CHEMISTRY Connection

Northwestern University Department of Chemisty • Spring 2005

Small Science, Big Ideas

Northwestern University is home to one of the biggest nanotechnology efforts in the nation, the Institute for Nanotechnology. Director of the Institue, Chad A. Mirkin, and fellow NU researcher William Klein (Neuro-biology) made headlines in January 2005 with their groundbreaking research in the field of Alzheimer's disease detection. Using a detection system developed in Chad's lab, the scientists were able to trace minute levels of a possible Alzheimer's marker – a protein called amyloid-β-derived diffusible ligand (ADDL) in cerebral spinal fluid samples from patients with the disease.

Professor Chad Mirkin in his lab at the Center for Nanofabrication and Molecular Self-Assembly

Chad's research with biodetection systems started as a joint research project between his group and Emeritus Professor Robert Letsinger in the mid-1990s. They discovered how to attach DNA strands to nanoparticle surfaces. The particles, upon binding to DNA targets, generated a colorimetric change in a very straightforward manner, allowing researchers to recognize target strands easily in solution. They published their research in *Nature* in 1996. That *Nature* paper is now one of the most highly cited papers in chemistry and the general field of nanotechnology. Chad notes that the discovery came at the right time; modern sequencing efforts make it possible to recognize not only human genes, but viral codes for debilitating and deadly diseases such as tuberculosis, HIV, and anthrax.

The *Nature*-reported discovery held much promise, and during the last eight years Chad's group has developed an understanding of many fundamental properties of this class of nanoparticles and how those properties translate into advantages in biodiagnostics. Of particular importance was a discovery concerning the catalytic properties of the nanoparticles. Those observations led to an amplification system that can increase the sensitivity of a test for a DNA-based disease marker by a factor of 100,000.

Chad began to study how his nanoparticle detection systems might make a difference in the field of medical diagnostics. "We thought there might be an opportunity to develop nanomaterials to do diagnostics at the point-of-care. Why can't one go to a doctor's office and get screened for genetic predispositions or for an infectious disease, and get the results right then and there? The reason is that the technology doesn't exist." Chad explained. He saw a need that his new materials might be able to fill. He began pursuing point-of-care diagnostic technology with his start-up company, Nanosphere.

While Chad pursued projects with Nanosphere, he was also focusing on another challenge. His detection system could recognize nucleic acids, but it couldn't recognize proteins. He and his team took advantage of their ability to chemically modify nanoparticle surfaces to create the "bio-barcode assay."

First, they synthesized a nanoparticle that has an antibody that can recognize a protein target. This nanoparticle also hosts a series of DNA strands carrying "barcode" DNA. The team adds to the solution a magnetic nanoparticle modified with an antibody that also recognizes the target. If the target is present, it becomes sandwiched between a barcode particle and a magnetic particle. A magnetic field is applied and the sandwiched targets come out of solution. The team discards everything else, and then uses heat to release the barcode DNA from the target.

For every protein recognized, hundreds to thousands of barcode DNA strands are released in an amplification event. Instead of identifying the proteins, researchers identify the barcode strands. "If the barcode is present, then the protein is present and you can look at the signal to determine how much is present. One can create a unique barcode DNA/ protein pair for everything one wants to test. The barcode system is about 100,000 to a million times more sensitive than anything out there that is commer-

cially available such as ELISAs." says Chad.

The first application of the bio-barcode assay was discussed in *Science* in 2003. Chad and two of his students demonstrated that the system could identify prostrate-specific antigen (PSA) in blood samples. The test could help detect recurrences of prostrate cancer after treatment, which can be very difficult to discover. Early detection could mean earlier treatment and could save lives.

Chad decided to go after Alzheimer's disease after hearing Bill Klein talk about ADDL, a suspected marker for Alzheimer's disease. Alzheimer's disease can be definitively diagnosed only during an autopsy, making it almost impossible to treat and difficult to study. Chad and Bill hope that the bio-barcode assay will provide a way to detect the disease earlier, by identifying soluble markers that are believed to be present at minute quantities in cerebral spinal fluid and blood.

They took samples of cerebral spinal fluid from 30 subjects, and tested ithem using the bio-barcode system. The bio-barcode assay was able to trace minute levels of ADDLs in spinal fluid. Median ADDL levels were nearly ten times higher in 15 Alzheimer's patients than they were in 15 healthy patients. Bill and Chad published their results, and will soon be testing blood to see if they can find the same types of results there. Detection of ADDL levels could predict whether a person had the disease, which in turn would provide the opportunity to find early-stage treatments for Alzheimer's.

Chad began working in Northwestern's Department of Chemistry in 1991, and was granted promotion with tenure in 1995. Even early in his career, he was recognized for his talents, receiving numerous young faculty awards. After tenure, he continued to be noticed by the chemistry community, receiving prestigious awards such as the ACS Nobel Laureate Signature Award (2004), the Raymond and Beverly Sackler Prize in the Physical Sciences (2003), the Feynman Prize in Nanotechnology (2002), the Leo Hendrick Baekeland Award (2001), and the ACS Award in Pure Chemistry (1999). In 1997, Northwestern made him a Charles E. and Emma H. Morrison Professor, and in 2000 they made him both Director of the Institute of Nanotechnology and the George B. Rathmann Professor of Chemistry.

Perhaps his greatest honor came several months before his work on Alzheimer's disease was published. In 2004, Chad received one of the first NIH Director's Pioneer Awards ever granted. In doing so, the NIH recognized him as an individual capable of a "highly innovative approach to biomedical research that has the potential to lead to significant advances in human health." Chad was the only investigator in the Midwest to receive the prize, which will pay out $500,000 annually for five years. He will use the money to explore how the HIV virus affects individual cells, and how it moves between cells.

Chad believes that many more great discoveries will be coming out of the Institute for Nanotechnology, and he is quick to point out that many of the researchers there are based in the Department of Chemistry. He believes that nanotechnology holds many answers for problems in medicine, among other fields, and he is excited about the possibilities ahead.

Letter from the Chair

Hello again to our alumni and friends!

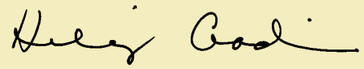
Winter is leaving Evanston, and we are excited about the prospects for 2005. We are in the final stages of recruiting two outstanding new faculty members, and hope to have announcements about new arrivals in our next issue. As always, Spring is admissions recruiting season, and we hosted fantastic prospective students each weekend in March. We are pleased to note that the caliber of students applying for admission is as high as ever, and we believe that 2005 will be a strong year for us.

Hilary Godwin celebrates a fellowship gift from 3M with Peter Voorhees (Materials Science), Larry Wendling (3M), Kelly Mayo (Biochemistry, Molecular Biology & Cell Biology), and William Miller (Biological & Chemical Engineering)

2004 had a strong finish for the Department. Chad Mirkin received one of only nine new NIH Pioneer Awards. Samuel Stupp and six professors from other disciplines brought in an NIH grant for a new Center on Regenerative Medicine. Lyrica, Rick Silverman's new drug, won FDA approval almost immediately after the last newsletter was mailed. And of course, thank you to those of you who contributed to the Chemistry Department during 2004. Despite our successes, your continuing support is absolutely vital because research costs are rapidly increasing and funding from government and corporate sponsors is being cut.

Already, 2005 has demonstrated that it will be an exciting year for us. Teri Odom was just named a Sloan Research Fellow. Tobin Marks was elected a fellow of the Royal Society of Chemistry. We are also delighted about Northwestern's newest research institute: the Northwestern Institute on Complex Systems. The Institute will include faculty from many disciplines, including engineering, business, natural sciences, education, medicine, law, and the social sciences. From Chemistry, Professors Mark Ratner and George Schatz and their groups will participate in the new Institute.

I hope that you are experiencing your own successes as well, and encourage you to tell us about them. To facilitate such sharing, we revamped our offerings for alumni at our website: www.chem.northwestern.edu/alumni. I encourage you to visit, and provide us with your feedback.



Hilary Arnold Godwin

FACULTY NEWS

Joseph Lambert Receives 2004 ACS Award in History of Chemistry

Joseph B. Lambert

Claire Hamilton Hall Professor Joseph B. Lambert has been named the recipient of the 2004 Sydney M. Edelstein Award of the American Chemical Society, sponsored by the Division of the History of Chemistry and by Ruth Edelstein Barish and family. The Edelstein Award is the highest honor that can be received by a chemist in the field of the history of chemistry. Joe was honored at the 2004 Fall National ACS meeting, and his address will appear in the Spring 2005 issue of the Bulletin for the History of Chemistry.

The award recognizes Joe's contributions to the field of archaeological chemistry. He was the first to use photoelectron spectroscopy and nuclear magnetic resonance spectroscopy in the study of early chemical technology. In his 1998 book, *Traces of the Past*, Joe addresses the importance of chemistry to the development of human culture, and makes archaeological chemistry accessible to the wider public. He has authored eleven other books, one ACS audio course, and over 340 publications. He was the founder and continues as Editor–in–Chief of the *Journal of Physical Organic Chemistry*.

Joe has received numerous other honors and awards, including most recently the 2003 Harry and Carol Mosher Award from the ACS's Santa Clara Valley Section and the Charles Deering McCormick Professorship of Teaching Excellence, 1999-2002.

Teri W. Odom

Teri W. Odom Receives Sloan Research Fellowship

Prof. Teri W. Odom was named as the recipient of a 2005 Sloan Research Fellowship. Sloan Research Fellowships are awarded to "enhance the careers of the very best young faculty members" in the sciences. Currently, 116 fellowships are granted annually. Three were awarded to Northwestern University this year; Prof. Mark C. Hersam (Materials Science) and Prof. Dmitry E. Tamarkin (Mathematics) were the other NU recipients.

Teri joined NU's Chemistry Department in 2002. She and her group focus on the synthesis and characterization of nanoscale materials, the design and fabrication of tools useful in nanotechnology, and the development of methods to manipulate nanostructures and mesostructures into functional assemblies.

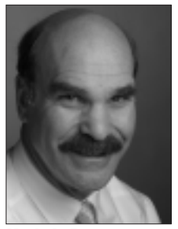
This past autumn, Teri was named one of the world's top 100 Young Innovators of 2004 by MIT's *Technology Review*. She was specifically chosen for her work using patterned silicon to create nanowells that act as minuscule beakers. They are perfect for growing individual nanoparticles of specific and uniform size, allowing researchers to tailor particles to specialized usages.

Other awards Teri has accrued include a David and Lucile Packard Fellowship, a Research Innovation Award from the Research Corporation, an NSF NUE Award, an NSF CAREER Award, and the 2003 Victor K. LaMer Award (ACS Division of Colloids and Surface Chemistry).

Mark Ratner Receives 2004 Visionary Pioneer Award

Mark A. Ratner, Charles E. and Emma H. Morrison Professor of Chemistry, received the 2004 Visionary Pioneer Award at the recent Chicago Innovation Awards ceremony at the Illinois Institute of Technology.

Mark is credited with starting the field of molecular electronics (nanotechnology) in 1974 when he published a paper with A. Aviram predicting the diode behavior of particular classes of donor-acceptor molecules. That paper proposed that single molecules might behave similarly to electronic device components (such as wires and switches) in electrical circuits, and could be used to process and store information. Mark's ideas are being applied in products like LED lights in Lexus automobiles, and Motorola cell-phone displays.



Mark A. Ratner

Mark has received numerous other awards, including membership in the American Academy of Arts and Sciences (2001), the Feynman Award in Nanotechnology (2001), election to the National Academy of Science (2002), election to the International Academy of Quantum Molecular Science (2003), and the 2004 American Chemical Society Langmuir Award.

Professor John Corcoran
Endows Research Fund through Bequest

Professor John William Corcoran died at the age of 77 on October 10, 2004. He held a joint appointment with the Chemistry Department from 1982 through 1988. A tireless researcher in the field of human health throughout his life, his support of research continues after his death. Through a bequest, he endowed the John W. Corcoran Research Fund in the Department of Chemistry. The fund will support work in the inorganic chemistry of cells and human disease at the Chemistry of Life Processes Center at Northwestern University.

Born in 1927, John Corcoran graduated from Iowa State College with a Bachelor's degree in chemistry and received his Ph.D. in Biochemistry from Case Western Reserve. He became an instructor at Columbia University in New York, soon returning to Case Western Reserve as an assistant professor. In 1968, he became a professor at Northwestern University in the Biochemistry Department of the Medical and Dental Schools. Beginning in 1982, he held a joint appointment including the Chemistry Department, where he taught both undergraduate and graduate courses. His research at Northwestern involved the field of antibiotics and other natural products, focusing on the erythromycins, vitamin B12, and streptomycetes.

Professor Louis Allred remembers John fondly, "John's interactions with the Chemistry Department were mutually enjoyable, his classes were well-received and he was a productive researcher and writer."

Chair of the Chemistry Department, Hilary Godwin, anticipates that the fund will support some of the department's greatest needs. "Each year, the department struggles to match grants, to support graduate students, and to bolster the funds of our newest faculty. Gifts like John Corcoran's bequest mean that we can bring our research efforts to a new level with guaranteed annual support, and we are truly grateful for his consideration and vision."

George C. Schatz

George Schatz
Named Editor-in-Chief

In January of 2005, George Schatz assumed the title of Editor-in-Chief of the *Journal of Physical Chemistry*. Prior to 2005, he had been a senior editor for the journal for over ten years. He succeeds Mostafa El-Sayed of the Georgia Institute of Technology, who had served as Editor-in-Chief for almost 24 years.

The *Journal of Physical Chemistry* was established in 1896. In 1997, it was split into The *Journal of Physical Chemistry A* and *B*. Combined, the journals have the most annual citations of any journal in the field of physical chemistry. From 2003 to 2004, submissions increased 23% to 6,692. 3,461 papers were published in 2004.

George has been at Northwestern since 1976. His most recent honors have included election to the American Academy of Arts and Sciences (2002), and membership in the International Academy of Quantum Molecular Sciences (2001).

Tobin Marks
Made Fellow of Royal Society of Chemistry

Tobin J. Marks

Vladimir N. Ipatieff Professor Chemistry and Professor of Materials Science and Engineering Tobin J. Marks was made a Fellow of the Royal Society of Chemistry of Great Britain in 2005. This year, thirty-four scientists were elected from around the world, three of whom were Americans. Fellows are appointed on the basis of having "made such outstanding contributions to the chemical sciences and/or to the advancement of the profession as would make it desirable, in the opinion of Council, that they should be Fellows of the RSC."

Tobin has long been recognized as a luminary in the field of inorganic chemistry. His group focuses on synthetic organo-f-element and early-transition metal organometallic chemistry, polymer chemistry, materials chemistry, homogeneous and heterogeneous catalysis, molecule-based photonic materials, superconductivity, metal-organic chemical vapor deposition, and biological aspects of transition metal chemistry.

Tobin's recent awards include a 2000 Cotton Medal from the ACS Texas A&M Section, the 2001 Willard Gibbs Medal from the ACS Chicago Section, the 2001 Linus Pauling Medal from the ACS Pacific Northwest Section, the 2002 American Institute of Chemists Gold Medal, the 2003 Frankland Medal of the Royal Society of Chemistry, the 2003 Karl Ziegler Medal of the German Chemical Society and the 2003 Evans Medal of The Ohio State University.

Chemistry in the Community:
Phi Lambda Upsilon at Northwestern

In recent years, the Alpha Gamma Chapter of Phi Lambda Upsilon (PLU) at Northwestern University has begun to define itself as a service organization. It continues to host monthly socials to draw faculty, students and postdocs together, but increasingly it seeks ways to become active in the Northwestern and Evanston communities. The group has started several programs in recent years, including the Career Forum, local PLU travel grants, and a winter clothing drive. PLU also organizes the Adrenaline Rush 5K race and hosts the Marple-Schweitzer Lecture and awards ceremony.

PLU is a national honor society that started a chapter at Northwestern in 1927. Prospective members are invited to join PLU based upon "their academic achievement and promise ... including exceptional students of pure and applied chemistry." Current NU membership is at about 90 students, and about a third of those are "heavily involved," although everyone participates in activities during the course of his or her membership. The chapter has found that roughly 85% of its invitees become members.

PLU members register a runner for the 2004 Adrenaline Rush 5K

The Marple-Schweizter Lecture and the accompanying awards ceremony continue to be a big event for PLU each year. In 2005, the Marple Schweitzer Lecturer will be Dr. Russell W. Johnson of Honeywell International, a Corporate Fellow and Chief Scientist of Demilitarization Technology. On May 20th, he will discuss the use of catalysts to recover dangerous waste and energetic materials from surplus explosives, propellants, and chemical warfare agents. PLU funds the lecture, the awards ceremony, and the reception that follows. It also provides the prizes for students receiving graduate teaching awards.

For five years, PLU has hosted the Adrenaline Rush 5K – a 5K race that raises money for the American Cancer Society and helps defray PLU annual expenses. The event has been popular, attracting a few hundred runners and about twenty industrial and commercial sponsors, but recent years have seen declining commercial sponsorship.

Members of PLU before the 2004 Adrenaline Rush 5K

In 2005, the 5K race will be replaced with a new service project that aims to make science more appealing for area students. "Beginning next year, we will go to middle schools to teach chemistry in an on-going basis, do some cool demos, and get students interested in the sciences. This is more up our alley for PLU, because we are a chemistry organization," explained Brad Ulrich, current president of the group. This proposal has generated interest, especially among several PLU members who have experience with similar programs from their undergraduate schools. There is much excitement about the possibility of inspiring future generations of chemists.

In addition to external service projects, PLU within the Department. The annual Career Forum consists of five panelists who present their career experiences as doctoral chemistry graduates. The Forum exposes graduate students and postdocs to a variety of potential career paths. This year the panelists spoke about community college teaching, academic administration, research professorships, consulting, and technical sales.

PLU also provides travel grants for NU grad students to attend conferences where they may be giving a talk or presenting a poster. In the current school year, PLU has provided thirteen grants, from $100 to $150 each. Much of the funding for the grants, the Career Forum, and the Marple-Schweitzer event come from PLU members selling notebooks, goggles, and NMR tubes to Northwestern undergraduates. PLU is always grateful for additional financial support.

When asked about the future, Brad says, "PLU is striving to become even more active in the Chemistry Department as well as the Evanston community. We want PLU membership to be a rewarding experience, through service and fellowship."

To keep updated on PLU events, visit its website at www.chem.northwestern.edu/~plu

STUDENT NEWS

Laura Hughes Awarded 2005 Barry M. Goldwater Scholarship

Laura D. Hughes, an undergraduate researcher in Prof. Teri Odom's group, was named as a recipient of a 2005 Barry M. Goldwater Scholarship. The Scholarship Program was created to foster and encourage excellence in science and mathematics. Four hundred twenty-seven colleges and universities had nominated 1,091 students for the awards. From that group, three hundred twenty students were chosen this year.

Laura's research interests involve nanotechnology as it relates to drug development. She is involved in a project where microwells are used to form arrays of uniform crystals, specifically protein crystals. She is an advisor in the Undergraduate Success in Research Program. In the summer of 2003 she received a Summer Undergraduate Research Fellowship to carry out research in the Department of Pharmacology, Toxicology and Therapeutics at the University of Kansas Medical Center. She was the recipient of an NU Freshman Seminar Writing Award in 2002-2003.

When asked about Laura, Teri Odom says, "Laura is an extremely talented and creative student who has exceptional analytical skills. Her scientific interests, coupled with her strong communication abilities, will certainly open exciting opportunities for an impressive career in science."

Undergraduate Students Organize Research Symposium

Chandler Robinson knows how to build momentum. He and fellow Northwestern undergraduate, Stephanie Tang, have been working with their peers from other universities to organize an annual research symposium in Chicago exclusively for undergraduate students in the sciences.

On Saturday, April 23, 2005, Chandler, Stephanie, and several of their peers hosted the first annual Chicago Area Undergraduate Research Symposium. The day included lectures, a poster session, an awards dinner, and a career forum. The Symposium was held at the NU Kellogg campus in downtown Chicago, and included students from Northwestern University, the University of Chicago, Loyola University, and the University of Illinois at Chicago. All four schools provided funding for the day, and the students received support from industry and foundations.

"It's not only a way for students to present their ideas, but it also serves to recognize the undergraduate research science community in Chicago. We hope that students learned from the experience, not only through the process of preparing, but through looking at and listening to their peers' presentations as well," explains Chandler.

For more information, or if you are interested in sponsoring the event in future years, visit their website: www.caurs.com

Stephanie Tang & Chandler Robinson

Ann N. Chiaramonti

Ann Chiaramonti Won 2004 Poster Award from Materials Research Society

At the 2004 Fall Meeting of the Materials Research Society in Boston, Materials Science and Engineering graduate student Ann N. Chiaramonti, won an "Outstanding Poster Award" for her work on the optical floating zone growth of α-Fe_2O_3.

This study was performed in collaboration with Professor Kenneth R. Poeppelmeier, and the poster, "Single Crystal Growth of α–Fe_2O_3 from a $CaFe_4O_7$–Based Solvent," is based on their paper of the same title in the July 2004 issue of *Journal of Crystal Growth and Design*. Chemistry alumnus Jason D. Pless, and current students Li Liu and Jared P. Smit also contributed to this research.

Ann received her Bachelor's degree in Materials Science and Engineering from the University of Michigan. Before attending Northwestern, she worked at General Motors and Intel. Her graduate research at Northwestern has focused on the surface science of catalytic oxidation, in-situ characterization, and surface atomic structure of selected model catalytic systems, including Fe_2O_3. She is jointly advised by Professors Peter C. Stair and Laurence D. Marks (Materials Science and Engineering).

Audrey Chan Named Northwestern's Dow Graduate Research Fellow

Audrey Chan has been named the 2004-2005 Dow Graduate Research Fellow. Dow Fellows are outstanding students selected by the Chemistry Department Chair. They are chosen at the end of their first year, and receive the fellowship for the rest of their studies at Northwestern. The Dow Graduate Research Fellow program began in 2000; the first fellow was Kathryn Splan (PhD., 2004, Hupp) who is currently conducting postdoctoral research in George McLendon's laboratory at Duke University.

Audrey Chan

Audrey began her graduate studies during the fall of 2003 and works in Karl Scheidt's laboratory. Her undergraduate degree was earned at Cornell University. Her interests include organic chemistry and catalysis. She is currently investigating new chemical reactions catalyzed by organic molecules. During the year between her undergraduate and graduates studies, she was a chemist for Merck & Co., Inc. In college, she spent one summer as a research assistant at the Brookhaven National Laboratory, and another working at New York University's Medical Center. Prior to college, she had co-authored a paper while working as a research assistant at the SUNY Health Science Center at Brooklyn.

Amanda Haes and Nathan Gianneschi Receive 2004 NU Awards for Excellence in Graduate Research

Each year, the faculty nominate a handful of students for the Chemistry Department's highest honor: the Award for Excellence in Graduate Reseach. This past year, two students stood out for the quality of their works. Amanda Haes of Richard Van Duyne's group and Nathan Gianneschi of Chad Mirkin's and SonBinh Nguyen's groups were named as the winners of 2004 Award for Excellence in Graduate Research.

Amanda's dissertation was entitled, "Localized Surface Plasmon Resonance (LSPR) Spectroscopy for Fundamental Studies of Nanoparticle Optics and Applications to Biosensors." She published 25 papers from her dissertation work. Her research was fueled by a desire to develop biosensors for the diagnosis and monitoring of diseases, drug discovery, proteomics, and the detection of environmental pollutants and/or biological agents. Her work focused on an analytical system that uses triangular silver nanoparticles as substrates. Target molecules bind to the surface and change the refractive index of the nanoparticles. Her research determined that LSPR devices will be useful in the field for portable or point-of-care analysis, owing to the simplicity and ease of use associated with UV-Vis spectroscopic equipment.

Amanda Haes

Amanda has received many honors during the course of her studies, including the 2004 Kirkbright Bursary Award from the Association of British Spectroscopists. Amanda is currently a National Research Council Postdoctoral Fellow at the Naval Research Laboratory.

Nathan was recognized for his research, "Supramolecular Allosteric Catalysts." Allosteric control is well-known in biology, but has been little used by chemists. Nathan's work establishes the utility of this approach to catalytic control for non-biological systems. In his work, chloride ions, acting as allosteric regulators, bind to two rhodium centers on a supramolecular framework and open a cavity where a catalytic acyl-transfer reaction can occur. A product of the catalysis, acetic acid, induces the formation of a fluorescent dye, which lights up upon excitation. This catalytically amplified fluorescent signal can be used to detect whether or not chloride is present. Nathan's research could be the beginning of an advanced class of chemical sensors, and was recently covered in the January 28, 2005 issue of *Science*.

Nathan Gianneschi

Nathan was one of two runners-up for the International Science Writing Award in 2000. He is currently a Postdoctoral Associate at the Scripps Research Institute with Professor M. Reza Ghadiri.

Both students will be invited back to campus during the 2005-2006 school year to present colloquia on their current research. Van Duyne alumnus, Christy L. Haynes, the 2003 winner, will present her colloquium on June 3, 2005. As always, the Chemistry Department is grateful to Prof. Arthur Mar (Ph.D., 1992, Ibers) for his support in funding the Awards for Excellence in Graduate Research.

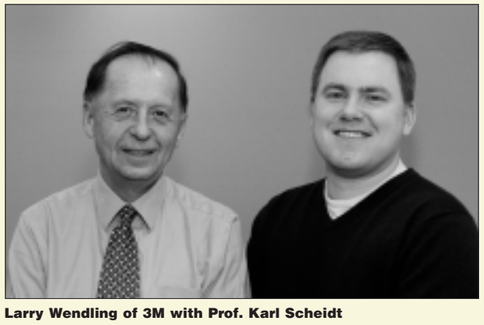
3M Contributes Fellowships and Faculty Award to Northwestern University

In February of 2005 Larry Wendling of 3M made a trip to Northwestern University from 3M headquarters in St. Paul, Minnesota. He met with Hilary Godwin, Peter Voorhees, William Miller, and Kelly Mayo, chairs of the departments of Chemistry, Materials Science, Biological and Chemical Engineering, and Biochemistry, Molecular Biology and Cell Biology, respectively.

Dr. Wendling presented the faculty with a check for $160,000 to be used toward four years of graduate fellowships in each of the four departments "to promote graduate student excellence at Northwestern." Candidates in the Chemistry Department will be those who work within the field of nanotechnology. Students who are awarded the fellowships will be titled, "3M Science and Technology Fellows."

"Fellowship support is one of the greatest needs of the Department," says Department Chair Hilary Godwin. "We thank 3M for their generosity in helping us fund some of the extraordinary graduate students at Northwestern. We will choose our first candidate next year, and I know it will be a difficult decision."

In addition to the fellowships, 3M presented Chemistry Professor Karl Scheidt with a Nontenured Faculty Award. The award recognizes talent among junior faculty and supports basic research in the physical and biological sciences. Professor Scheidt and his group focus on the development of new catalytic reactions employing organic molecules as catalysts, the efficient and methodology-driven syntheses of bioactive compounds, and the exploration of biological pathways using small molecules.



Larry Wendling of 3M with Prof. Karl Scheidt

Chemistry Ph.D. Recipients December 2004:

Peter Dinolfo: Investigation of Ligand-Centered Mixed Valency and Optical Electron Transfer in Rhenium-Based Supramolecular Coordination Compounds (Hupp); Currently a Postdoctoral Fellow at Stanford University

Smita Edulji: Catalytic Olefin Cyclopropanation and Oxidation Using (Salen)iron(III) Complexes (Nguyen); Currently a Research Scientist with Shell Chemicals

Amber Kawaoka: Lanthanide-Catalyzed Hydrophosphination: Small Molecule Transformations and Olefin Polymerization (Marks); Currently a Research Scientist at Honeywell

Ki-Bum Lee: Nanostructures for Biomolecular Assays (Mirkin); Currently a Postdoctoral Fellow at the Scripps Research Institute

Xiaogang (Bruno) Liu: Synthesis, Reactivity, and Molecular Recognition Studies of a New Class of Metallocyclophanes (Mirkin); Currently a Postdoctoral Fellow at Massachusetts Institute of Technology

Gang Lu: Study of Hypervalent Sugar Silicates in Aqueous Solution and Selective Fluorescent Detection of Aliphatic Amines with a New Photoacid Receptor (Lambert); Currently a Postdoctoral Fellow in the Marks Group

Adam McFarland: Using Nanoparticle Optics for Ultrasensitive Chemical Detection and Surface-Enhanced Spectroscopy (Van Duyne); Currently a Postdoctoral Fellow with the Van Duyne Group

Jason A. Miller: The Asymmetric Cyclopropanation of Olefins with Optically Active (Salen)Ruthenium(II) Complexes (Nguyen); Currently a Technical Advisor with Leydig, Voit & Mayer

Jwa-Min Nam: Encoded Nanostructures for the Ultrasensitive Detection of Biomolecules (Mirkin/ Ratner); Currently a Postdoctoral Fellow at the University of California, Berkeley

Christopher Nicholas: The Use of Sulfated Metal Oxides as Support Materials for Homogeneous "Single-Site" Olefin Polymerization and Arene Hydrogenation Catalysts (Marks); Currently a Research Scientist with Aldrich-APL, LLP

Robert Paddock: Chemical Fixation of CO_2: The Development of Catalysts for the Reaction of Epoxides and CO_2 (Nguyen); Currently a Research Scientist with Shell Chemicals

Christine Schering: Development of a New Method Using Polyethylene Glycol-Supported Inactivators to Aid in Efficient Identification of the Site of Covalent Attachment of Inactivators to Monoamine Oxidase B. Design and Synthesis of Potential New Monoamine Oxidase Inactivators (Silverman); Currently a Lecturer at Arizona State University

Louise Sinks: Role of Environment on Photo-induced Electron Transfer (Wasielewski); Currently a Postdoctoral Fellow at the University of Pennsylvania

Kathryn Splan: Design and Characterization of Porphyrin Chromophores for Solar Energy Conversion (Hupp); Currently a Postdoctoral Fellow at Duke University

Nicholas Stahl: Solution Structure and Energetics of Metallocenium Olefin Polymerization Catalyst Ion Pairs (Marks); Currently a Senior Process Engineer at Intel Corporation

Hannah Storrie: Cellular Interactions with Bio-Inspired, Nanoscale Inorganic and Organic Materials for Human Repair (Stupp); Currently a Postdoctoral Fellow at Harvard University

Yingli Wang: Chemoenzymatic Synthesis of DNA-Glycoconjugates and Transcriptional Inhibition of 2-Deoxyribonolactone (Sheppard)

He Yan: High-performance Hole Transport Layers for Polymer Light-Emitting Diodes (Marks); Currently a Postdoctoral Fellow in the Marks Group

Jiyong Yao: Synthesis and Characterization of Bismuth and Rare-Earth Chalcogenides (Ibers); Currently a Postdoctoral Fellow at the University of Liverpool

Min Zhao: Peripherally Functionalized Porphyrazines: Synthesis and Characterization of Schiff Base Tetraazaporphyrins (Hoffman); Currently a Postdoctoral Fellow at Massachusetts Institute of Technology

Marks alumni, students and postdocs at October's Tobinstock symposium.

Tobinstock 2004

In early November, about 80 chemists from around the world gathered in Evanston. The chemists included alumni, colleagues, friends, and current students and postdocs of the Marks Group. Together, they participated in a two-and-a-half-day symposium to honor the life and work of Prof. Tobin Marks on the occasion of his 60th birthday. A core group of alumni began organizing the symposium a year ago. Many of the attendees at the Tobinstock Symposium were also contributors to a special issue of the international journal, *Inorganica Chimica Acta*, that commemorated Tobin's career (Vol. 357, Issue 13, pp. 3811-4056), edited by Mercouri Kanatzidis, '87.

Tobin has mentored 200 Ph.D. students and postdocs during his time at Northwestern. His alumni are academics, industrial scientists, and laboratory scientists for government and non-profit organizations. Many of them acknowledge Tobin's influence with his emphasis on careful experimentation, the need to keep current on chemistry literature, and the importance of presenting one's work as a complete, interesting story.

The Symposium's guest lecturers included many luminaries in the field of inorganic chemistry. Among those were Malcolm Chisholm (the 2004 Basolo Medal winner), Joel S. Miller, Larry Dalton, Rick Adams, and Paras Prasad. Herbert W. Roesky was on hand to present the American Chemical Society 2004 Inorganic Chemistry Lecture: "A Paradigm Change through the Preparation of Hetero-bimetallic Compounds from Metal Hydroxides."

An additional highlight of the weekend was a lecture demonstration in memory of L. Carroll King,made possible by Sybil E. and Edward C. Ferguson III. The demonstration was also presented by Prof. Roesky, with support by Eberhard Zwergel of the Chemistry Department. Prof. Roesky used a spray bottle to reveal an enormous "Happy Birthday Tobin" sign, written in invisible ink, while a recording of Marilyn Monroe cooed "Happy Birthday" in the background. There were explosions and booms galore, and Prof. Roesky managed to create beer in a matter of moments that he passed around the room in a pilsner glass.

The Saturday evening reception was held at the Allen Center, and the post-dinner program included speeches by Provost Lawrence Dumas and WCAS Dean Daniel Linzer.

Tobin laughs during Bruce Diel's presentation

Dr. Eric Schoch '82 gave the welcome, noting that this was "a rare opportunity to reconnect in one place with Tobin and other people who had been part of a formative experience in our lives." Dr. Bruce Diel '82 collected stories from alumni and spoke on "The Marks Group Experience."

Prof. Mark Ratner gave the opening remarks on the final day of the symposium, recalling Tobin's first few years at the University, and reflecting on the marvelous depth that "two women" – wife, Dr. Indrani Mukharji, and daughter, Miriam Marks – had brought to Tobin's research.

Dr. Diel summed up the sentiment of the weekend as he concluded his speech on Saturday night, "Tobin: you have used your mind very well, and you have used it particularly well in teaching so many of us that were fortunate enough to work beside you, how to try to follow that same path. I thank you for the opportunity, all of your alumni thank you for the opportunity, and we all wish you a very happy 60th birthday."

Fred Basolo and his family with Malcolm Chisholm, the 2004 Basolo Medal winner

2004 Fred Basolo Medal for Outstanding Research in Inorganic Chemistry

On Friday, October 22nd, 2004, Malcolm H. Chisholm, Professor of Chemistry at The Ohio State University, was presented with the 2004 Fred Basolo Medal for Outstanding Research in Inorganic Chemistry. He spoke on, "Routes to New Generation Polymers Employing Single-site Metal Alkoxide Catalysts: Polyesters, Polyethers, and Polycarbonates from Renewable Resources." Following the lecture, many Chemistry faculty, students, and postdocs, in addition to a large number of local ACS members, joined Prof. Basolo and Prof. Chisholm for a dinner celebration at a nearby restaurant.

The 2005 Basolo Medal will be awarded to Professor John E. Bercaw of Caltech on October 21, 2005. As always, alumni are welcome to attend.

Prof. Basolo thanks everyone who has given to the Basolo Medal Fund. He invites you to visit the website dedicated to him that his son-in-law recently completed: www.fredbasolo.com.

ALUMNI NEWS

1950's

Don M. Coder (B.A., 1958, DeFord) currently teaches at Shenyang University and Shenyang Medical College, after 27 years in private surgical practice and teaching at the University of Illinois, Chicago. His work in China is rewarding and "it is clear that the welcome mat is out to Americans." Shenyang is in the far northeast, old Manchuria, near North Korea, and has a population of about 7 million. He loves it.

Bill G. Fateley (Non-degree, 1951-1953, Barrow), a University Distinguished Professor at Kansas State University, was selected as the first Fellow of the Society for Applied Spectroscopy. He was cited for his fifty years of contributions to spectroscopy, scientific leadership, and for his twenty years as Editor-in-Chief of the *Journal of Applied Spectroscopy*. He is a visiting scientist at the University of Arizona until May. This summer, he will do research with Prof. R. R. Coifman at Yale University.

William G. Hime (Non-degree, 1948-1951, DeFord) is a co-columnist for the monthly edition of *Concrete Construction*. Several of the columns cover the fascinating, and unexpected, complexity of portland cement and concrete chemistry.

Swiatoslaw "Jerry" Trofimenko (Ph.D., 1958, Hurd) was an invited plenary speaker at the III Euchem Conference on Nitrogen Ligands in Organometallic Chemistry and Homogeneous Catalysis, which took place last September. He gave invited lectures at three Spanish universities: Sevilla, Huelva, and La Mancha (Ciudad Real). He was honored in the special January 2004 double issue of *Polyhedron* for his discovery and development of the polypyrazolylborate "scorpionate" ligand system.

1960's

Robert J. Angelici (Ph.D., 1962, Basolo) has been invited to multiple universities to give his lecture, "Transition Metal Complexes as Agents for the Removal of Organosulfur Compounds from Petroleum Feedstocks." In addition, he has presented his work, "Transition Metal Complexes of Buckybowls, Curved-Surface Fragments of Buckminsterfullerene," in Brazil.

Harry B. Gray (Ph.D., 1961, Basolo & Pearson) received the Sir Geoffrey Wilkinson Medal from the Royal Society of Chemistry in November 2004. He was named an Honorary Fellow of the RSC. He gave the Sir Geoffrey Wilkinson Lectures in Oxford, Imperial College, Exeter, York, Liverpool, and Edinburgh.

Smith L. Holt (B.S., 1961) retired November 1 from his position as Director of the Center for Science Literacy at Oklahoma State University. His 45-year chemistry career also included working in Fred Basolo's laboratory as an undergraduate, at Continental Oil Company, and at the Polytechnic of Brooklyn, University of Wyoming, and University of Georgia. He serves as a consultant for the National Science Resources Center. He and his wife Nancy reside in Angel Fire, NM.

Hoying (Doris) Hung (Ph.D., 1967, DeFord) retired from the N.U. Chemistry Department in June 1999. She and her husband moved out of Winnetka last March. Recently, they moved into their home in California. They enjoy the weather, sunshine, and their two granddaughters nearby.

Cooper H. Langford (Ph.D., 1960, Burwell) officially retired from the University of Calgary on June 30, 2004. He accepted a three-year appointment as "Faculty Professor," allowing him to supervise graduate students and to coordinate the Science, Technology, and Society program. He serves on the Boards of Directors for The Centre for Innovation Studies, The Calgary Science Centre, and The Arctic Institute of North America.

Kelvin K. Ogilvie (Ph.D., 1968, Letsinger) completed a ten-year term as President of Acadia University on August 31, 2003. He is on leave before returning full time as Professor of Chemistry. He is currently Chair of the Premier's Council for Innovation for the Province of Nova Scotia.

Mark D. Wolfinger (Ph.D., 1968, Bordwell) had his second book published in February 2005 by John Wiley & Sons: *Create Your Own Hedge Fund: Increase Profits & Reduce Risk with ETF's & Options.* He hasn't practiced chemisty since 1976.

1970's

Alan L. Buchwald (B.A./M.A., 1972, Marshall) practices in the Emergency Department and is Medical Director of the Occupational Clinic of a community hospital in Santa Cruz, California. He provides consultation to three area hospitals in Medical Toxicology. He has been happily married to Kate Nakfoor for almost twenty years. They have three children: Joseph Buchwald, 25; Alexandra Buchwald, 15; and Grant Buchwald, 14. Alan enjoys foil fencing, having a rating of D-01.

Allen A. Debus (B.A., 1976) has been employed as an environmental chemist since 1981 for the U.S. Environmental Protection Agency, and had a book published in 2002 titled, *Paleoimagery: The Evolution of Dinosaurs in Art* (McFarland Publishers).

Patricia L. Dedert (Ph.D, 1978, Marks) was recently promoted to Section Head of Technical Information Research & Management at ExxonMobil Research and Engineering Co., with responsibility for both the Information Research & Analysis group and the Technical Information Center. Her Section has twelve Ph.D. chemists and engineers and provides support worldwide, particularly in the area of patent searching and analysis.

Jean-Marie Herrmann (Postdoc, 1974-1975, Burwell) became Head of the Laboratory of Applied Environmental Chemistry at Lyon–1 University (France) in January 2003. His lab has three main research teams working in Environmental Catalysis, Photocatalysis, and Functionalized Materials for the Environment. The "LACE" laboratories have unified several previous laboratories, including that of the late J. E. Germain.

Gregory J. Kubas (Ph.D., 1970, Shriver), of the Los Alamos National Laboratory, has been selected as Fellow in the American Association for the Advancement of Science. The honor recognizes his talents as an inorganic chemist, and his discovery and characterization of transition metal complexes containing chemically bound hydrogen molecules.

Dennis D. Lehman (Ph.D., 1972, Shriver) retired from the faculty at Harold Washington College after 37.5 years.; his retirement coincided with being the Harold Washington College Distinguished Professor for 2004-2005. He is assuming a new position as director of special projects at the college. He is also involved in two NSF-funded projects.

1980's

Craig S. Allen (Ph.D., 1981, Van Duyne) moved from Philadelphia to Massachusetts in 2000. He remains married to Lynne (thirty years). He is the Global Technology Director for Circuit Board Technologies of Rohm and Haas Electronic Materials in Marlborough, MA.

Jo Ann Arceneaux (Ph.D., 1986, Lambert) is the TS&D Manager, Radcure, for the Americas at Surface Specialties, which was purchased from the UCB Group by Cytec Industries at the end of February.

Dean W. DeCrease (M.S., 1980, Schatz) is Vice President of the Liquid Packaging Board business at Weyerhaeuser Company. In January, he began a two-year term as Chair of the World Affairs Council in Seattle. He is also on the Executive Board of ACE, a Brussels-based NGO focused on environmental packaging.

Allen T. Hjelmfelt, III (B.A., 1986, Lambert) lives in Washington, DC and works for a nonprofit firm that consults for the Navy. He does operations research analysis, and has been traveling a fair bit in the past few years, including time in Bahrain.

Dale O. Kipp (Chem. Eng. B.A., 1983; M.S., 1984, Poeppelmeier; Chem. Eng. Ph.D., 1998) leads the MatWeb division of Automation Creations. He gave invited lectures at the 2005 International Symposium of Material Databases in Tokyo.

Avi Ulman (Postdoc, 1978-1980, Ibers) has been working at Bar-Ilan University in the Chemistry Department as the Edward & Judy Steinberg Chair of Nanotechnology.

1990's

Mark T. Anderson (Ph.D., 1992, Poeppelmeier) is now a DFSS Black Belt in the Safety, Security and Protection Services Business Laboratory for 3M in St. Paul. His wife, Jane, teaches chemistry at Mounds Park Academy, where his daughter, Sarah, attends.

Richard C. Bunt (B.A., 1990, Lambert) married Elaine Anderson last fall (September 18th). They live in Middlebury, VT where he teaches at Middlebury College, having been there seven years. He is up for promotion with tenure this Spring.

David S. Chan (B.A., 1999) earned a Master of Arts in Teaching in Secondary Education from National Louis University in 2004. He now teaches Chemistry at Evanston Township High School.

Brian C. Chen (B.A., 1993, Hupp) moved to Anchorage, Alaska, in 2002 and has become a partner in the Providence Anchorage Anesthesia Medical Group. Although he enjoys living in Alaska, he returns to University of California, San Francisco, (UCSF) as a volunteer anesthesia faculty on a regular basis.

Janet M. Garetto (B.A., 1994) was recently elevated to shareholder in the Chicago law office of Jenkens & Gilchrist. She focuses on intellectual property counseling in the areas of patents and trademarks.

John C. Hulteen (Ph.D 1995, Van Duyne) and **Lisa A. Dick** (Ph.D. 1996, Van Duyne & Hoffman) have been employed as chemists at 3M in St. Paul, MN for seven years. John just transferred to Specialty Materials where he works with adhesives and liners. Lisa is working with asthma inhalers in Healthcare. They proudly announce the August 2004 birth of Alex Hulteen. He joins a brother, Jacob, who was born in 2001.

Suzanne Howton Johnson (Ph.D., 1993, Lambert) has been named director of R&D at Flavor Savor, Inc. in Carol Stream, IN.

Pascal G. Lacroix (Postdoc, 1989-1991, Marks) became a Research Director at CNRS-Toulouse (France) in 2004. He and **Isabelle Malfant** (Postdoc, 1990-1991, Hoffman) have two children: Camille (b. 1998) and Tom (b. 2002).

Marc E. Levsky (B.A., 1996, Silverman) is stationed in Baghdad with the Army, as a Physician specializing in Emergency Medicine. His usual duty is in Fort Hood, TX.

Naomi Naito O'Neil (Ph.D., 1999, Hoffman) and her husband, **Greg O'Neil** (Chem. Eng. Ph.D., 1998, Torkelson), welcomed Matthew Allen and Allison Reiko O'Neil on October 4, 2004. Naomi will continue as a forensic scientist at the New York State Police Crime Lab in Albany, NY. She and **Mairin Anderson Hall** (Ph.D., 1999, Hoffman) live near each other and often get together with their children.

Jack T. Vaughey (Ph.D., 1992, Poeppelmeier) and **Gail B. Karet** (Ph.D., 1994, Shriver) became parents to John Edward Vaughey on October 23, 2004

Jye-Shane Yang (Ph.D., 1997, Lewis) won the Young Scientist Prize from the Asian & Oceanic Photochemistry Association. He earlier won the Taiwan Young Scientist Award.

2000's

Brendan M. Crowley (B.A., 2000) is at The Scripps Research Institute and will defend his thesis in August of 2005. He received the 2004 Bristol-Myers Squibb Graduate Fellowship in Synthetic Organic Chemistry. He will postdoc in Prof. Danishefsky's lab at the Memorial Sloan-Kettering Cancer Center in New York.

Ryan T. Hayes (Ph.D., 2002, Wasielewski) began a position at Dendritic Nanotechnologies of Mt. Pleasant, MI as Director of Business Development. A desire to come back to the frozen fields of the north and this opportunity were all he needed to return to his native land.

In Memorium

Dr. Bernard H. Adelson (B.A., 1942; Ph.D., Baker, 1946) died of complications from surgery on March 6, 2005 at age 84. He was originally from Florida, born to Eastern European immigrants. He enrolled at Northwestern University, where he lived with relatives and worked in a service garage. Upon completion of two chemistry degrees, he was hired as an instructor. He taught while he continued to take classes at the medical school. He earned his medical degree, and served in the Army for two years. In 1957, he joined the Evanston Hospital, where he established a nephrology department during the next decade. Throughout his career, he was well-respected as a physician and ethicist. In 2000, he was recognized with an award from the American College of Physicians. He is survived by three children and three grandchildren.

Professor John B. Brown (Ph.D., 1956, Dole), Professor Emeritus of Chemistry at Denison University, died February 17, 2003, at the age of 78. Prof. Brown taught chemistry at Denison from 1952 to 1988. From 1988 to 1994, he continued at Denison as an academic computing specialist. Prof. Brown also served as interim director of Denison's William Howard Doane Library in 1971 and served 20 years as marshal of the faculty. During World War II, Prof. Brown served in the U.S. Army Air Force and achieved the rank of major in the Air Force Reserves. He is survived by his wife of 53 years, Jeane DeGarmo Brown, three children and their families, and his brother and sister-in-law.

Professor Jean-Eugène Germain (Postdoc, 1948-1952, Ipatieff & Pines) passed away in December 2002. After attending the Ecole Normale Supérieure de Paris, he worked as a research associate with Professor Vladimir Ipatieff at Northwestern. After the death of Prof. Ipatieff, he continued his work with Professor Herman Pines. He met his wife at Northwestern, and they married before returning to France. Upon his return, he was elected Professor of Physical and Organic Chemistry at the University of Lille. In 1967, Prof. Germain became Director of the prestigious Ecole Supérieure de Chimie Industrielle de Lyon. He was a brilliant administrator and a phenomenal researcher, switching progressively from catalysis by metals to oxidation catalysis. He is remembered for the quality of his research and his courses in organic catalysis, in kinetics, in reactor design, and in physical chemistry.

Professor Paul Caylor McKinney (Ph.D., 1958, Barrow), Dean Emeritus and Professor of Chemistry at Wabash College, died at his home in Indiana on December 20, 2003. He had taught at Wabash College for 46 years, longer than any faculty member since the school's founding. He received his undergraduate degree from Wabash in 1952. During the course of his doctorate studies, he received a Fulbright Fellowship to study at Albert Ludwigs Universität. He returned to Wabash in 1956 as an instructor, becoming an assistant professor in 1958, associate professor in 1964, and full professor in 1977. He chaired the chemistry department for four years and the science division for three years, before being named Dean of the College in 1981. He resigned as Dean in 1993 and continued teaching. He is remembered by his wife, Irmingard, his daughter and son, and two brothers.

Professor Thor R. Rubin (B.A., 1933, M.A., 1934) passed away on August 18, 2004. He was well known for his work in thermodynamics, especially during the forties and fifties when there was a huge effort at Ohio State in the thermodynamics of hydrocarbons and metals. Prof. Rubin received his Ph.D. at Berkeley with Giauque. Upon graduating, he was the A. A. Noyes Fellow at Caltech and then taught for two years at Cornell University. In 1944, he joined The Ohio State Univeristy Cryogenic Laboratory as a research fellow, and was invited to become an assistant professor in 1946. He taught there until he retired as Professor Emeritus in 1980.

Honor Roll Omission:

The Unilever Foundation was unintentionally omitted from our 2002 listing of Matching Gift Corporate Sponsors. We apologize for our mistake.

Wade K. Jarrell (Ph.D., 2000, Hoffman) married Diani Stoltenkamp (now Diani Jarrell) on December 23, 2002 in the Caribbean. He teaches chemistry as a Lecturer for N.U.'s School of Continuing Studies, and as an Adjunct Professor at Oakton Community College.

Anjeanette D. Ormonde (Ph.D., 2001, Van Duyne) reports that her husband, Floyd, and she were blessed with the birth of their daughter, Jessica, on October 28th, 2004. Anjeanette was recently promoted to Sr. Project Scientist at Unilever.

Jonathan D. Parkhurst (B.A., 2000) graduated from the University of Minnesota Medical School with an M.D. in May 2004. He is now a resident in the Internal Medicine program at Abbott Northwestern Hospital in Minneapolis, MN.

David V. Schacht (B.A., 2000) is about to graduate from NU medical school with a dual M.D./M.P.H. degree and will be taking a residency in radiology. He married his high school sweatheart in their hometown of Oak Park on July 5th, 2003. She is currently in law school at N.U.

Bernd (Ben) Sehgal (Ph.D., 2002, Godwin), his wife, Maureen Smith, and daughter, four-year-old Katarina, welcomed a second daughter, Jessica, on December 29, 2004.

Erik J. Stoltenberg (B.A., 2002) worked for a year in a hepatology lab at N.U.'s Feinberg School of Medicine after graduating. He taught English one year near Gifu City, Japan and has since begun studies at the Pritzker School of Medicine at the University of Chicago (class of 2008).

Keith J. Watson (Ph.D., 2001, Nguyen & Mirkin) and his wife, Martine Fournier, had their first child, Nathaniel Patrick Watson, on November 29, 2004.

C. Scott Weinert (Ph.D, 2000, Shriver) started as an Assistant Professor of Chemistry at Oklahoma State University in August 2004. He had previously been a postdoc for the late Ian P. Rothwell at Purdue University. He was married last summer to Christa Feasley.

Let us know how you are doing! You can update your information and tell us what is happening in your life at www.chem.northwestern.edu/alumni or you can email updates to Claire Finando at c-finando@northwestern.edu, Please include your name, contact information, and advisor's name.

Upcoming Events for Chemistry

Friday, April 29th, 2005
The Abbott Laboratories Lecture in Organic Chemistry
Sponsored by Abbott Laboratories, Inc.
Prof. Amos Brittain Smith, III; University of Pennsylvania

Thursday, May 5th, 2005 – Friday, May 6th, 2005
The 2005 Industial Associates Symposium

Monday, June 27th, 2005 – Wednesday, June 29th, 2005
The Myron L. & Muriel S. Bender
Distinguished Summer Lectures in Organic Chemistry
Prof. Erick Carreira; Swiss Federal Institute of Technology, Zurich.

Tuesday, July 26th, 2005 – Thursday, July 28th, 2005
The Malcolm Dole
Distinguished Summer Lecture in Physical Chemistry
Prof. Hans-Joachim Freund;
Fritz-Haber-Institut der Max-Planck-Gesellchaft

Wednesday, August 10th, 2005 – Friday, August 12th, 2005
The Distinguished Summer Lectures in Inorganic Chemistry
Prof. Anthony K. Cheetham; University of California, Santa Barbara

For lecture times and other information, please see the calendar link at www.chem.northwestern.edu/resources

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