

CHEMISTRY

Connection

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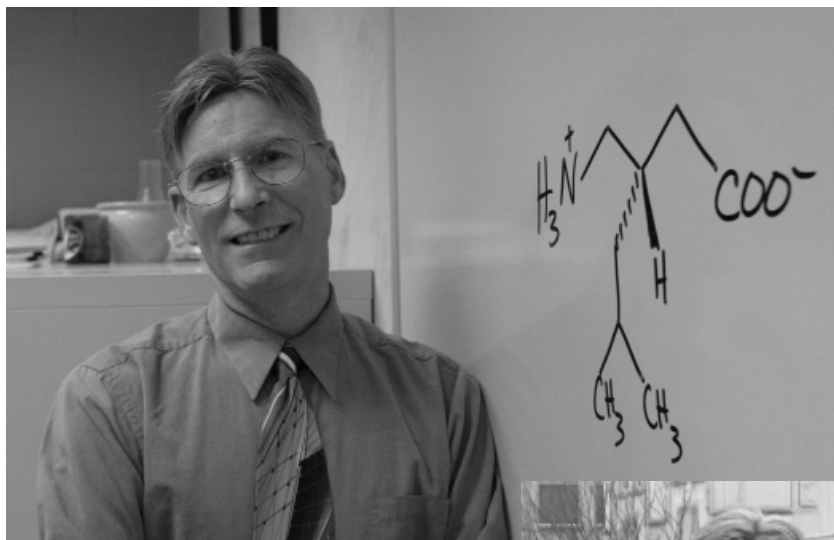
Thank You, Rick and Barbara Silverman

Richard B. Silverman, professor of chemistry; his wife, Barbara; and their children have made a significant gift to help fund the construction of a new chemistry, biology, and engineering research facility on Northwestern's Evanston campus that will be named the Richard and Barbara Silverman Hall for Molecular Therapeutics and Diagnostics.

Silverman is donating to Northwestern a portion of his royalties from sales of the drug Lyrica, which he developed while doing research in the chemistry department. Lyrica is used to combat epilepsy and neuropathic pain and has been a blockbuster drug for Pfizer, Inc., generating more than \$1 billion in sales in its first year on the market. Northwestern and Silverman receive a portion of the sales income as royalties.

Silverman Hall will house 16 research groups in chemistry, biology, and engineering when completed in 2009. Extending the collaborative research that has been a hallmark of Northwestern's chemistry research tradition, scientists there will work together to advance biomedical research through the development of new medicines and diagnostics. The clustering of faculty offices in the middle of floors and a variety of meeting rooms and gathering places will encourage both spontaneous and planned interactions among research groups and across disciplines.

Much of Silverman's research has been in the areas of epilepsy, cancer, and neurodegenerative diseases such as Parkinson's disease, cerebral palsy, and amyotrophic lateral sclerosis. His interdisciplinary group investigates the molecular mechanisms of drug action, rational design and syntheses of medicinal agents that primarily inhibit enzymes, and the mechanisms of enzymes.



Professor Rick Silverman beside an illustration of the structure of Lyrica (above) and with his wife, Barbara (right)

In 1989 Silverman first synthesized an organic molecule that ultimately was marketed as Lyrica. "During research on our epilepsy project, we got surprising results that led us to have some of our compounds tested further for anticonvulsant activity in mice, and one of them worked really well," Silverman said. It takes at least 10 years of testing before a molecule identified as a potential drug candidate can receive FDA approval for medicinal use.

Silverman received a PhD in chemistry from Harvard University and joined the Northwestern faculty in 1976. He is a member of Northwestern's Center for Drug Discovery and Chemical Biology, Robert H. Lurie Comprehensive Cancer Center, and Institute for Neuroscience. He is author of three books, including the widely used text *The Organic Chemistry of Drug Design and Drug Action*, now in its second edition, and more than 230 articles in organic chemistry, medicinal chemistry, and enzymology. He holds 38 patents, and his research has been supported by numerous grants, mostly from the National Institutes of Health.



Silverman has received many awards for his research and teaching, including the Arthur C. Cope Senior Scholar Award of the American Chemical Society, a Sloan Research Fellowship, a National Institutes of Health Career Development Award, the Northwestern University Alumni Association Excellence in Teaching Award, and the E. LeRoy Hall Award for Teaching Excellence. He is a fellow of the American Institute of Chemists and the American Association for the Advancement of Science.

Department Pioneer Fred Basolo Dies



Fred Basolo, circa 1964

Fred Basolo, 87, professor emeritus who was credited with helping make Northwestern's chemistry department a leader in inorganic chemistry, died February 27 of congestive heart failure.

Basolo joined Northwestern in

1946 after working on a classified military research project during World War II. Named the Charles E. and Emma H. Morrison Professor of Chemistry in 1980, he was internationally recognized for his original contributions to the syntheses and reaction mechanisms of transition-metal Werner complexes. He also did seminal work in the developing fields of organometallic and bio-inorganic chemistry. He published in more than 400 scientific journals and was the author of four books.

He served as president of the American Chemical Society (ACS) in 1983 and as chairman of the chemistry section of American Association for the Advancement of Science in 1979. He was a member of the board of trustees of the Gordon Research Conferences and its chairman in 1976. His honors included membership in the National Academy of Sciences, the American Academy of Arts and Sciences, and the Italian Academy of Sciences Lincei; ACS awards for research and service in inorganic chemistry; the first Joseph Chatt Medal; the 1996 Willard Gibbs Medal; and the ACS's 2001 Priestley Medal.

A native of Coello, Illinois, Basolo received a bachelor's degree in 1940 from Southern Illinois University and a PhD in 1943 from the University of Illinois. He was preceded in death by his wife, Mary. He is survived by three daughters, Mary Catherine (John) Kunzer, Margaret Ann (Gary) Silkaitis, and Elizabeth Rose (Bob) Pionke; a son, Fred Jr. (Marcia); and 11 grandchildren.



Tobin Marks accepts congratulations from President Bush.

Marks Receives National Medal of Science and ACS Inorganic Chemistry Award

Congratulations go to Professor **Tobin J. Marks**, who was one of only eight scientists in the nation to receive the 2005 National Medal of Science from President George W. Bush on May 29.

The National Medal of Science was established by the 86th Congress in 1959 as a presidential award to individuals "deserving of special recognition by reason of their outstanding contributions to knowledge in the physical, biological, mathematical, or engineering sciences." The National Science Foundation administers the award, and a presidential committee of 12 scientists and engineers evaluates the nominees. Since its establishment the National Medal of

Science has been awarded to only 425 scientists and engineers.

This fall the American Chemical Society selected Marks to receive the Award for Distinguished Service in the Advancement of Inorganic Chemistry. The award is given to individuals — including educators, authors, researchers, and administrators — in recognition of their outstanding service in addition to their research to advance inorganic chemistry. Marks is the latest in a string of award winners from Northwestern's chemistry department; previous recipients include Fred Basolo, Duward Shriver, and Jim Ibers.

Marks is the Charles E. and Emma H. Morrison Professor of Chemistry, the Vladimir N. Ipatieff Professor of Catalytic Chemistry, and professor of materials science and engineering.



Civil and environmental engineering professor Jan Achenbach, Tobin Marks, University President Henry Bienen, and Board of Trustees Chair Patrick J. Ryan gathered for a photo in the White House on May 29.



Ground Breaking Ushers in Construction of Silverman Hall

Ground breaking for the Richard and Barbara Silverman Hall for Molecular Therapeutics and Diagnostics took place on March 30 at the new building's future site, located on the Evanston campus immediately south of the Panceo-Evanston Northwestern Healthcare Life Sciences Pavilion and Patrick G. and Shirley W. Ryan Hall. Those attending the ceremony included President **Henry S. Bienen**; **Daniel Linzer**, University provost; **Julio Ottino**, dean of the McCormick School of Engineering and Applied Science; **Thomas O'Halloran**, Charles E. and Emma H. Morrison Professor of Chemistry in the Weinberg College of Arts and Sciences; and **Richard B. Silverman**, the John Evans Professor of Chemistry in the Weinberg College of Arts and Sciences, and his wife, Barbara, for whom the building is named.

The Silvermans (above left) break ground for Silverman Hall (shown as it will look in 2009).

"Chalk Talk" Marks Dedication of Room K-140

In September the department held a special BIP (Basolo-Ibers-Pearson) Session in the Technological Institute's newly refurbished conference room K-140 to coincide with dedication of the room in honor of late chemistry professor **Fred Basolo**. Basolo family members were present for the dedication, and two prominent alumni, **Harry Gray** and **Ken Raymond**, gave a traditional BIP "chalk talk." A commemorative plaque was placed on the wall outside K-140 in Basolo's memory.



Professor Mark Ratner (left) with "chalk talk" presenter Harry Gray

Letter from the Chair

Dear Alumni and Friends,



The last six months have been exciting ones for the Department of Chemistry, as you'll read in this issue of *Chemistry Connection*. The news that Professor Rick Silverman and his wife, Barbara, are the benefactors of a new chemistry of life processes building was announced in March. We are deeply indebted to Rick and his family for making possible our new facility for research. Completion of Silverman Hall is projected for 2009.

Our faculty has made headlines. Tobin Marks received the highest national award for science, the National Medal of Science, from President Bush; Brian Hoffman was elected to the National Academy of Sciences; and Karl Scheidt, Franz Geiger, and Bartosz Grzybowski were awarded Sloan Fellowships. Hearty congratulations also go to Teri Odom, who was granted tenure and promoted to associate professor, and to SonBinh Ngyuen, who was promoted to full professor.

We welcome Fraser Stoddart, who comes to us from UCLA. Fraser, who is well known for his work in nano- and supramolecular chemistry, will bring a group of 25 graduate students with him. He is primarily an organic chemist, and he will strengthen the Northwestern presence in that field.

We had a chance to visit with many of you at the spring ACS meeting in Chicago. It was great to see everyone! Check out the photos from our hospitality suite in this issue.

Some sad news came early in the year. Professor emeritus Fred Basolo passed away February 27. Fred was a dear friend, colleague, mentor, and leader to not only our department but also the worldwide chemical community. We will miss him.

Finally, I would like to thank you for your donations to the chemistry department over the last year. Your generosity makes it possible to maintain the tradition of excellence in chemistry at Northwestern.

Sincerely,

Joe Hupp, Chair

Nanotechnology Star Fraser Stoddart Joins Northwestern Chemistry

J. Fraser Stoddart, a pioneer in the fields of nanoscience and organic chemistry, has joined the Northwestern chemistry faculty as Board of Trustees Professor of Chemistry.

Stoddart, who was Fred Kavli Chair in NanoSystems Sciences at the University of California, Los Angeles, and director of the California NanoSystems Institute, is the inventor of a field of chemistry that enables the construction of molecular switches and machines on the nano-scale level.

A native of Edinburgh, Scotland, Stoddart was appointed a Knight Bachelor in Queen Elizabeth II's New Year 2007 Honours List for his services to chemistry and molecular nanotechnology. He is ranked the second-most cited chemist in the world by the Institute for Scientific Information.

Stoddart's research group of about 25 graduate students will be in place in the Technological Institute by January 2008. Eventually the offices and laboratories will move into the Richard and Barbara Silverman Hall for Molecular Therapeutics and Diagnostics and the Patrick G. and Shirley W. Ryan Hall.

"Fraser's presence will elevate the entire science endeavor at Northwestern and help us recruit high-profile scientists in the areas of organic chemistry, the chemistry of life processes, nanoscience, and materials chemistry," said chemistry department chair Joseph T. Hupp. "These are all areas that reflect Fraser's broad interests and talents. He will play a big role in



Newly appointed Board of Trustees Professor of Chemistry Fraser Stoddart with his daughters Allison (left) and Fiona. Stoddart was honored for "his services to chemistry and molecular nanotechnology" at a Buckingham Palace ceremony last June.

moving our department and the University forward on many fronts."

Stoddart will direct Northwestern's new Center for the Chemistry of Integrated Systems. The center will focus on science and engineering involving complex systems that exhibit emergent behavior. It will bring together experts from many disciplines and offer a unique educational experience to those who will spark innovations and inventions.

By introducing an additional type of bond (the mechanical bond) into chemical synthesis, Stoddart became one of the few chemists in the past 25 years to open up a new field of chemistry. He pioneered the use of molecular recognition and self-assembly to create, by means of template-directed synthesis, mechanically interlocked compounds called catenanes and rotaxanes. They have been employed as molecular switches and as motor-molecules in

"It's about very small things, isn't it?"

When Stoddart group alumni and friends learned by e-mail that Her Majesty Queen Elizabeth II had conferred knighthood upon Fraser Stoddart on June 13, they were also provided the following account — in Stoddart's own words — of a portion of the Buckingham Palace ceremony:

Announcement of the Lord Chamberlain preceding the ceremony: "May I present to Your Majesty, Professor Sir Fraser Stoddart, for Services to Chemistry and Nanotology."

The ceremony:

QE: "He got that wrong, didn't he?"

FS: "He certainly did, Your Majesty."

QE: "What should it be then, nanotechnology?"

FS: "You've got it right, Ma'am"

QE: "It's about very small things, isn't it?"

FS: "Indeed, it's about tiny things that are 100,000 times smaller than the diameter of a human hair, Ma'am"

QE: "That's exceedingly small. You work in America now, I'm told."

FS: "That's so, Ma'am"

Then the queen extended her right hand, and Stoddart, his. Stoddart wrote that a handshake followed, accompanied by "a big approving smile from Her Majesty."



Dow Corning Executives Give Hurd Lectures

the fabrication of nanoelectronic devices and nanoelectromechanical systems. Stoddart also has designed and constructed nanovalves, which are much smaller than living cells. The tiny valves are capable of crossing cell membranes and are being adapted for use as highly targeted drug-delivery systems for cancer cells.

Stoddart received his BS (1964) and PhD (1966) degrees from the University of Edinburgh. He was a National Research Council postdoctoral fellow at Queen's University in Ontario, Canada; an Imperial Chemical Industries (ICI) research fellow and later an assistant professor at the University of Sheffield; and a Science Research Council senior visiting fellow at UCLA in 1978. After spending a three-year "secondment" at the ICI corporate laboratory in Runcorn, England, he returned full-time to the University of Sheffield, where he was an associate professor, before moving to the University of Birmingham. At Birmingham he was a professor of organic chemistry for seven years and head of the School of Chemistry. From there he went to UCLA in 1997.

His work has been recognized by many awards, including the Carbohydrate Chemistry Award of the Chemical Society (1978), the International Izatt-Christensen Award in Macrocyclic Chemistry (1993), the American Chemical Society's Cope Scholar Award (1999), the Nagoya Gold Medal in Organic Chemistry (2004), the King Faisal International Prize in Science (2007), the Tetrahedron Prize for Creativity in Organic Chemistry (2007), and the American Chemical Society's Arthur C. Cope Award (2008). He has received honorary doctorates from the University of Birmingham and the University of Twente in the Netherlands.

Stoddart is a fellow of the Royal Society (1994), the German Academy of Natural Sciences (1999), the American Association for the Advancement of Science (2005), and the Science Division of the Royal Netherlands Academy of Arts and Sciences (2006). In 2005, he received the University of Edinburgh Alumnus of the Year Award. Stoddart has published more than 800 scientific papers and serves on the international advisory boards of numerous journals, including the *Journal of Organic Chemistry*, *Angewandte Chemie*, and *Chemistry*, *A European Journal*. He has trained more than 300 graduate and postdoctoral students, including many who have embarked on academic careers.

Dow Corning Corporation executives **Stephanie Burns** and **Gregory Zank** were the 2007 Charles D. Hurd Lecturers during winter quarter.

"Creating Value through Innovation: The Power of the CEO and CTO Partnership" was the topic for Burns, who is chair, president, and chief executive officer of Dow Corning. The Midland, Michigan-based company is a global leader in silicon-based technology.

Zank, vice president, chief technology officer, and executive director of science and technology for Dow Corning, spoke on "Advanced Materials: Fueling Innovation Today" and "The Future of Advanced Materials and Innovation."

Burns joined Dow Corning in 1983 as a researcher and became electronics product development manager in 1987 and director of women's health products in 1994. She moved into corporate management as science and technology director for Europe in 1997 and then life sciences and electronics director in Europe. She returned to the United States in 2000 as executive vice president responsible for global operations and a member of the company's board of directors. She was elected president and chief operating officer in 2003, CEO in 2004, and chair in 2006.

Burns holds a PhD in organic chemistry, with an organosilicon specialty, from Iowa State University. She completed postdoctoral studies at the Université Montpellier II Sciences et Techniques du Languedoc, France. She is a member of the American Chemical Society and serves on the executive committee of the Society of Chemical Industry and the boards of Manpower



Hurd lecturers Stephanie Burns and Gregory Zank

Inc., the American Chemistry Council, and the Conference Board.

Zank has brought focus to innovation in products, processes, and technologies for the sustained growth of Dow Corning. He developed the organizational strategy for new ventures and the internal new business and technology incubator and directs ongoing activities in this area. Zank has developed and leads the company's federal business development activity and has managed global research and development groups in Asia, the European Union, and the United States.

Zank has a PhD in inorganic chemistry from the University of Illinois at Urbana-Champaign and completed the Kellogg School of Management Executive Development Program at Northwestern.

The Charles D. Hurd Lectures were established to educate Northwestern students and faculty about industrial research through direct interaction with distinguished scientists.



From his initial appointment at Northwestern in 1924, the late Charles D. Hurd, Clare Hamilton Hall Research Professor, maintained close ties with industry. He was a consultant

to various companies over a period of four decades, received 12 patents, and used grants from industry to help establish research in organic chemistry at Northwestern.

Professor Hurd authored some 300 scientific publications, including the seminal monograph "Pyrolysis of Carbon Compounds." He was a founding editor of the *Journal of Organic Chemistry*, served as a consultant on chemical terms in the unabridged *Webster's Third New International Dictionary*, and contributed to various encyclopedias. His passion for correct nomenclature was recognized by the 1971 Austin M. Patterson Award.

FACULTY NEWS

Three Faculty Receive Sloan Fellowships

Three Northwestern faculty members have received research fellowships from the Alfred P. Sloan Foundation. They are **Franz Geiger**, **Bartosz Grzybowski**, and **Karl Scheidt**.

Scientists and scholars in the early stages of their careers, Sloan Fellows are chosen on the basis of exceptional promise to contribute to the advancement of knowledge. They receive grants of \$45,000 for a two-year period to pursue their research interests. Thirty-five Sloan Fellows have later won Nobel Prizes.

Geiger, associate professor of chemistry and Dow Chemical Company Research Professor, is a physical chemist whose work focuses on the special roles of surfaces and interfaces in tropospheric

and soil chemistry and on their implications for climate change and environmental pollution. His research involves using laser and mass spectrometry. In one example, Geiger's research group uses lasers to determine how tightly pollutants stick to environmental interfaces. His group also studies how indoor air pollutants interact with catalysts, with the goal of developing remediation strategies for indoor air pollution. Geiger's many honors include a National Science Foundation CAREER Award, a Camille and Henry Dreyfus Environmental Chemistry Award, and a Distinguished Teaching Award from the Northwestern Undergraduate Chemistry Council. He was named a Searle Teaching Scholar and serves on the editorial board of *Geochemical Transactions*. He

came to Northwestern in 2001.

Scheidt, assistant professor of chemistry, seeks to discover new catalytic reactions. His investigations into chemical processes have the potential to minimize the environmental impact of chemistry. His research program integrates chemical synthesis, bioorganic chemistry, and materials science, and he uses nature as an inspiration for the development of important building blocks in these areas. Scheidt's group also is engaged in the synthesis of new antitumor natural products in order to understand their modes of action and improve their potential for use in medicine. His honors include an NSF CAREER Award, an Amgen Young Investigator Award, an Abbott Laboratories New Faculty Award, the Boehringer-Ingelheim New Investigator Award in Organic Chemistry, and a Northwestern University Distinguished Teaching Award. Scheidt joined Northwestern in 2002 after a National Institutes of Health postdoctoral fellowship at Harvard University.

Grzybowski, assistant professor of chemical and biological engineering in the Robert R. McCormick School of Engineering and Applied Science, combines elements of inorganic and organic chemistry, physics, and materials science in his interdisciplinary research. The focus of his research is on the synthesis of new classes of micro- and nanostructured materials through self-assembly (bottom-up) and self-organization (top-down), both of which hold great practical promise and present fundamental questions about the nature of spontaneous processes at small scales. Grzybowski has received a Camille and Henry Dreyfus New Faculty Award, an NSF CAREER Award, a 3M Non-tenured Faculty Award, and the American Chemical Society Unilever Award for outstanding



Chad Mirkin



Lin Chen

young investigator in colloid and surfactant science. He also was named a Pew Scholar in the biomedical sciences. Before joining Northwestern in 2003, he was director of research at Concurrent Pharmaceuticals and an associate of the department of chemistry and chemical biology at Harvard University.

Hupp Receives Grahame Award

Professor and department chair **Joseph Hupp** has received the 2007 David C. Grahame Award from the Electrochemical Society's Physical and Analytical Electrochemistry Division. The award is given biennially to recognize outstanding research contributions in physical electrochemistry.

Mirkin receives iCON Award

Professor **Chad Mirkin** was honored on October 4 with an Institute iCON Award from the Illinois Biotech Industry Organization (iBIO). Launched in 2007, the iBIO Institute's iCON Awards were developed to recognize the role of education, research, and training in fostering growth and building the next generation of Midwest biotechnology and life sciences innovators and leaders. Among the region's most prestigious honors, these awards will be given annually to celebrate the achievements of the most inspired academic, civic, and business leaders who nurture education, training, and scholarship in the life sciences in Illinois.

Mirkin is the director of the International Institute for Nanotechnology, the George B. Rathmann Professor of Chemistry, and professor of medicine and of materials science and engineering.

Meade Gives Inaugural Lecture

"Heart Attack or Heartburn?: When Seeing Is Believing" was the title of Professor Tom Meade's inaugural lecture as the Eileen Foell Chair in Cancer Research. The March 29 presentation drew many of Meade's collaborators and colleagues (pictured below with Meade, who wears the inaugural medal).

Meade's research focuses on inorganic coordination chemistry for the study of molecular imaging of in vivo gene expression and intracellular messengers, transition metal enzyme inhibitors, and electronic biosensors. The design, synthesis, and physical properties of transition metal and lanthanide coordination complexes are the foundation of his research.





Teri Odom

Rohm and Haas Award Goes to Odom

Teri Odom was selected as the third awardee of the annual Rohm and Haas New Faculty Award. Nominations of non-tenured faculty members with outstanding potential for future research success are submitted by the specialty materials company's scientists worldwide. Odom was selected as the 2007 recipient on the basis of her research in patterning and nanoscale synthesis. She has since received tenure with the rank of associate professor.

Scheidt Is Novartis Lecturer

Karl Scheidt, assistant professor of chemistry, is the 2007 Novartis Chemistry Lecturer. This award from Novartis Pharmaceuticals honors outstanding contributions in natural product synthesis and/or the development of synthetic methodology. Focusing on cutting-edge research in synthetic organic chemistry, the lectures are given at Novartis research sites around the world.

Lin Joins Faculty

Lin Chen, a senior chemist at Argonne National Laboratory, has begun a joint appointment as an assistant professor of chemistry.

Lin received her BS from Peking University and a PhD from the University of Chicago, where she was a student of Graham Fleming. Her research interests include molecular structural dynamics correlated with energy/charge transfer of photoactive molecules, supramolecular assemblies, and conjugated polymers by transient x-ray spectroscopy/diffraction; and ultrafast/nonlinear optical spectroscopy for solar energy conversion and molecular device applications.

Students Honored at Spring Awards Event

At an event on May 18 that featured an awards ceremony, lecture, and reception, the chemistry department recognized 19 of its undergraduate and graduate students and a faculty member for excellence in course work, teaching, graduate research, or department citizenship during the 2006–07 academic year.

The event opened with remarks by **Dee Dee Smith**, president of the Alpha Gamma chapter of Phi Lambda Upsilon, followed by the presentation of awards. **Barry Coddens**, senior lecturer in organic chemistry and director of undergraduate studies, announced the recipients of department awards; **Sharan Srinivasan**, president of the Undergraduate Chemistry Council, presented the UCC Distinguished Teaching Award; and **Haley Hill**, social chair of Phi Lambda Upsilon's Alpha Gamma chapter, announced winners of PLU's Teaching Assistant Awards.

After the awards ceremony, **Carl W. Dirk** (PhD '83, Marks), professor of chemistry at the University of Texas at El Paso, delivered the 2007 Marple-Schweitzer Lecture: "In a New Light: Design of Illuminants to Reduce Photochemical Degradation of Works of Art." A reception in the Technological Institute followed the lecture.

Honorees

Undergraduate students

Stephanie Choing, Merck Index Award

Gregory Cvetanovich, Marple-Schweitzer Memorial Award

Karen Dugan, R. K. Summerbell Memorial Fund Award

Jennifer Hoffman, CRC Freshman Chemistry Achievement Award

Emilie Lavigne, Lewis H. Sarrett Scholarship Award

Thomas M. McDonald, Basolo-Oesper Award for Department Citizenship

Tyler Miller, Claire Schmerberg, and **Carlyn Tan**, Chemistry Department Scholar Award

Julia Widom, Mathcad Award

Graduate students

Audrey Chan, Organic Research Symposium Award

Thomas Lawton and **William Loomis**, Allen S. Hussey Award for Excellence in 200-Level Teaching*

Jessica Malin and **Evan Trivedi**, L. Carroll King Award for Excellence in 100-Level Teaching*

Martin McCullagh and **Charlie Weiss**, Donald E. Smith Award for Excellence in 300/400-Level Teaching*

Jill Millstone, Gelewitz Outstanding Graduate Student Award

Jing Zhao, Gelewitz Outstanding Graduate Student Award

Faculty

Owen P. Priest, senior lecturer in organic chemistry, Undergraduate Chemistry Council Distinguished Teaching Award

*Awarded through Phi Lambda Upsilon

STUDENT NEWS

Briefs

Windsor Paige Hall (VanDuyne group), **Min Hyung Lee** (Odom group), and **Brian R. Stepp** (Nguyen group) received Nanoscale Science and Engineering Center (NSEC) Graduate Fellowships in 2006–07.

Raymond G. Sanedrin (Mirkin group), **Leif J. Sherry** (VanDuyne/Schatz groups), and **Brian R. Stepp** (Nguyen group) received NSEC Outstanding Research Awards in 2006–07.

The Undergraduate Chemistry Council chapter at Northwestern received an American Chemical Society Commendable Award for its activities during the 2006–07 academic year. The UCC chapter adviser is **Professor SonBihn Nguyen**.

Troy Reynolds (Scheidt group) received a 2007–08 Division of Organic Chemistry (DOC) fellowship sponsored by Bristol-Myers Squibb. Another Scheidt group student, **Anita Mattson**, was a DOC fellowship recipient in 2005–06. Fellowships are awarded annually to 16 of the country's best fourth-year organic graduate students. Reynolds will spend his fellowship year working to develop new, unconventional reactions that may be useful in pharmaceuticals and materials.

Amanda J. Haes, a former student of Richard Van Duyne who is now an assistant professor at the University of Iowa, received the 2007 Victor K. LaMer Award for best PhD thesis from the Colloid and Surface Chemistry Division of the American Chemical Society. The award recognized her research on localized surface plasmon resonance spectroscopy in

ALUMNI NEWS

1940s

Robert Hlavacek (PhD '47, King), wrote to the department to express fond recollections of his days as a student of Carroll King, Hlavacek's "favorite professor, bar none," and to report that he had been in touch with King's widow, Venice, who now lives in Michigan.

1960s

Lewis J. Brubacher (PhD '66, Bender) retired in August 2006 as editor of *Chem 13 News*, a magazine for teachers of introductory chemistry, after 20 years. He retired from his faculty position at the University of Waterloo's chemistry department in 2001. He received the 2004 Union Carbide Award for Chemical Education from the Chemical Institute of Canada and the 2000 McNeil Medal for Public Awareness of Science.

1970s

Bobbe Ferraiolo (BA '74, Lambert) has relocated to Napa, California, where she is president of her own company, Lorelei, Inc.

1980s

Yasushi Tsuji (postdoc '86–87, Marks) moved to Kyoto University in April 2005 as a professor in the department of energy and hydrocarbon chemistry in the Graduate School of Engineering.

Steven M. Arrivo (PhD '89, Spears) has worked for Merck & Co. and Pfizer in pharmaceutical research and development and most recently with Pfizer as a team leader in oncology. He recently joined Ventana Medical Systems as director of business development in translational diagnostics. Ventana is a tissue-based pathology and histology company that develops, validates, performs clinical trials on, and markets tests for the diagnosis of cancer and infectious disease.

Cyril C. K. Chiang (PhD '89, Poeppelmeier) has returned to Taiwan, where he started his career at ITRI, a state-funded research institute. In 1996 Chiang cofounded the first Li-Ion battery company in the greater China region, Synergy ScienTech; it is now a leading provider of small rechargeable batteries for Bluetooth devices. In 2000 Chiang joined Philips Research, where he is responsible for the business development of Philips Lithylene battery technology in the China marketplace. His current position at ID-Enabler continues the use of Philips Lithylene technology in the development of smart card applications.

1990s

Steven G. Mayorga (postdoc '91, Poeppelmeier) completed a postdoctoral fellowship in Kenneth Poeppelmeier's group in 1991 and accepted a position at Air Products and Chemicals. In 2001 he relocated from Air Products's headquarters in Allentown, Pennsylvania, to Carlsbad, California. He is currently involved in research and development for electronic materials for the semiconductor industry. He and his wife, Karine, have four children: Juliette, 15, Alexandra, 14, Raphael, 11, and Alice, 8.

Christopher Johnson (PhD '92, Hupp) of Argonne National Laboratory's Chemical Engineering Division has been recognized by the International Battery Materials Association (IBA) for his exceptional research on lithium manganese oxide battery systems. Johnson has made major scientific contributions to the advancement of Li-Ion secondary batteries through his basic research on advanced cathode materials. He joined Argonne in 1992 and is author of 49 peer-reviewed papers

and 33 technical presentations and coinventor on two patents on lithium metal oxide electrodes. In 2003 he was cochair of the IBA's NATO Science for Peace Program Carbon Conference, a major international conference aimed at bringing together battery researchers and developers in Eastern European nations with colleagues in the West.

Douglas Tomczak (PhD '93, Poeppelmeier) has been working for Unilever Home & Personal Care since September 2000 at its Rolling Meadows, Illinois, location. He is global product development manager in the antiperspirant/deodorant business. He recently accepted a three-to-five-year assignment in the United Kingdom, where he will work for the development center in Leeds. He is married to Alison King and has a son, Nathaniel.

Todd M. Stark (BA '94, McDonald) completed his PhD in organic synthesis in 2000 at UCLA. Until 2006 he worked for Albany Molecular Research. He is currently the director of business development at IQsynthesis in St. Louis. He and his wife, Amy Lueker, have two sons, Casey, 5, and Will, 17 months.

Ellen Wang Althaus (PhD '95, O'Halloran) started a new position as director of Women in Chemistry Programs at the University of Illinois in April 2006. She is part of an effort to increase support for women in the sciences.

Scott M. Wisotsky (BA '96, O'Halloran) finished his orthopaedic surgery residency at the University of Vermont and had a one-year hand and upper-extremity surgery fellowship at Allegheny General Hospital in Pittsburgh. He now practices medicine in the St. Petersburg, Florida, area and lives with his wife, Laurie, and two children, Emily, 3, and Alexander, 2.

Michael F. Mesleh (BA ISP '97, Jarrold/Schatz/Spears) is in charge of molecular spectroscopy at Arena Pharmaceuticals' structural chemistry group in San Diego. Arena is a biotechnology company focused on the discovery of small molecule ligands for protein-coupled receptors.

2000s

Melissa Merlau Johnson (PhD '01, Ngyuen) and **Bob Johnson** (PhD '02, Hupp), who both work at Rohm and Haas, recently had their first child, Rebecca.

Ryan Bailey (PhD '04, Hupp), an assistant professor of chemistry at the University of Illinois at Urbana-Champaign, is one of the few recipients of the NIH Director's New Innovator Awards. This new program was designed to fund innovative young scientists who are well positioned to make significant — and potentially transformative — discoveries in a variety of areas.

Peter Dinolfo (PhD '04, Hupp) has become an assistant professor in Rensselaer Polytechnic Institute's Department of Chemistry and Chemical Biology. He and his wife, Sarah, newlyweds since May, live in New York.

Dean Y. Shahriari (PhD '04, Poeppelmeier) started a new position with Troutman Sanders in January. One of his first projects involved solid-state/oxide work for Georgia Tech University.

In Memoriam

J. Allan Campbell (MS '49, King) died March 10. He worked at Upjohn in Kalamazoo, Michigan, as a research chemist for 35 years. He was the inventor or coinventor of 75 agents or processes. He is survived by his wife, Beth; six children; 21 grandchildren; and three great-grandchildren.

Robert E. Feeney (BA '38, Evans) died in September 2006 of prostate cancer.

Mathilde J. Kland (PhD '48, Summerbell/Klotz), 90, died at her home in Lafayette, California, in October 2006. After earning her degree in organic chemistry from Northwestern, Kland did postgraduate work at Ohio State University and taught chemistry at Goucher College.

David Kritchevsky (PhD '48, Riegel), 86, a biochemist and nutrition expert, died in November in Bryn Mawr, Pennsylvania. With a PhD in organic chemistry, he was interested in the benefits of eating dietary fiber, the effects of saturated and unsaturated fats, and the role of fats in cancers and heart disease. He is survived by his wife of 58 years, Evelyn Sholtes; a son, Steven; two daughters, Barbara Kritchevsky and Janice Sojka; and six grandchildren.

Chester T. O'Konski (PhD 1948, Gucker), 85, died in August 2006. After receiving his PhD in physical chemistry from Northwestern, he accepted an instructor position at the University of California, Berkeley, where he rose to full professor, spent 43 years, and retired in 1991. His research considered different methods of studying large

molecules. According to his colleagues, he was among the first chemists to study nucleic acids and proteins with physical chemistry methods, yielding information about size, structure, and optical and physical properties. O'Konski is survived by four children and five grandchildren.

James R. Stephens (PhD '53, Summerbell) died February 2. A World War II veteran, he worked for more than 30 years at Amoco Chemicals (now BP) and had 47 patents and received numerous professional awards. He is survived by his wife, Beatrice; four children; 10 grandchildren; and a sister.

George F. Svatos (MS '53, King) died in March in Brookfield, Illinois.

Swiatoslaw Trofimenko (PhD '58, Hurd), 75, died in February in Wilmington, Delaware. After completing postdoctoral studies at Columbia University, he joined DuPont's Central Research Department. He was a prize-winning chess player and an accomplished pianist and was fluent in seven languages. Trofimenko is survived by his wife, Martha; a daughter, Zoya (Christopher); and two grandchildren.

Gladys Wolcott (MS '43) died December 6, 2006.

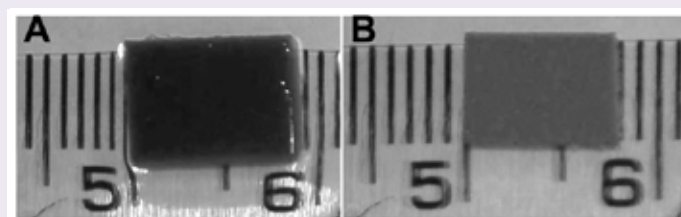
Kanatzidis Group Creates Promising New Aerogel Materials

Mercouri Kanatzidis, professor of chemistry at Northwestern and a senior scientist at Argonne National Laboratories, and **Santanu Bag**, a Northwestern PhD candidate in the Kanatzidis group, have created a family of chalcogenide-based hydrogels that are yielding a wide range of new aerogels.

Chalcogenides are compounds of the group of elements that includes sulfur, selenium, and tellurium. These aerogel materials exhibit high surface area, broad porosity range, and narrow band-gap properties — all properties with significant environmental, catalytic, electronic, and sensor application potential.

Testing in Kanatzidis's lab has shown that sulfur-based aerogels can reduce mercury levels in water from 650 ppm to 0.04 ppm in less than 15 minutes. In those few minutes metal sulfide binds the mercury to the aerogel via chemical adsorption, making it possible to recover the mercury. These novel aerogels should also work for lead and cadmium removal, says Kanatzidis. They also show the potential to be used to eliminate aromatic organic compounds such as polychlorinated biphenyls and dioxin from water.

In addition, by virtue of their "unique permeability," Kanatzidis says these aerogels could even play a role in purifying gases such as hydrogen via a process based on selective permeability rather than chemical adsorption. "So far, work has been done on a laboratory scale, but there's no limitation on scaling up the aerogels," he says, adding that some researchers are already receiving inquiries from industry.



Gel (A) and aerogel (B)

HONOR ROLL

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**Special thanks goes to the
Smedley family for making
a \$100,000 gift to create an
endowed fund. The fund will
support graduate student
recruiting and faculty research.**

Alumni Visit Hospitality Suite to Share News, Send Greetings

It was great to see the alumni and friends (some pictured below) who stopped by the department's hospitality suite at the spring American Chemical Society's national meeting in Chicago. Here are their news and greetings:

Jason Cody (PhD '95, Ibers) is a professor at Lake Forest College and has had Northwestern "Preparing Future Faculty" fellows working with him. He recently did a sabbatical at the Institut Materiaux Nantes in France.

Shahar Keinan (postdoc '04, Ratner) says hi to his former colleagues in the Ratner group.

Rebecca Landry (PhD '05, Hupp) and **Bryan Stubbert** (PhD '05,

Marks) had their baby boy, Reid, with them. He smiled for every photo while his grandmother Patricia Reardon Stubbert made him laugh.

Nancy Levinger (BS ISP '83, VanDuyne) received a PhD from the University of Colorado and is a professor at Colorado State University with fellow Northwestern chemistry alumni **Eugene Chen** (postdoc '97, Marks), **Oren Anderson** (PhD '69, Pearson), and **Steve Strauss** (PhD '79, Shriver).

John Magyar (PhD '02, Godwin) is an assistant professor of chemistry at Barnard College and lives in Manhattan. His mother, **Elaine Stedman Magyar**, was a PhD student with Joe Lambert in 1972; his father, **James Magyar**, was

a PhD student with Fred Lewis in 1973.

Craig McLauchlan (PhD '00, Ibers) has two sons, Ian and Andrew, with his wife, Heather, who is a physician.

Chris Nicholas (PhD '04, Marks) is at UOP LLC, a Honeywell company, in Des Plaines, Illinois, and is a member of the chemistry department's Industrial Associates Program. He is married to Collette (MSEd '02).

Daphne Norton (PhD '96, Shriver) is at Emory University as an undergraduate lecturer.

Chi-How Peng, a University of Pennsylvania graduate student,

stopped by to introduce himself as the son of **Shie-Ming Peng** (postdoc '75, Ibers), who is a professor at National Taiwan University.

Peggy Schott (PhD '82, Letzinger) is a professor at Dominican University in River Forest, Illinois.

Richard Schwarz (postdoc '82-84, Spears) is a professor at the University of Northern Colorado. His wife, **Lyn Geiger**, was a graduate student with George Schatz in 1984-85; she is an academic adviser and faculty member at University of Colorado at Boulder.

Eric Voss (PhD '92, Shriver) did a postdoc at Brookhaven National Laboratory before joining Southern Illinois University, where he is now a full professor.



Ed Gamson (PhD '70, Letzinger), former Northwestern professor **Fred Stafford**, and **Professor Fred Lewis**



Chris Nicholas (PhD '01, Marks) and **Mark Jones** of Dow Chemical



Rebecca Landry (PhD '05, Hupp) and **Bryan Stubbert** (PhD '05, Marks) with their son, **Reid**



Professor Joe Lambert and **Al** (PhD '74, Marshall) and **Jennifer** (postdoc '74, Loach) **Runquist**



Allan Cohen (PhD '74, Hoffman)



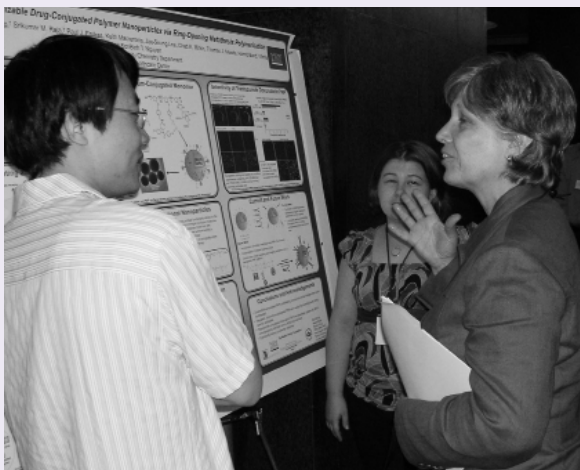
Professor Teri Odom, Northwestern development officer **Terri Fraterrigo**, and **Professor Chad Mirkin**

Industrial Associates Meet in May

Representatives from Dow Chemical, DuPont, Abbott Laboratories, Rohm and Haas, Air Products, Schlumberger, Exxon Mobil, Stepan Chemical, Inesco, and Shell came to the chemistry department in May for the annual Industrial Associates Program.

Professor Richard Silverman delivered the keynote lecture, "Lyrica! Big Deal. So What Have You Done Lately?" (See related story on page 1.) Northwestern faculty members Teri Odom, Franz Geiger, and Bartosz Grzybowski gave technical talks about their research, and graduate students heard from a panel of industrial representatives who discussed their experience in industry. A poster session followed to allow graduate students to discuss their research and interact one-on-one with the Industrial Associates.

The Industrial Associates Program offers companies an opportunity to partner with the chemistry department in areas such as recruiting top talent, training staff, and having access to chemical seminars and colloquia by world-renowned experts. Representatives of both large and small companies are invited to contact Teri Collins at theresa-collins@northwestern.edu or 847-467-3946 about joining the Industrial Associates.



At last May's poster session, graduate students interacted with visiting professor Sumit Bhaduri (above, right) and Jane Fagerland (at left) of Abbott Labs.

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