advancement of Science.

*We have also been informed of the following deaths of alumni and friends:*

**Eugene Oscar Brimm** (BS '36, Hall) died April 15, 2004, at the age of 88.

**Robert L. Clarke** (PhD '47, McElvain) died May 14, 2004, at the age of 87.

**Leonard Gabriel** (BS '62, Williams) died February 17, 2003, at the age of 64.

**Frederick M. Granberg** (BS '39, Hall) died January 10, 2005, at the age of 90.

**Paula Rose Hansen** (BS '31, Meloche) died March 25, 2005, at the age of 95.

**Paul John Homme** (PhD '68, Vet. Sci.) died October 6, 2004, at the age of 74.

**David Lee Hughes** (MS '53) died November 16, 2003, at the age of 74.

**Konrad Bates Krauskopf** (BS '31, Daniels) died May 4, 2003, at the age of 92.

**David B. Ludlum** (PhD '54, Williams) died April 3, 2003, at the age of 73.

**James Edgar Meinhard** (BS '47; PhD '50, Hall) died February 27, 2005, at the age of 85.

### Russ Riley

For many years the head of the Chemistry Machine Shop, died on February 7, 2005, in Madison, at the age of 87. Russ retired from the Chemistry Department in 1987.

**Maurice B. Mutimer** (BS '52) died November 24, 2004, at the age of 77.

**Edward Brown Osborne** (MS '43, Holt) died October 25, 2004, at the age of 84.

**Don Pearson** (BS '38, McElvain) died April 16, 2004, at the age of 89.

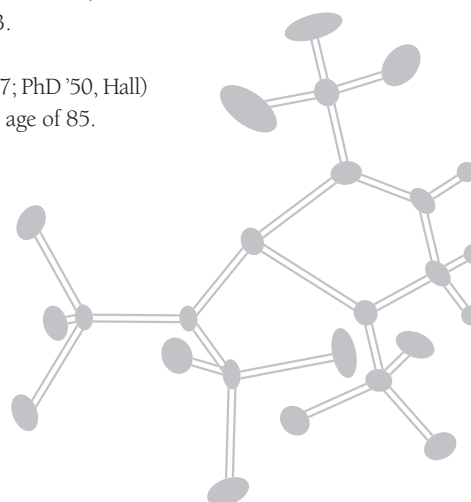
**Donald Lee Perry** (BS '68, Trost) died January 19, 2003, at the age of 66.

**Dr. Gordon R. Pscheidt** (BS '50, Woyski) died September 13, 2004, at the age of 75.

**Arthur Louis Rautman** (BS '34, McElvain) died April 17, 2004, at the age of 94.

**Elizabeth Schwarz** (MS '62, Curtiss) died March 5, 2003, at the age of 68.

**Edward John Schwoegler** (BS '33; PhD '39, Adkins) died October 15, 2004, at the age of 93.





(continued from page 22)

### Conversations on creativity

During the fall semester, WISL co-sponsored two talks on creativity, in which eminent UW faculty members talked about the role of creativity in their work. Creativity is one of the qualities that link science, the arts and the humanities.

On October 19, Associate Professor of Music and Opera Director **William Farlow** explored the nature of creativity in the complicated group dynamics of opera. Farlow has more than two hundred productions to his credit, and a long career that has taken him to Scotland, Mexico, and Canada, and throughout the United States. As a singer, he has performed major roles in canonical operas, as well as principal roles in nine Gilbert and Sullivan operettas.

On September 28 the speaker for Conversations on Creativity was **Ronald L. Numbers**, Hilldale & William Coleman Professor of the History of Science. Numbers spoke at Gates of Heaven Synagogue, which is now owned by the city of Madison and is situated in James Madison Park, where it is available for private and community events. In the context of one of the oldest synagogues in North America, Numbers discussed the role of creativity in the formation of a science independent of religion. Numbers teaches and writes about the history of science, medicine, and religion in America. He is currently writing a one-volume history of science in America since European settlement, and with colleague David Lindberg, he recently completed editorial work on the eight-volume *Cambridge History of Science* (Cambridge University Press, 2003). Conversations on Creativity is co-sponsored by the Center for the Humanities.

### Science in the media

Professor Shakhshiri has continued his regular appearances on Wisconsin Public Radio (monthly on the Larry Meiller Show) and every other week on "Wake Up Wisconsin" on channel 27 in Madison. He also arranged for other scientists to appear with Larry Meiller, including Phillip Ball, UW Mathematics Professor Ken Ono and UW Anthropology Professor Karen Srier.

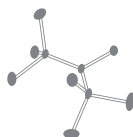
### Science is fun web site

The WISL web site continues to expand with more "Chemical of the Week" articles, more experiments you can do at home, more recommended readings and more recommended web sites.

### Support for WISL programs

Activities of the Wisconsin Initiative for Science Literacy are partially supported by small and large donations from alumni, former students, faculty, friends and from groups who advocate science literacy. We express gratitude to each individual donor and to major underwriters including the Evjue Foundation, the Golden Family Foundation, DuPont, and the University Bookstore. Our successful programs can be sustained with your help. Your gift, no matter the amount, is greatly appreciated. Donations can be made directly to: Wisconsin Initiative for Science Literacy - Shakhshiri Science Education Fund (12221133), University of Wisconsin Foundation, 1848 University Avenue, P.O. Box 8860, Madison, Wisconsin 53708-8860.

During the 2003-2004 school year the Wisconsin Initiative for Science Literacy began new programs and expanded existing ones, reaching audiences across the country through National Public Radio and PBS, at professional society meetings, and at schools in several states. New programs included a cooperative effort involving science, arts and the humanities, and expanding the popular "Conversations in Science" series to UW dorms. WISL also expanded the participation of undergrads in "Science is Fun" presentations, sponsored further appearances on campus by distinguished speakers, offered new "Science Saturday" courses, and expanded its web site. In addition, the Madison Metropolitan School District recorded on video many WISL-sponsored programs and broadcast them on the district's cable TV channel (channel 10).



### Dedication of the Irving Shain Research Tower on May 5-6, 2006



The Chemistry Department will host a series of educational, artistic and social festivities to honor former department chair and university chancellor Irving Shain and to dedicate the Irving Shain Research Tower of the Chemistry Building. This latest addition to the Chemistry Building was completed in 2000. Shain joins two other former chairs, Farrington Daniels and J. Howard Mathews in sharing the name of the Chemistry Building.

During his career as teacher, mentor, researcher, administrator and leader, Irv Shain earned the respect of his colleagues, the affection of his students, the gratitude of the campus community and the friendship of many. Please plan to join us in saluting Irv Shain and celebrating his contributions to the Chemistry Department and the UW-Madison.

The celebrations include scientific lectures by noted electrochemists: Professor Allen Bard, University of Texas president emeritus Larry Faulkner, and our former chair Professor Dennis Evans now of the University of Arizona. UW-Madison faculty will also present talks on their cutting-edge research.

Because of Irv Shain's life-long support of music, a special concert featuring the Pro Arte Quartet will be part of the celebrations. The Chemistry Department will have Open House with tours of its research and educational facilities and will offer hands-on workshops for kids of all ages. The celebrations activities are open to the public and are organized by a committee chaired by Professor Bassam Z. Shakhshiri ([bassam@chem.wisc.edu](mailto:bassam@chem.wisc.edu)).

Mark your calendars and plan on joining the gala celebrations on May 5-6, 2006. This will be a wonderful opportunity to reconnect, in person, with your Alma Mater.

Registration, housing, and schedule information will be mailed to you and is available online [www.chem.wisc.edu](http://www.chem.wisc.edu). Additional contacts: Email: [shainfest@chem.wisc.edu](mailto:shainfest@chem.wisc.edu), Fax: 608-262-0453, Phone: 608-263-4450.



