

University of Michigan Chemistry NEWSLETTER

Letter from the Chair

I am pleased to send greetings and to highlight the activities of the Chemistry Department over the past year. Of particular note, Professor Mark Meyerhoff has agreed to lead the department as interim chair (Jan. '09 – July '10) while I take a much-needed sabbatical to focus on my research activities. I will return in July 2010 to complete my second term as Department Chair.

The Department is continuing to make enormous strides towards accomplishing its goal of becoming one of the top Chemistry Departments in the nation. Over the past two years, the Departmental faculty members have written a detailed, 5-year strategic plan to provide a vision for increasing the strength and visibility of our Department. This planning process culminated in a visit by an external committee; they reviewed the department very positively. This committee indicated that “the Department is thriving and has advanced to a far more visible position during the last ten years.” They also concurred with the strategic plan’s emphasis on hiring to cope with impending retirements and to rebuild the faculty numbers.

The Department has had tremendous success in recruiting outstanding faculty members and graduate students to the Program in the recent past. You will see accolades to the faculty and students throughout this newsletter. Last year we successfully recruited three new assistant professors: Bart Bartlett, an inorganic/materials chemist, Stephen Maldonado, an analytical/materials chemistry and Mi Hee

Lim, a bio-inorganic chemistry recruited jointly with the Life Sciences Institute. Profiles of these new faculty members are in the newsletter. Additionally, Professor Charlie Brooks moved to Michigan from Scripps in early 2008 with a joint position with Chemistry and Biophysics. Two faculty members were promoted from Assistant Professor to Associate Professor with tenure last year: John Wolfe, an organic chemistry, and Hashim Al-Hashimi, a biophysical chemist jointly appointed with the Biophysics Program. Finally, A. Ramamoorthy, also joint with Biophysics, was promoted to Professor. We are very proud of the success of these faculty members.

The Department’s educational activities continue to thrive. Overall, the numbers of majors in chemistry and biochemistry is holding strong. Graduates of our program continue to be widely sought by professional and graduate schools, and industry. We are especially proud of the success of the ACS Student Affiliates chapter at the University of Michigan-Ann Arbor, mentored by Paul Jones, who received a Commendable Award for its activities conducted during the 2007-2008 academic year.

In summary, both the educational and research missions of the Chemistry Department are growing and thriving and the future looks very bright, despite the economic woes and decreased funding at the federal level. I would like to thank you (alumni, alumnae and supporters) for your generous support of the research

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2008

The Regents of the University of Michigan:
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and teaching missions of the Chemistry Department in 2008. This was a banner year for fund-raising and we are most grateful for your contributions and support of our endeavors to teach the future generation of scientists and leaders. The loyal donors to the Department's various gift funds, scholarships and endowments are enumerated elsewhere in this newsletter. On behalf of the students and faculty who benefit from this support, I thank you sincerely. I hope that you will come and visit the Department anytime that you are in town. I look forward to meeting alumni/alumnae visitors.

Best wishes,

Carol Ann Fierke, Chair

Jerome and Isabella Karle Professor of Chemistry and Professor of Biological Chemistry

Department of Chemistry
Newsletter

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Spotlight: Profiles of New Faculty

We highlight faculty members who have joined the Department since the last newsletter. Their appointment speaks well for our future.

Bart M. Bartlett

Assistant Professor of Chemistry
Ph.D., MIT University
Postdoc, UC Berkeley
Inorganic Materials Chemistry



The growing demand for energy world-wide has brought increasing attention to developing clean, efficient, renewable fuels. The challenges inherent in the production, storage, and transport of energy are perfectly suited to be solved by chemists in the 21st Century. However, there are several areas of fundamental science that must be better developed prior to large-scale implementation of these goals, as outlined in the United States Department of Energy's Basic Research Needs. One difficulty lies in the necessity of separating, storing, and transferring charge within a single material, even if this material is just one component of a more complex device. Our research program addresses these problems in synthesizing three classes of compounds that will have immediate impact on the Basic Research Needs: 1) metal oxides capable of both performing the water oxidation half-reaction and transporting the electrons needed for hydrogen fuel production; 2) intercalation compounds designed with a high charge capacity, high ion mobility, and improved stability at the electrolyte/cathode interface for Li-ion battery electrodes; and 3) cuprates tailored to study the mechanism of high-Tc superconductivity. Beyond these energy implications, a unifying theme of this research is the synthesis of solid-state materials with well-defined, but easily-tuned structures that allow charge or matter to flow within the solid.

To make progress in the investigation of charge/matter transfer at solid-solid interfaces, we first require a large synthetic effort. Therefore, we are skilled in a variety of synthetic techniques (e.g. solid-state synthesis, air-free Schlenk and glovebox techniques, hydrothermal and sol-gel synthesis) to prepare new solid-state architectures (hard matter) as well as intercalate discrete molecules (soft matter) into these structures. In addition, we perform many physical measurements on the compounds we synthesize (e.g. X-ray structure determination, electronic spectroscopy, electrochemistry, electrical and ionic conductivity, SQUID magnetometry) in order to assess their utility in the aforementioned applications in energy research. We aim to correlate the observed physical properties with the chemical structure of our materials. In this way, the materials that we synthesize will find use in many applications, thus our efforts will undoubtedly have wide-ranging impact in cutting-edge science.

Charles L. Brooks III

Warner-Lambert/Parke-Davis Professor of Chemistry and Biophysics
Ph.D., Purdue University
Postdoc, Harvard University
Physical Chemistry and Biophysics



Understanding the forces that determine the structure of proteins, peptides, nucleic acids, and complexes containing these molecules and the processes by which the structures are adopted is essential to extend our knowledge of the

molecular nature of structure and function. To address such questions, we use statistical mechanics, molecular simulations, statistical modeling, and quantum chemistry.

Creating atomic-level models to simulate biophysical processes (e.g., folding of a protein or binding of a ligand to a biological receptor) requires (1) the development of potential energy functions that accurately represent the atomic interactions and (2) the use of quantum chemistry to aid in parameterizing these models. Calculation of thermodynamic properties requires the development and implementation of new theoretical and computational approaches that connect averages over atomistic descriptions to experimentally measurable thermodynamic and kinetic properties.

Mi Hee Lim

Assistant Professor of Chemistry;
Research Assistant Professor, Life Science Institute
Ph.D., MIT University
Postdoc, California Institute of Technology
Bioinorganic, Medicinal
Chemistry, Chemical Biology



Our research interests lie in the broad field of inorganic chemistry as it interfaces with biological and medicinal chemistry. One project will be directed toward designing metal chelators as chemotherapeutics for Alzheimer's disease (AD). Two other areas will focus on utilizing metal peptide complexes as catalysts for selective oxidative transformations and as agents for detoxification of hydrogen peroxide. Students in our group will engage in synthetic chemistry (organic and inorganic syntheses), physical methods (NMR, EPR, IR, CD, and UV-vis spectroscopy, mass spectrometry, and X-ray crystallography), as well as biological techniques (mammalian cell culture and analysis).

Metal Chelator-Based Chemotherapeutic Agents for Alzheimer's Disease (AD). A distinct feature of AD is accumulation of toxic amyloid-beta (A beta) aggregates, which is accelerated by the

Stephen Maldonado

Assistant Professor of Chemistry
Ph.D., University of Texas, Austin
Postdoc, California Institute of Technology
Electrochemistry, Semiconductor Photoelectrochemistry, Materials Chemistry, Surface Science, Corrosion, Heterogeneous Electrocatalysis

Heterogeneous charge transfer is at the heart of microelectronics, many chemical sensing strategies, and energy conversion/

Interpreting experimental results at more microscopic levels is fueled by the development and investigation of theoretical models for the processes of interest that range from atomic level detail to more coarse-grained molecular representations. Massive computational resources are needed to realize these objectives, and this need motivates our efforts aimed at the efficient use of new computer architectures, including large supercomputers, Linux Beowulf clusters, and computational grids. Each of the objectives and techniques mentioned represents an ongoing area of development within our research program.

presence of divalent ions such as Cu(II) and Zn(II). In particular, Cu-A beta may catalytically generate reactive oxygen species (ROS) leading to increased oxidative stress and consequent deterioration of AD conditions. Metal-induced A beta aggregation and ROS formation can be alleviated by metal chelators. Therefore, we will develop a new generation of nontoxic, small molecule-based metal chelators for Cu(II) and Zn(II) as effective therapeutics for AD.

Metallopeptides as Efficient and Selective Oxidation Catalysts. Selective oxidation reactions of organic compounds are of great significance for the synthesis of fine chemicals and industrial production of useful compounds. To achieve efficiency and selectivity, transition metal complexes and metalloenzymes have been employed as catalysts. Their utility and general applicability are still limited, however. We will design metallopeptides as a new class of catalysts for selective oxidative functionalization under mild conditions. Metallopeptide-based catalysts would combine advantages of both metalloenzymes and small-molecule catalysts that are involved in oxidation chemistry.

Metal-Based Reagents Toward Detoxification of H₂O₂ in Biological Systems. Impaired detoxification of hydrogen peroxide (H₂O₂) and the resulting oxidative stress are implicated in human diseases including a number of forms of cancer. In cellular antioxidant defense systems, catalase acts as an enzymatic scavenger of H₂O₂, converting it to dioxygen and water. Inspired by the structure and function of this enzyme, we will construct an efficient detoxifier of H₂O₂ in biological systems.

storage technologies. Understanding, designing, and developing more efficient electrode surfaces for systems based on interfacial charge transfer are my group's research interests. Advancements in these fields requires further understanding of, and control over, the kinetics of charge transfer, stability of the interface, and material properties of the system components.

Our group is particularly interested in developing solar energy conversion and storage systems. For any system to be capable

of converting sunlight into chemical energy (i.e. chemical bonds), sunlight must be efficiently absorbed, photoexcited electrons and holes must be generated, and these charge carriers must be separately directed to reaction sites where they can drive redox reactions. Inorganic semiconductors are naturally suited for all three of these required tasks. In fact, a semiconductor electrode in contact with a liquid solution is



arguably the simplest design for an artificial, solar-powered fuel generator. Inorganic semiconductors strongly absorb photons with energies greater than the band gap, support energetically and spatially separated electrons and holes, and are natural platforms for heterogeneous electron transfer. However, the difficulties associated with simultaneously maximizing the absorption of sunlight, optimizing the thermodynamics and kinetics for interfacial charge transfer, and preserving the longevity of the semiconductor/solution interface have stalled development of such

photoelectrochemical systems. Deliberate and systematic control over the electrical, physical, and electrochemical properties of the surfaces of inorganic semiconductors would greatly improve the viability of such photoelectrochemical systems.

Available research projects in the group involve studying and optimizing semiconductor interfaces for solar energy conversion and storage. One main focus is to chemically protect gallium phosphide (an inorganic semiconductor) surfaces with various organic functional groups and to use linking chemistries to attach electrocatalytic materials to these surfaces. Another area of exploration is the development, study, and application of unexplored classes of semiconductor materials such as transition metal nitrides and oxynitrides. These projects will rely heavily on surface sensitive analytical techniques (e.g. x-ray photoelectron spectroscopy, scanning probe microscopies), materials characterization methods (e.g. transmission electron microscopy, scanning electron microscopy), optical studies (e.g. infrared spectroscopy, uv-vis spectroscopy), and electroanalytical techniques (e.g. cyclic voltammetry, electrochemical impedance spectroscopy). Our work is multi-disciplinary in nature, incorporating aspects of materials, analytical, synthetic, and physical chemistry.

Faculty News

Arthur Ashe presented the 2008 Klemm Lecture at the University of Oregon. The lecture honors Leroy Klemm, a PhD student (1945) of Werner Bachmann. He served on the faculty and in administrative roles at Oregon until retirement in 1992. Klemm passed away in 2003.

Hashim Al-Hashimi and Nils Walter have coauthored a review article titled "RNA dynamics: It's about time" in *Curr. Opin. Struct. Biol.* 18 321-329 (2008).

Sy Blinder has recently published a new book "Guide to Essential Math: A Review for Physics, Chemistry and Engineering Students," (Elsevier, 2008). He is also a consultant for Wolfram Research International (Mathematica) writing software.

Heather Carlson has received the Cheminformatics and QSAR Society's prestigious 2008 Hansch Award. The award is given to young investigators who have contributed significantly to the field of Quantitative Structure-Activity Relationships. Heather will head a \$5M center supported by NIGMS to develop a docking and scoring resource for the computational community. The new center will be called the Community Structure-Activity Resource (CSAR).

Zhan Chen's student Xiaoyun Chen was one of eight 2008 recipients of the UM outstanding thesis award administered by Rackham Graduate School. The title is "Investigating Biointerfaces Using Sum Frequency Generation Vibrational Spectroscopy." The thesis was also the University of Michigan's nominee for the 2008 national "CGS/University Microfilms International (UMI) Distinguished Dissertation Award".

Brian Coppola is the recipient of a 2008 LSA Excellence in Education Award for his special contributions to the College's educational mission.

Brian Coppola and Joe Krajcik (School of Education) are heading the College of LSA and the School of Education's joint initiative, the IDEA Institute (IDEA: Instructional Development and Educational Assessment), which held a dedication symposium on Oct. 14, 2008. IDEA brings faculty members and students together to improve and advance, through research and practice, undergraduate teaching and learning; precollege teaching and learning; preparing future faculty; and new pathways for identifying and recruiting precollege teachers. The work of the IDEA Institute is built on the concept of forming interdisciplinary and intergenerational "teaching groups" to take on the large and complex problems in education, comparable to the way in which "research groups" take on the important problems in their various fields.

Gary Glick has been elected a Fellow of the American Association for the Advancement of Science (AAAS). Dr. Glick is honored for his distinguished scholarship in the field of organic chemistry, particularly the discovery of molecular targets, mechanisms and development of potential therapeutic compounds for the treatment of autoimmune diseases.

Kristina (Kicki) Hakansson is a member of the News & Features Advisory Panel for the ACS journal Analytical Chemistry (2008-2011) and will serve on the editorial board of the Journal of the American Society for Mass Spectrometry (2009-2014). She is a member of the Ion Cyclotron Resonance Advisory Committee and Users Executive Committee at the National High Magnetic Field Laboratory,

Robert Kennedy has been elected a Fellow of the American Association for the Advancement of Science (AAAS). Dr. Kennedy is honored for his distinguished contributions to analytical

chemistry including development of techniques for ultrasensitive analysis and their application to neuroscience and diabetes research.

Raoul Kopelman's studies of nanoparticles as sensors in medical applications has been receiving wide publicity. Analytical Chemistry highlighted in the "News Section" in their Oct 1, 2007 issue, the development of a nanoscale voltmeter that provides 3D profiling of electric fields in live cells. The surprising finding of high fields will stimulate a complete re-evaluation of the role of electric fields in the metabolism and growth of mammalian cells. This work was published in *Biophys. J.* 2007, 93, 1163. Raoul's studies will be supported by an NIH "Quantum Leap Grant". The goal of the NIBIB Quantum Grants Program is to advance health care by funding research on targeted projects that will develop new technologies and modalities for the diagnosis, treatment, or prevention of disease.

Kevin Kubarych received a NSF Career Award (2008). The title of his grant is: "CAREER: Time-Resolved Condensed Phase Reaction Dynamics Investigated by Multidimensional Infrared Spectroscopy". The project will study the ultrafast dynamics of the bacteriorhodopsin photocycle from the sub-picosecond photoisomerization through to the microsecond proton transfer that is central to the function of this bacterial light-drive proton pump.

Nicolai Lehnert is a recipient of a Japan Society for the Promotion of Science (JSPS) Invitation Fellowship to visit Japan for one month in summer of 2008. This fellowship is aimed at promoting international scientific cooperation and exchange.

Anna Mapp and **John Montgomery** were speakers at the 23rd Annual William S. Johnson Symposium in Organic Chemistry at Stanford University Oct. 3-4, 2008.

Neil Marsh has been awarded the Doctor of Science degree (Sc.D.) from Cambridge University. This degree is conferred on alumni of the University who have made important and extensive scholarly contributions to an area of research.

Mike Morris has been awarded the 2008 Rackham Distinguished Graduate Mentoring Award for his excellence in directing over 50 PhD students and serving on numerous other thesis committees.

Vincent Pecoraro is the recipient of a 2008 U of M Distinguished Faculty Achievement Award for his distinguished work in synthetic and biological inorganic chemistry, his curriculum leadership and mentoring of students.

Faculty Profile

Professor Theodore Gore Goodson III was appointed this year as the Richard Bernstein Collegiate Professor of Chemistry. We extend congratulations to Ted for this honor. Ted grew up in Indiana and attended all male Wabash College before entering graduate school at the University of Nebraska and choosing his field of physical chemistry. He was recruited to the University of Michigan in 2004. Goodson developed an international reputation for his ground breaking research on novel organic materials for optical and electronic applications, as well as solar energy devices,

A. Ramamoorthy (Rams) was Distinguished Visiting Professor, Chemistry, at Kyoto University (June 2008) and delivered their prestigious Lecture in Solid-state NMR Spectroscopy. Rams was Guest Editor for a special issue on "NMR Structural Studies on Membrane Proteins" in *BBA Biomembranes*, 1768, (2007). He coauthored an invited review article with D.W. Hoskins "Studies on Anticancer Activities of Antimicrobial Peptides", in *BBA Biomembranes* 1778, 357-375 (2008). Rams has been elected to the Editorial Board of Magnetic Resonance Insights.

Roseanne Sension has been elected a Fellow of the American Physical Society. This recognition is limited to no more than one half of one percent of the total membership. Dr. Sension is honored for pioneering work on dynamics in the condensed phase, steady state and ultrafast measurements of excited state dynamics, and optical control of chemical reaction dynamics.

David Sherman was chosen as a 2009 recipient of the Arthur C. Cope Scholar Award. He will be presented the award at the 2009 fall ACS National Meeting in Washington, DC.

Nils Walter has coauthored a review article titled "Do-it-yourself guide: How to use the modern single molecule toolkit." in *Nat. Methods* 5, 475-489 (2008).

Arthur J. Ashe III retired from active faculty status and became Professor Emeritus after 42 years of service. He was a member of the Macromolecular Science and Engineering Center. Arthur published some 150 articles on the organometallic chemistry of main group elements and was especially known for the synthesis of unsubstituted novel heterocycles such as phosphabenzene. He trained more than 30 doctoral and postdoctoral students and numerous undergraduates in research.

Robert R. Sharp retired from active faculty status after 39 years and was appointed Professor Emeritus. Bob's research was in chemical applications of NMR spectroscopy. He was an expert on relaxation mechanisms of heavy metal nuclei, manganese oxidation states in the oxygen evolving photosynthetic complex, and paramagnetic transition ions. He particularly enjoyed and excelled in teaching large introductory lecture courses.

James K. Coward, Professor of Medicinal Chemistry and Chemistry retired from active status and was appointed as Professor Emeritus. Jim joined Michigan in 1987 having served previously at RPI. His research was far reaching in biosynthesis mechanisms, metabolism, enzyme catalysis and carbohydrate chemistry. In 2007 he was elected to the ACS Division of Medicinal Chemistry Hall of Fame. He mentored over 50 graduate and postdoctoral associates and over 25 undergraduate students.

using non-linear ultrafast spectroscopy techniques to probe the electronic processes in these systems. Goodson is highly active in a number of our departmental committees and also the college and university. He is a committed teacher who enjoys demonstrating physical chemistry from a number of viewpoints.

Goodson's lab uses state-of-the-art laser experiments to probe important spectroscopic processes in novel organic materials to improve their properties. Goodson's work has impacted the fol-

lowing three properties of these materials: (1) photon energy light harvesting, (2) two-photon absorption and (3) entangled photon absorption in artificial systems. The search for new materials for light harvesting to mimic photosynthetic systems is important in view of the current need for alternative energy resources. The detailed understanding of the energy transfer and migration processes in artificial photo-systems is critical to the discovery of a new superior system which may be used in devices such as solar batteries. Similarly, the use of novel organic materials for two-photon absorption systems is important for biological applications, media imaging and microlithography. The first demonstration of entangled photon absorption was observed in Goodson's lab. This novel effect utilizes quantum entangled photons to perform measurements at very low numbers of photons. This method is already being used for remote sensing of chemical hazardous materials, at very long distances (kilometers), as well as for sensing very small quantities of substances with very few photons.

Ted was among the first scientists to apply time-resolved non-linear spectroscopy to a new and novel class of materials, known as dendrimers. These highly ordered organic macromolecules can be synthesized with specific functionalities. Dendrimer materials (invented in Michigan) have attracted tremendous attention due to their potential use in drug delivery and catalysis, as sensors in catalysis as solar energy devices, and as components in inorganic-organic composite materials. In 1998, when Goodson started his work, little was known about the dynamic optical properties of these novel materials. Ted received attention for systematically investigating these properties including their femto-second luminescence dynamics. This work is summarized in recent review articles: *Accts. of Chem. Res.* **2005**, 38, 99-107 and *Ann. Rev. of Phys. Chem.* **2005**, 56, 581-603.

From this work, Ted moved on to study the optical properties of a variety of novel materials, including CdSe and CdS nanoparticles (now called "Quantum Dots"). His discovery of two-photon absorption and photon-number squeezing with CdSe nanoparticles is an elegant study, published in *Nano Letters*. **2002**, 2, 127-130.

Newer projects in Goodson's lab have expanded into different areas, exploiting his group's emphasis on the use of large molecular aggregate systems as ideal tools for novel optical applications. He recently collaborated with researchers in the Medical School to probe the dynamics of peptide aggregation in systems known to be important for various diseases (*Biophysical Journal* **2007**, 93, 1068-1078). He has also been involved in the engineering and technical aspects of a new approach toward the active remote detection of improvised explosive devices which has been patented.

Goodson's ground-breaking fundamental work has brought much recognition from various segments of the research community, expressed in the NOBCCHE Lloyd Ferguson Young investigator award, the '03 Alfred P. Sloan Award, the Camille and Henry Dreyfus Foundation Teacher-Scholar Award, the National Science Foundation CAREER Award, and the Army Research Office Young Investigator Award. He is also the recipient of the University Faculty Recognition Award in 2008. He has been selected senior editor of the *Journal of Physical Chemistry* as

well as to the editorial board of the *Journal of the American Chemical Society*.

As mentioned above, Goodson is a committed teacher. It has been his desire to coordinate his research and teaching to motivate students towards scientific careers. In this role he has been the advisor to the UM Chapter of the National Organization of Black Chemists and Chemical Engineers (NOBCCHE). He is successful in recruiting graduate students from very diverse backgrounds into our chemistry, applied physics and macromolecular engineering graduate programs. Goodson has also been a member of the new Michigan Mentoring Committee investigating better practices to improve our graduate education and enhance our recruitment and retention of graduate students.

Goodson's activities to encourage younger scientists toward careers in science and technology have been focused at undergraduate and high school students. He has mentored 8 undergraduate research students since arriving here, encouraging these students to enter graduate school. For the last nine years he has mentored Detroit Public High School students participating in research and in a summer college prep enrichment program. For this work, he was awarded the American Chemical Society Award (2007) for Minority Development. Goodson has initiated new avenues to support students of all backgrounds to participate summer research experiences, including a grant from NSF to accommodate more students. Students from this program are graduating from major universities and many are in graduate school in science and technology fields as well as others in medical school.

When not working, Ted Goodson is busy with his family which has grown over the last five years. He and his wife Stephanie now have three children Jared (7), Elizabeth (3), and Sean (2 months). They truly enjoy Ann Arbor and running behind these very active children.



Graduate Program News

Graduate Student Council News

The Graduate Student Council (GSC) organizes several events for the chemistry department.

Throughout the year the chemistry GSC has brought the chemistry graduate students, faculty and staff together for a number of social and charitable events. In the fall, a bowling adventure afforded some “friendly” competition between members of the department. The holiday season was celebrated with a social Holiday Party. Over the summer, there was a bit of cool relief with an ice cream social while honoring those graduate students who were recipients of research and teaching awards. Later in the summer, we celebrated staff appreciation day when our staff was honored in appreciation for all the hard work they do throughout the year for both the graduate students and the department as a whole. Also over the summer we sponsored a trip to a Tiger’s game in which donations were collected for Food Gatherers. In all, over \$600 was raised to help those in need. Future Detroit sporting event trips are planned to help this cause again. Other

events during the year were also organized to help relief efforts in China after their devastating earthquake, and to reach out to the Gulf Coast in response to their hurricane season this past summer. As the summer was drawing to a close we continued to support the incoming graduate students with our big/little sib program as a way for new first years to get to know the area and ask questions of those of us that have been around for a while. At the beginning of the new school year we hosted our annual department picnic to welcome all those new to the chemistry department to start off the year with some good fun. Overall it was a great year to be in the department. This coming year is looking to be equally if not more amazing.

Kasimir Fajans Dissertation Award

The Kasimir Fajans Award for the most outstanding doctoral dissertations in Chemistry was established in 1956 by students, colleagues and friends in recognition of the distinguished contributions to science made by Professor Kasimir Fajans. Professor Fajans (1887-1975) was one of the most eminent past members of the Department of Chemistry. In 1913 he was a co-discoverer of isotopes, which he called a pleiad of atoms with the same chemical properties. He also discovered the new element number 91, now called Protactinium. Another of his achievements was the formulation of the radioactive displacement law, which is basic to nuclear chemistry. Kasimir Fajans was also a most influential teacher who left a rich legacy of students and scientific collaborators.

The Kasimir Fajans Award consists of an honorarium and an invitation to present a scientific lecture to the De-



John Montgomery, Glenn Micalizio, Stefan Fajans

partment. The Awardees’ names are on permanent display on a bronze plaque in the main conference room of the Department. The Award was originally to be made biennially for the most outstanding Ph. D dissertation in Chemistry in the previous two years. For a variety of reasons this venerable award had not been made in several years. Back awards have been made so that we are now up to date.

The new Awardees (their thesis advisors) and dissertation titles are listed below:

1996-7 Hui Huang (Penner-Hahn), “Structural Characterization of Organocopper Reagents”.

1998-9 Dell Rosa (Coucouvanis), “Benzo-crown Ether, and Catechol Functionalized Salicylideneimine Complexes and their Transport Properties: a New Class of Supramolecular Complexes.”

Co-awardee for 2000-1 B a t h s h e b a



(left to right) Brannon Gary (president), Eric Majchrazk (Vice president), Kevin Hartman (Treasurer).

Chong Conkling (Lubman), “Multidimensional Analyses of the Proteome Using Nonporous Reversed-Phase HPLC Coupled with MALDI-TOF.”

Co-awardee for 2000-1 Glenn C. Micalizio (Roush), “Studies Directed Towards the Total Syntheses of Spongistatin 1 (Altohyrtin A) and Pectenotoxin II.”

2002-3 Huiping Zhang (Meyerhoff), “Development of Nitric Oxide-Releasing Polymers with Improved Blood Compatibility.”

2004-5 Jesse Rowsell (Yahgi), “Hydrogen Storage in Metal-Organic Frameworks: an Investigation of Structure Property Relationships.”

During the past year Drs. Micalizio, Rowsell, Rosa and Zhang presented their award lectures in the Department. We held a reception for the awardees prior to the lecture. We were honored that Professor Fajans’ son Dr. Stefan Fajans (B. S. Chem. 1938 and a retired professor of Internal Medicine at the University) was able to attend several of these events. The March award lecture by Dr. Dell Rosa corresponded closely to Dr. Stefan Fajans ninetieth birthday. Dr. Peter Fajans and Mark Fajans, the grandson and great grandson of Kasimir Fajans, attended this festive event!

Graduate Awards

Departmental Awards

American Chemical Society Outstanding Graduate Student Award for Research and Teaching

Dipannita Kalyani Sanford

Robert & Carolyn Buzzard Graduate Chemistry Student Leadership Award

John Henssler Matzger

Alumni Funding for Outstanding Graduate Student Research

Katie Cychosz Matzger
Nicholas Deprez Sanford

Florence Fenwick Outstanding Graduate Student Instructor Award

John Henssler Matzger

Milton Tamres Outstanding Teaching Award

Lindsey Gottler Marsh

Departmental Fellowships

George Ashworth Analytical Chemistry Fellowship

Hyun Ju Yoo Hakanson

Robert W. Parry Award

Curtis Schneider Pecoraro

Peter A.S. Smith Fellowship

Ryan Casey Mapp

Margaret & Herman Sokol Graduate Summer Research Fellowship

Kazutoshi Yamamoto Ramamoorthy
Matthew Schulmerich Morris

University Regents Awards

Sharon Baker Sanford
Lauren Goodrich Lehnert
Amanda Hickman Sanford
Stephanie Leclair Ramamoorthy/Chen

Non-Departmental Awards

ACS Division of Medicinal Chemistry Predoctoral Fellowship

Sara Buhrlage Mapp

Bristol-Myers Squibb Graduate Fellowship in Organic Chemistry

Myra Beaudoin Bertrand Wolfe

Cellular Biotechnology Training Program

Claire Chisholm Kennedy

Graham Environmental Sustainability Institute Fellowship

Katie Cychosz Matzger

Irving S. Sigal Post-Doctoral Fellowship

John Hoerter Walter

National Science Foundation Fellowship

Brannon Gary Johnson
Erica Lanni McNeil

Pfizer Graduate Fellowship

Thomas Slaney Kennedy

Pfizer Graduate Fellowship in Analytical Chemistry

Hangtian Song Hakansson

Pfizer Graduate Travel Award in Analytical Chemistry

Katherine Dooley Morris

Rackham Graduate School Outstanding GSI Award

Carlos Baiz Kubarych

Rackham Graduate Student Research Grant

Marisa Macnaughtan Johnson

Rackham Merit Fellowships and Science Awards

Marchello Cavitt Matzger
Tamiika Hurst Fierke

Rackham One-Term Dissertation Fellowship

Jinhui Chen Ashe

Rackham Predoctoral Fellowship

Alexander Hansen Al-Hashimi
Biyun Wu Meyerhoff

Undergraduate Program News

Muhlenberg College – Michigan Chemistry Partnership

In 1997, the Chemistry Department at Muhlenberg College, in Allentown, PA, began a long-term partnership with us to help identify and support promising future scientists.

University of Michigan Alumni Association members Carolyn and Bob Buzzard, both of whom had long teaching careers

in Bethlehem, PA as chemistry instructors and are Muhlenberg College alumni, took the initiative to spearhead this relationship between the departments. In the Fall, 1997, Carolyn and Bob made contact with Professors Michael Morris and Mark Meyerhoff, and explored ways in which the departments might work together.

The obvious point of contact was with the department's long-standing Research Experience for Undergraduates (REU) Site,

funded continuously since 1989 by the National Science Foundation, and directed by Professor Brian Coppola. Each year, 1-2 spots in the REU Site are reserved for students who are screened and nominated by the Muhlenberg faculty.

Since 1999, 10 Muhlenberg students have come to Ann Arbor during the summer to spend 10 weeks in the research labs of our faculty, including Christopher John (1999 REU, Banaszak Holl), Kate Sensenig Hunt (2003 REU, Sacks; 2006 M.S., Sacks; now at Cayman Chemical in Ann Arbor).

Three students from Muhlenberg were in the department during the summer of 2008. Andrew Markham (Marsh) and Jonathan Wert (Sension) both participated in the REU program. In addition, Anne Vazquez, a 2005 Muhlenberg alumna and participant

Undergraduate Teaching

The Department's tradition of on-going curriculum development continues. There is a steady state of change and improvement happening all the time. Here is a brief description of a couple of these activities:

Studio Chemistry – Invented by Professor Mark Banaszak Holl, this innovative version of General Chemistry integrates lab and lecture in one physical setting. Students do everything from designing investigations of water quality based on collected field data, to creatively expressing their understanding of chemistry via writing, poetry, acting, and art. Currently, Dr. Amy Gottfried, a new Lecturer in the department, is continuing to develop this course.

Survey of Physical Chemistry – Professors Jim Penner-Hahn and Roseanne Sension introduced a variety of computer-based active learning methods into this course. Subsequently, Dr. Sam Pazicni, who works with Jim and is one of the dual-mentorship post-docs in the department, and Anne Vasquez, one of Zhan Chen's graduate students, have developed an Honors option based on peer-led supplemental instruction. Over the next five years, the Honors students in this course will be developing a supplemental text to be used in the course as a whole.

Undergraduate Research

The National Science Foundation creates opportunities for undergraduates to join research projects each summer. One of the principle vehicles of NSF support for such projects is through the Research Experience for Undergraduates (REU) program.

The REU program involves students in ongoing research projects and proposals being conducted at the University of Michigan, and thus allows them to experience first-hand how basic research is conducted at an internationally prestigious university.

in the 2004 REU (Sension), is currently a third year graduate student with Professor Zhan Chen. Anne is also participating in the department's future faculty program.

Dr. Christine Ingersoll, an Analytical Chemistry professor with the Muhlenberg College Chemistry Department, has organized the selection and nomination process for this program since 2000. We are grateful to Carolyn and Bob Buzzard who continue to follow this initiative closely and visit the Department each fall. They also sponsor the Robert and Carolyn Buzzard Graduate Chemistry Student leadership Award each year.

For the past 19 years, the University of Michigan has invited students from around the country to spend a summer on campus working closely with faculty and graduate student mentors, conducting research in their area of interest. The REU program is an excellent way to reach into the student talent pool and encourage the participation in chemical research of women, underrepresented minorities, persons with disabilities, and students from institutions where research opportunities may be limited.

The Department of Chemistry provides abundant opportunities for individuals to work in tandem as researchers, educators, and students. The REU program reflects the Department's conviction that collaborative intellectual relationships are an essential component of successful learning. Dr. Brian P. Coppola coordinates the Department's REU program, which runs for 10 weeks during the summer. Dr. Melanie Sanford is the co-PI on the NSF project. Twelve non-UM students participated in summer 2008.

Beginning in 2008, the Department now hosts an International REU Site at Peking University, in Beijing, where we are starting a number of collaborations. As an REU Site, applications are open to students from around the U.S. The group that goes to China first gathers in Ann Arbor for a few days, then travels as a group to Beijing. This year 12 students spent about 2 weeks with language and living orientation, then 8 weeks in one of the research groups in the Peking U department. Thanks to the Joint Institute between UM and Peking U, the logistics for doing this work have been easy to arrange. We are also running this program as a true exchange, with 6 students coming from Peking U to UM for an 8-week period. Support for students from China comes jointly from Pfizer Global Research, Peking U, and UM.

At the end of the summer, all of these students, plus an equivalent number of guest students from the REU programs at Notre Dame, met for a day-long presentation and poster session. One highlight of the presentation portion of the program was the fact that there was a 2-way video feed from China, and 4 of the presentations were broadcast from the US students at Peking University.

Undergraduate Awards

CRC Outstanding Freshman Achievement Award

David Chapel

Alpha Chi Sigma Outstanding 1st Year Student Award

Stuart Zeltzer

Alumni 1st year Achievement Awards

Andrew Bissonette, Xinyi Cui, Ling-Chen Chien, Yue Ding, Vivian Lam Anuj Shah,

Alumni Outstanding Awards

2nd year Student Jonathan Mahlow, Kaitlin McLouglin
3rd year Student Esmael Dadashzadeh, Jesse Jun
Senior Student Paul Baciu, Jennifer Raymond

Honors Council Vanko Award

Yihe Guan

National Starch Scholarship

Jeff Simon, Kristy Bojazi, Carrie Zechmeister

Lubrizol Scholarship

Chase Schuler, Jason Wu

Helen Schwarz Schaefer Scholarship

Angie Buttigieg

ACS Analytical Chemistry Award

Mona Wood, Michael Roberto

ACS Huron Valley-Senior Leadership Award

Katie Lutker

Seyhan Ege-Wise Award

Rebecca Kow

Merck Index Award to Outstanding Seniors

Nicholas Preketes, Jihye Ha, Mona Wood, Frank Cao

AIC Alumni Biochemistry Award

Sarah Carman

AIC Alumni Chemistry Award

Justin Lomont

Sokol Scholarship

Michael Kheir, Thomas Bander, Xinyi Cui

Eugene C. Sullivan Scholarship

Christine Morrison

Summer Research Awards

Alumni Award

Brian Lin, Matthew Robinson, Charles Fehl

Eli Lilly

Tracy Lent

Gomberg Scholarship

Kimberly Schroeder, Stephen Martin

James E. Harris Scholarship

Chase Schuler, Katie Manno

Florence Fenwick Memorial

Lindsay Saunders

PPG Award

Andrew Rasmussen, Hai Long Pham, Jonathan Mahlow

Margaret and Herman Sokol Endowment

Eoghan McGreevy, Christine Morrison, Max Reichwage

Walter R. Yates Award

Joseph Nakhleh, Michael Roberto, Neetu Gulati

Seyhan Ege Undergrad Research Award

Kristy Bojazi

Smeaton

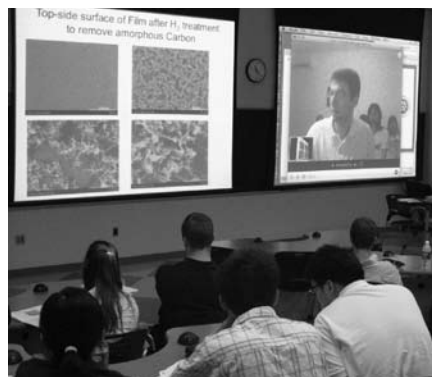
James Kornacki

David W. Stewart Memorial

Corey Lager



A total of 68 posters, divided between two sessions, were on display in the lower atrium of the chemistry building.



UM student Zachary Miller, broadcasting from Beijing, presents his summer research to an audience back in Ann Arbor.



2008 REU students from the domestic and China exchange program.

Gifts

Contributions from private and corporate donors received from July 1, 2007 – June 30, 2008 (* Indicates corporate matching funds.)

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Update your contact information: <http://www.umich.edu/~michchem/alumni/>

If errors or misstatements are noted in any of the following items, the Editors of the Newsletter would appreciate such being called to their attention. Mistakes can and do, inadvertently, creep in. Corrections can easily be inserted in the next edition.

Irving Adler (PhD 1970, Brockway) is vice president, business development for CRU, a British consulting firm specializing in commodity metals.

Saleem A. Al-Ahmed (PhD 90, Coucouvanis; PD, Ashe) visited the department in August. He is now Commercial and Technical Manager for Lubrizol Transarabian Co. Ltd. in Jeddah, Saudi Arabia.

Susan B. Butts (BSC 1975; PhD 1980 Northwestern) is the senior director of external science and technology programs for the Dow Chemical Co.

Christian F. Casper (MS 2001; MA 2005 Eastern Michigan) is a PhD student at NC State in the program in Communication, Rhetoric and Digital Media where his research interests in rhetoric of science and technology especially the emergence and evolution of new electronic genres in science will be pursued.

Richard J. Cook (BSC, 1969; PhD 1973 Princeton) retired in August 2008 after twelve years as president of Allegheny College. A new environmental center will be named the Richard J. Cook Center for Environmental Science to honor Allegheny's 20th president. Cook was one of the early signatories of the American College and University Presidents Climate Commitment (ACUPCC)—a national challenge to colleges and universities to develop a comprehensive action plan to reduce global-warming emissions. Dr. Cook advises that following some time to catch

up on research and writing long delayed by other professional responsibilities, he will remain strongly connected to higher education through consulting and working with Terry (his wife) at Lahti Search Consultants.

Gerald (Jerry) Fong (PhD 78, Kuczkowski) is professor of chemistry at SUNY Alfred State. He received the 2005 Chancellor's Award for Excellence in Scholarship/Research and the 2006 SUNY Distinguished Teaching Award. Jerry is director of the Forensic Technology program, teaches chemical instrumentation, organic and freshman chemistry, and finds time to work on biodiesel fuel applications and 3D visualization technologies

Brent M. Fuller MD (BSC 1993) is a partner with Michigan Adult and Child Medicine in Warren, MI. He and his wife, Christina (BBA, 1993) have 3 children.

Thomas J. Giordano (PhD 1974, Rasmussen) retired from Lockheed Martin after 29 years. He subsequently accepted a part-time position with CH2M Hill. In 2006, he obtained Professional Engineer certification (Colorado) in environmental engineering.

David S. Gottfried (BSC 1984, Francis; PhD 1990, Stanford) recently moved to the Microelectronics Research Center after eight years at the Georgia Tech Research Institute where he developed chemical and biological sensors. He recruits and works with researchers who come to

use the microelectronics facility for the application of micro- and nanofabrication bioengineering and biomedicine.

Larry Hamann (PhD 1991, Koreeda) is currently an Executive Director in Global Discovery Chemistry at Novartis Institutes for BioMedical Research in Cambridge, MA

Steven G. Link (PhD 1977, Lawton) has retired from Eastman Kodak Co after 31 years in research.

Kelly McDow (BS 1992) is Associate General Counsel and Associate Director, The Procter & Gamble Company. Kelly is responsible for the legal and intellectual property matters of P&G's Global Health Care Business.

Meredith Newby (PD Fellow 2002-06, Walter) is assistant professor of physics at Clemson University.

David E. Newton (BS 55, MA 1961; Ed.D 1971 Harvard) writes that he was professor of physics and chemistry for 13 years at Salem State College plus 10 years as adjunct professor at the University of San Francisco. He has been a free lance writer for 50 years with 400+ books and other commercial publications including a new six volume "New Chemistry" published by Facts on File in September 2007.

Gorka Peris (PhD 2006, Vedejs) has joined the fungicide research group at Bayer Crop-Science AG in Monheim, Germany.

Manfred T. Reetz (MS 1967, Longone) of the Max Planck Institute for Coal Research, received the 2009 Arthur C. Cope Award.

Moirá Ringo (PhD 1999, CEvans) is a research investigator for GlaxoSmithKline in Research Triangle Park, NC where she develops new drugs and leads the global Separations Sciences Technique Network

for her department. She lives with her daughter Julia in Raleigh.

David Rueda (PDFellow 2001-05, Walter) is assistant professor of chemistry at Wayne State University.

Helen S. Schaefer (BS 1955, Smith; PhD 1978 Illinois). The University of Arizona dedicated its new building to house the Poetry Center and Humanities Seminars as

the Dr. Helen S. Schaefer Building in honor of her chairing the development committee for the building and her volunteer work for the University.

Leo Sharkey (BCH 1986, Bartell; MS ME 1996, Ohio State) received a MBA from the University of Minnesota, Carlson School of Management) in 2007. He is Sr. Director, Client Services at GMI, a market research firm.

In Memoriam

We are saddened to announce the deaths of the following faculty, alumni, alumnae and friends of the Department.

Professor Dr. Drs. h.c. **Hans Bock** passed away on January 21, 2008. He was appointed to Chair of Inorganic Chemistry at the Johann Wolfgang Goethe University of Frankfurt in 1968 where he served his entire career. Hans began an affiliation with the UM chemistry department in the mid-1970's as a guest lecturer. The department offered him a position as distinguished professor in 1979. After he declined, the department appointed him as adjunct Professor of Chemistry which he held from 1980-1997. Hans visited many times during this period. His distinguished career began as an undergraduate at the University of Munich where he was awarded the PhD in 1958. In 1976, he coauthored with Edgar Heilbronner, a three volume treatise, *The HMO Model and its Applications*. It had a large impact on bringing Huckel MO theory into wide use to explain spectra and properties before the wide use of computers and ab initio MO programs superseded this approach. Hans authored

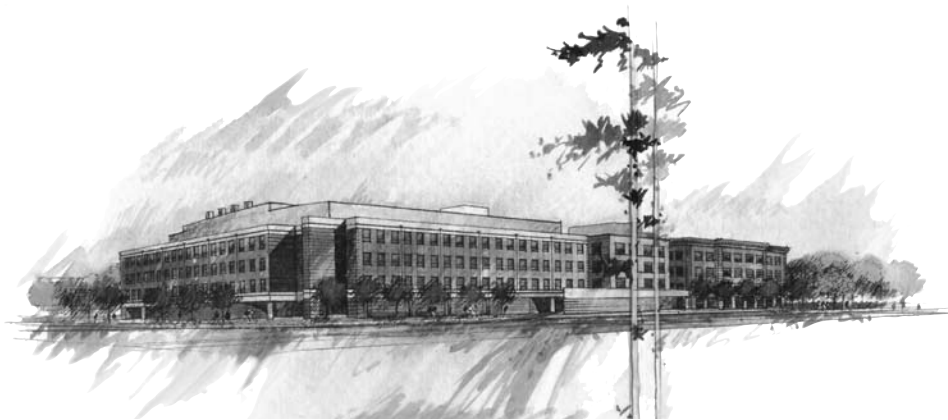
over 500 publications constantly evolving his approach to the study of organic and inorganic species with new experimental and theoretical techniques. He received many lectureships, honorary degrees and prizes. In 1974 he received the Frederic Stanly Kipping award of the American Chemical Society. In 1987 he received the Wilhelm Klemm Award of the German Chemical Society. He was an External Scientific Member of the Max Planck Society. Hans' lectures were marvels of illustration and description long before the advent of Power Point presentations, which made him a well traveled lecturer across the world. Over the years, Hans remained a valued advisor to the department and a supporter of Michigan chemistry and chemists in the US and Europe. He will be long remembered. He leaves his wife, Luise, five children and grandchildren.

Marshall W. Cronyn (PhD, 1944, Bachmann) died on Dec. 30, 2007. He was

professor emeritus of chemistry and vice president and provost emeritus at Reed College, his undergraduate alma mater. Cronyn was an active researcher throughout his long career in the area of organic sulfur chemistry, antimalarials and cancer chemotherapeutics.

Richard J. Garascia (MS, 1941; PhD 1950, Cincinnati) passed away on July 31, 2007. He retired as professor emeritus in 1985 from the chemistry department of Xavier University where he began teaching in 1942 and served as chair from 1961-66. His research interests were in organic chemistry, polynuclear aromatic compounds and heterocyclic compounds of phosphorus and arsenic.

Lucian Rarogiewicz (BS, 1957) passed away on July 2, 2007. He was weatherman/postman at Mount Wilson Observatory and a founding member of the Mount Wilson Observatory association.



Faculty

- Hashim M. Al-Hashimi**, Associate Professor of Chemistry; Associate Research Scientist, Biophysics Research Division. *Chemical Biology*.
- Mark M. Banaszak Holl**, Professor of Chemistry; Professor, Macromolecular Science & Engineering. *Synthetic and Mechanistic Solution, Surface, and Solid State Chemistry*.
- Bart M. Bartlett**, Assistant Professor of Chemistry *Inorganic, Materials Chemistry*.
- Charles L. Brooks III**, Warner-Lambert/Parke-Davis Professor of Chemistry and Biophysics. *Physical Chemistry/Biophysical Chemistry/Theoretical and Computational Chemistry and Biophysics*.
- Heather A. Carlson**, Associate Professor of Medicinal Chemistry; Professor, Chemistry. *Computational Chemistry, Drug Design, Theoretical Biophysics*
- Kate S. Carroll**, Assistant Professor of Chemistry; Research Assistant Professor, Life Sciences Institute. *Chemical Biology, Bioinorganic and Biochemistry*.
- Mary Anne Carroll**, Professor of Atmospheric, Oceanic and Space Sciences; Professor, Chemistry. *Atmospheric Chemistry*.
- Zhan Chen**, Associate Professor of Chemistry; Professor, Macromolecular Science & Engineering. *Biomaterial and Polymer Surface, Biocompatibility*.
- Mary Sue Coleman**, UM President and Professor of Chemistry
- Brian P. Coppola**, Arthur F. Thurnau Professor of Chemistry; Associate Chair for Undergraduate Chemistry. *Organic Chemistry, Science Learning and Instructional Methods*.
- Dimitri Coucouvanis**, Lawrence S. Bartell Collegiate Professor of Chemistry. *Synthesis, Structures and Reactivities of Metal Clusters and Supramolecules*.
- Barry Dunitz**, Assistant Professor. *Theoretical and Computational Chemistry*
- Carol A. Fierke, Chair**, Jerome and Isabella Karle Collegiate Professor of Chemistry; Professor, Biological Chemistry. *Chemical Biology, Bioinorganic Chemistry*.
- Anthony H. Francis**, Arthur F. Thurnau Professor of Chemistry; Associate Dean, LS&A. *Magnetic Resonance, Vibrational and Electronic Spectroscopy of Materials*.
- Eitan Geva**, Associate Professor. *Theoretical and Computational Chemistry*.
- John L. Gland**, Professor of Chemistry. *Solid State and Surface Chemistry, Physical Chemistry*.
- Gary D. Glick**, Werner E. Bachmann Collegiate Professor of Chemistry; Professor, Biological Chemistry. *Chemical Biology, Bioorganic Chemistry, Molecular Recognition*.
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- Amy Gottfried**, Lecturer III.
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- Marc J. A. Johnson**, Assistant Professor. *Inorganic Synthesis*
- Katrin Karbstein**, Assistant Professor. *Chemical Biology, Biochemistry*
- Robert T. Kennedy**, Hobart H. Willard Collegiate Professor of Chemistry; Professor, Pharmacology. *Analytical Chemistry*.
- Nancy K. Kerner**, Lecturer IV. *Chemical Education, Learning and Instructional Methods*.
- Raoul Kopelman**, Richard Smalley University Professor of Chemistry; Professor, Biomedical Engineering; Professor, Physics. *Analytical/Physical/Biophysical Chemistry*.
- Masato Koreeda**, Professor of Chemistry; Professor, Medicinal Chemistry. *Synthesis of Natural Products, Small Molecule-DNA Interaction, Chemical Carcinogenesis, Glycobiology*.
- Kevin Kubarych**, Assistant Professor. *Physical and Biophysical Chemistry*
- Kenichi Kuroda**, Assistant Professor of Chemistry, School of Dentistry, Biologic & Materials Sciences, Macromolecular Science & Engr., Biomedical Engr. *Physical Chemistry*
- Nicolai Lehnert**, Dow Corning Assistant Professor. *Bioinorganic Chemistry, Physical Inorganic Chemistry*
- Mi Hee Lim**, Assistant Professor of Chemistry; Research Assistant Professor, Life Sciences Institute. *Bioinorganic, Medicinal Chemistry, Chemical Biology*.
- David M. Lubman**, Maude T Lane Professor of Surgical Immunology; Professor, Surgery; Pathology; Professor, Chemistry. *Biological Mass Spectrometry, Spectroscopy and Instrumentation*.
- Stephen Maldonado**, Assistant Professor of Chemistry *Electrochemistry, Materials Chemistry*.
- Anna K. Mapp**, Associate Professor of Chemistry; Professor, Medicinal Chemistry. *Organic Chemistry, Chemical Biology, New Synthetic Methods*.
- E. Neil G. Marsh**, Professor of Chemistry; Associate Professor, Chemical Biology. *Enzymes, Structure, Mechanism and Specificity; Protein Engineering and Molecular Recognition*.
- Rowena G. Matthews**, G. Robert Greenberg University Professor of Biological Chemistry; Senior Research Scientist, Life Sciences Institute; Professor, Chemistry. *Biological Chemistry*.
- Adam J. Matzger**, Associate Professor of Chemistry; Associate Professor, Macromolecular Science & Engineering. *Organic, Polymers/Organic Materials*.
- Anne J. McNeil**, Assistant Professor of Chemistry. *Polymer and Organic/Materials Chemistry*.
- Mark E. Meyerhoff**, Philip J. Elving Collegiate Professor. *Bioanalytical Chemistry, Electrochemical and Optical Sensors*.
- John Montgomery**, Professor. *Organic and Organometallic Chemistry*
- Michael D. Morris**, Professor. *Analytical Laser Spectroscopy and Imaging; Electrophoretic Separations*.
- Kathleen V. Nolte**, Lecturer IV. *Organic Biochemistry*.
- Vincent L. Pecoraro**, John T. Groves Collegiate Professor of Chemistry; Research Scientist, Biophysics Research Division. *Synthetic Inorganic and Bioinorganic Chemistry*.
- James E. Penner-Hahn**, Professor of Chemistry; Research Scientist, Biophysics Research Division; Associate Dean, LSA. *Biophysical Chemistry and Inorganic Spectroscopy*.
- A. Ramamoorthy**, Professor of Chemistry; Research Scientist, Biophysics Research Division. *Structural Studies of Biological Molecules*.
- Melanie Sanford**, Associate Professor. *Organometallic Chemistry*.
- Roseanne J. Sension**, Professor of Chemistry; Associate Professor, Physics. *Physical Chemistry, Ultrafast Laser Spectroscopy*.
- David H. Sherman**, John G. Searle Professor of Medicinal Chemistry; Professor, Microbiology and Immunology; Professor, Chemistry; Research Professor, Life Sciences Institute. *Medicinal Chemistry*
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- Nils G. Walter**, Associate Professor of Chemistry; Associate Research Scientist, Biophysics Research Division. *Chemical Biology*.
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- Charles F. Yocum**, Alfred S. Sussman University Professor of Molecular, Cellular and Developmental Biology; Professor, Chemistry. *Biological Chemistry of Photo Synthesis, Metallobiochemistry, Protein Biochemistry, Electron Transfer*
- Edward T. Zellers**, Professor of Environmental and Industrial Health; Professor, Chemistry *Environmental-Analytical Chemistry*.
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