

University of Michigan Chemistry NEWSLETTER

Letter from the Chair

I am pleased to send greetings and to highlight the activities of the Chemistry Department this past year – my first full year as Chair of the Department. Faculty and graduate student recruiting and departmental development activities continue to be major priorities. I am pleased to report that the Department had tremendous success on these fronts.

The Chemistry Department and I are very thankful for the receipt of a significant bequest from the wills of Margaret and Herman Sokol. These funds are being used to establish an endowed Professorship in Chemistry entitled the Margaret and Herman Sokol Professorship in Medicinal (or Synthetic) Chemistry as well as two endowed graduate fellowships entitled the Margaret and Herman Sokol Fellowship Fund in the Chemical Sciences. In addition, the Sokols provided funds to LSA for a faculty award and to Rackham for a Summer Graduate Fellowship. These endowed positions in Chemistry provide a great boost to our recruiting efforts and a lasting memorial to the Sokol family.

The Chemistry Department is interested in strengthening contacts with alumni and alumnae. To this end, Bob Kuczkowski and I organized a meeting last fall for the department's external advisory board, and other interested alums where we discussed ways to enhance our alumni outreach efforts.

To move forward with some of these ideas, we organized an alumni dinner associated with Professor Morris' Sokol Award lecture last spring. Furthermore, we are organizing an alumni event this spring (May 11 & 12; see attached story) to celebrate the 150th anniversary of the establishment of a Chemistry laboratory at the University of Michigan. This weekend will include research seminars, educational seminars and a poster session to highlight ongoing efforts in the department. This will be held in conjunction with the annual Pfizer symposium on May 11. In addition, the Department will be awarded a 2006 Citation for Chemical Breakthroughs from the Division of the History of Chemistry of the American Chemical Society in recognition of work by Moses Gomberg. Professor Harold Kroto, awarded the 1996 Nobel Prize in Chemistry for the discovery of fullerene, will be the keynote speaker for this event. Please save these dates. Detailed information about this event will be provided early next year.

My colleagues and I are very proud that we hired three outstanding junior faculty candidates who started as assistant professors in Chemistry on August 1. With these hires, the Department has a cohort of 11 assistant professors (1/3 female). Dr. Nicolai Lehnert received his Ph.D. from the Institute of Inorganic and Analytical

Contents

Letter from the Chair	1
Advisory Board Meeting	3
New Faculty	4
Faculty News	7
150th Birthday	8
Graduate Program News	
Graduate Awards	8
Graduate Degrees	11
GS Council News	13
Undergraduate Program News	
REU Program	14
Undergraduate Awards	15
Undergraduate Degrees	17
Gifts	18
Alumni News	19
In Memoriam	20
Faculty Listing	22
Alumni Reply	
Form	inside back cover

2005-2006

The Regents of the University of Michigan:

David A. Brandon, Laurence B. Deitch, Olivia P. Maynard, Rebecca McGowan, Andrea Fischer Newman, Andrew C. Richner, S. Martin Taylor, Katherine E. White, Mary Sue Coleman, ex officio, Mary Sue Coleman, president.

The University of Michigan is an equal opportunity/affirmative action employer.

Michigan Chemistry Celebrates its 150th
Birthday in May, 2007

See page 8

Chemistry at Johannes Gutenberg University, Mainz, Germany working with Drs. F. Tuczek and P. Gutlich and was a postdoctoral fellow in the laboratory of Professor Ed Solomon in the Chemistry Department at Stanford. Following this, he moved to Christian-Albrechts University Kiel, Germany where he completed his Habilitation with Professor F. Tuczek. Throughout his career, Dr. Lehnert has focused on synthesizing and characterizing inorganic complexes that model the active sites of important metalloenzymes. At the University of Michigan he proposes to investigate the synthesis, function and degradation of nitric oxide in the biosphere by synthesizing heme-nitrosyl model complexes and investigating their electronic structures and reactivities using spectroscopic methods and density function calculations. As part of his start-up package, the Chemistry Department and the College of Literature, Science and Arts have provided funds to purchase magnetic circular dichroism and resonance raman spectrometers which will significantly enhance the spectroscopic facilities in the department. Dr. Lehnert is an important addition to the Department's research effort in inorganic and bioinorganic chemistry.

As part of our ongoing effort to further strengthen the Chemical Biology research group in Chemistry, we hired two new faculty members in this area. Dr. Katrin

Karbstein received her Ph.D. degree from the Biochemistry Department at Stanford University where she was awarded a Boehringer Ingelheim Predoctoral Fellowship working with Professor Daniel Herschlag. She then moved to the laboratory of Professor Jennifer Doudna at the University of California, Berkeley as a Damon-Runyon Postdoctoral fellow. At the University of Michigan, Dr. Karbstein has been recognized as a Biological Sciences Scholar. Katrin is an expert in the function of RNA and RNA-protein complexes and in her own research program she plans to investigate the assembly of eukaryotic ribosomes at the molecular level combining enzymology techniques, chemical biology tools and yeast genetics to dissect the roles of proteins required for correct assembly of the small ribosomal subunit. Katrin is an outstanding addition to the Chemical Biology faculty and significantly strengthens the subgroup of Chemistry faculty whose research focuses on the structure and function of RNA.

Our third recruit, Dr. Kate Carroll, was hired jointly with the Life Sciences Institute at the University of Michigan. Dr. Carroll received her Ph.D. degree from the Stanford University Biochemistry Department where she worked in the laboratories of both Professor Dan Herschlag and Professor Susan Pfeffer as an American Heart Association fellow. As a Damon-Runyon postdoctoral fellow in the laboratory of Professor Carolyn Bertozzi at the University of California, Berkeley she focused on identifying pathogenic pathways in *Mycobacterium tuberculosis*. Dr. Carroll has also been designated a University of Michigan Biological Sciences Scholar. Kate's research focuses on problems at the intersection of chemical biology, organic chemistry and medicinal chemistry. She is particularly interested in investigating novel metabolic pathways that can be targeted for anti-tuberculosis therapy and in developing new chemical tools to identify and study oxidative post-translational modifications associated with age and neurodegenerative diseases. Kate was recently honored with a Special Fellow Award from the Leukemia and Lymphoma Association to help support this project. Dr. Carroll's research space will be located in the Life Sciences Institute building.

In the past year three faculty members from the Chemistry Department have

been promoted from Assistant Professor to Associate Professor with tenure: Eitan Geva, Anna Mapp and Adam Matzger. All three have established themselves as outstanding teachers and researchers. The faculty, staff and students of the Chemistry Department applaud the outstanding efforts, summarized below, of these newly promoted faculty members.

Professor Geva has garnered praise and respect as one of the best young theoretical chemists in the country. He has been a leader in developing both methods and theory in the simulation of quantum dynamics of molecules in the condensed phase. Within the Chemistry Department, Eitan is playing a key leadership role in the creation of a first-rate theoretical chemistry group. He has been active in recruiting both graduate students and faculty in the area of Physical Chemistry. Professor Geva is an enthusiastic teacher who brings humor to his physical chemistry lectures.

Professor Mapp has been praised as a creative researcher and leader in the area of Chemical Biology, ranking among the best academicians in her peer group. She has received numerous awards, notably the 2007 Eli Lilly Award (ACS), the 2005 Presidential Early Career Award for Scientists & Engineers (along with UM chemistry professor Melanie Sanford) and the 2006 Class of 1923 Memorial Teaching Award (LSA). Anna's research is at the interface of organic chemistry, biochemistry and medicinal chemistry where she has focused on the synthesis, discovery and mechanism of small molecules that can mimic the function of biological macromolecules to activate gene transcription. Professor Mapp has been active in graduate education where she has contributed to the development of the new Interdepartmental Graduate Program in Chemical Biology, worked to bring a more diverse student population into our graduate program and now serves as Chair of the Graduate Committee.

Professor Matzger has earned national and international recognition as a leading researcher in the field of organic materials chemistry, especially solid-state materials, as indicated by receipt of awards from the Alfred P. Sloan Foundation and the Beckman Foundation. Adam's lab both synthesizes new materials and analyzes the molecular structure and properties of

Department of Chemistry

Newsletter

is published once a year by the Department of Chemistry at the University of Michigan, Ann Arbor, MI 48109-1055



Printed on Recycled Paper

Chair: Carol A. Fierke
Editor: Robert Kuczkowski, Tim Wade
Publication: Agnes Soderbeck
Alumni News: Robert Kuczkowski

World Wide Web Address:

<http://www.umich.edu/~michchem>

E-mail: chem.alum@umich.edu

these materials. His research program is highly interdisciplinary and collaborative, bridging organic chemistry, materials chemistry and materials research in the Macromolecular Science and Engineering program. Professor Matzger is an inspiring teacher and outstanding mentor to many undergraduate and graduate students. Adam has been active in recruiting graduate students, especially underrepresented minority students, identifying and recruiting new faculty, and in building the material sciences cluster in the Chemistry Department and nanomaterials campus-wide.

Over the past year the senior faculty ranks have decreased. We were saddened by the death of Professor Richard D. Sacks on February 11 after a courageous battle with cancer. Sacks was a truly outstanding educator and an internationally recognized expert on analytical instrumentation (see article). Professor Paul Rasmussen retired after 42 years as a faculty member developing novel materials, educating students and serving as associate dean. Professor David Lubman moved his primary appointment from the Chemistry Department to the Surgery Department in the University of Michigan Medical School. David still has an active presence in the Department as he retains a complementary appointment. Finally, Professor Omar Yaghi left

the University of Michigan to accept an appointment in the Department of Chemistry and Biochemistry at the University of California - Los Angeles. We wish these faculty members all the best in their new endeavors.

The educational mission of the department continues to thrive, increasing in both quantity and quality. The number of students in our gateway Chemistry courses has increased by 50% over the last three years demonstrating the importance of Chemistry for a wide range of majors! Additionally, the Chemistry faculty continue to incorporate innovative teaching methods into our courses, including the use of electronic personal response systems and podcasts of lectures. In the fall semester, Professor Banaszak Holl has begun using the studio labs in the new Undergraduate Science Building to teach a combined lecture/lab for introductory Chemistry. Professors Penner-Hahn and Sension have used the dinner theater room equipped with tablet PCs to teach an introductory physical chemistry course. Brian Coppola is leading a Future Faculty Development effort for graduate and postdoctoral students including both lectures and discussions about pedagogy as well as hands-on practice in the classroom. The number and quality of graduate students in the Department from the Chemistry Program

and related interdepartmental graduate programs continues to increase. You will see accolades to the students elsewhere in the newsletter.

Both the educational and research missions of the Chemistry Department are growing and thriving and the future looks very bright, despite budget difficulties at the state level and decreased funding at the federal level. 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. Please continue your support as this is essential to maintain the Department's activities. 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 either at the Alumni weekend in the spring or 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

Alumni-Alumnae Advisory Board Meeting, November 11, 2005

First created in 1992, Chair Carol Fierke called a reunion meeting last fall to update former and current members, and several potential new participants of changes in the department. The half day meeting commenced with a luncheon attended by students, postdocs and faculty. Informational reports followed lunch, presented by Fierke and associate chairs Brian Coppola and Masato Koreeda. The meeting then segued into a brainstorming session led by Bob Kuczkowski on improving alumni outreach efforts. This far reaching discussion explored ideas ranging from newsletter design and web interface, reunion events, mentoring graduate students by alumni and alumnae, the future job market for chemists, how industry seeks applicants and applications for employment, mail and phone solicitations

for gifts, and celebrations of faculty milestones. In attendance were Terry Hilty, Joe and Karen Morris, Tom Smith, Kathy Hillig, Gary McGraw, Les Browne, Dave Scott, Helen Schaefer (by phone) and Bob Damrauer (by phone). Catherine Musselman and Jeniffer Cunliffe represented the Graduate Student Council. The dialogue was spirited and constructive. The day concluded with dinner at a new Ann Arbor restaurant and football game attendance the next day by several of the visitors.

Alumni and alumnae are invited to write or email Bob Kuczkowski (kuczkows@umich.edu) with comments on the topics discussed, interest in the Alumni-Alumnae advisory board and activities that would be of interest to our alums. Attention is directed at the 150th birthday celebration in May 2007, mentioned elsewhere in this newsletter, as an opportunity for alumni and alumnae to visit the department.

Spotlight Profiles on New Faculty

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

Kevin J. Kubarych

Assistant Professor of Chemistry
Ph.D., University of Toronto
Physical and Biophysical Chemistry



Kevin J. Kubarych

The boundaries between traditional disciplines are eroding, and some of the most exciting and important discoveries are taking place at the intersections of historically distinct fields. Our group embraces this shift by investigating fundamental questions of chemical and biological structure and dynamics from an essentially physical perspective. Biological systems such as proteins, nucleic acids, membranes, cells, and organelles present spectacular challenges to our understanding of chemical dynamics and structure in complicated heterogeneous environments. Most protein molecules have reasonably well-defined structures to the extent that they can be characterized by X-ray diffraction and NMR spectroscopy. These structures, though, must necessarily respond to their environments, which can range from surfaces to solids to water to oily membranes. Globular proteins, for example, are nearly solid density, and yet to function they must often be flexible. One of the distinguishing features of many biological molecules is that they are not neatly categorized as solids or liquids, but rather something in between.

In order to push towards a detailed microscopic description of these hard-to-classify biological systems, we are developing an array of optical spectroscopy tools that will complement the already commonly used X-ray and NMR techniques. We rely heavily on state-of-the-art femtosecond ($1\text{ fs} = 10^{-15}\text{ sec}$) laser pulses. Through various nonlinear optical processes we are able to generate significantly intense pulses at any wavelength from the ultraviolet to the infrared. Our main approach is to take advantage of the rich chemical specificity and well-developed intuition of vibrational transitions in order to track the course of chemical events. Vibrational transitions can be excited through infrared absorption, and the information content relates directly to the displacement of atoms, thus limiting our reliance on the complicated dynamics of electronic transitions.

Our experimental approach is based on the workhorse of multidimensional IR spectroscopy. This new technique allows us to find out how different motions are coupled together. In particular we are using these powerful new spectroscopic probes to address nonequilibrium dynamical questions. Phototriggered chemical reactions often take place on the femtosecond to picosecond time scale, and by using multidimensional IR as a probe we can directly map the reactant vibrations to those of the product, giving a bond-by-bond view of the reaction's progress with femtosecond resolution.

John Montgomery

Professor of Chemistry
Ph.D., Colorado State University
Organic, Organometallic Chemistry, Complex Molecule Synthesis



John Montgomery

Our research program focuses on the discovery of new transition metal-catalyzed reactions, the development of useful synthetic methods, the application of these new reactions in complex molecule synthesis, and mechanistic studies designed to understand the new processes developed in our laboratories. A major focus of our research program in recent years has been the development of new reactions involving nickel catalysis. In particular, our lab has discovered a series of new reactions that involve the reductive coupling of two different unsaturated moieties in a Ni(0)-catalyzed process. A broad range of pi-systems, including aldehydes, enones, alkynes, allenes, and dienes, are effective participants in this group of reactions. The challenges addressed by the new reactions being developed in our group include the stereoselective introduction of exocyclic double bonds and the stereoselective preparation of polycyclic ring systems that possess multiple contiguous stereocenters. Precise control of catalyst structure and reaction conditions allows a

wide array of reaction pathways to be accessed from simple, readily available starting materials. A variety of natural products have been synthesized in our laboratories using these methods, including isodomoic acids G and H, allopumiliotoxins 339A and 339B, and testudinariol A.

We have recently discovered a new three-component cycloaddition reaction for the synthesis of complex seven-membered rings by a [4+2+1] cycloaddition pathway involving diazoalkanes, alkynes, and dienes. We are actively pursuing the development of new cycloaddition processes based on the novel reactivities uncovered, and we plan to develop applications of these new reactions in complex molecule total synthesis.

A third area of interest is the discovery of new three-component coupling processes involving conjugate addition strategies that avoid the use of metallated nucleophiles. The sensitive nature of organocuprates often limits their utility in synthesis, and we have initiated a program to allow stable and commercially available aryl iodides to be directly utilized in conjugate additions.

Kate S. Carroll

Assistant Professor of Chemistry
Research Assistant Professor, LSI
Ph.D., Stanford University
Biochemistry, Bioinorganic Chemistry, and Chemical Biology

We are a young research group in the Department of Chemistry and the Life Sciences Institute at the University of Michigan that uses biochemistry, organic chemistry, and chemical biology approaches to address problems relevant to human health and disease. Our program has two major focuses: microbial metabolism and oxidation biology. In the host-pathogen arena, we are investigating metabolic pathways that allow *Mycobacteria* to replicate and persist. Our efforts in oxidation biology are directed at developing new chemical tools to identify and study post-translational modifications associated with aging and neurodegenerative diseases. A hallmark of our program is the ability to make new molecules and use them for a targeted function. This make-and-measure philosophy allows students and postdocs in the group to take their own projects from start to finish. We synthesize a variety of molecules ranging from small-molecule inhibitors, non-natural peptides, probes for post-translational modifications in living cells and also use directed evolution to generate novel catalysts. In turn, we apply a host of spectroscopic, structural, and biological techniques to evaluate the properties and capabilities of newly synthesized molecules and catalysts, including FT-ICR mass spectroscopy, X-ray crystallography, quantitative kinetic analysis and cell biology techniques including tissue culture and subcellular organelle fractionation.



Kate S. Carroll

Katrin Karbstein

Assistant Professor of Chemistry
Ph.D., Stanford University
Biochemistry

We use a combination of approaches – including biochemistry, mechanistic enzymology, chemical biology, protein engineering and yeast genetics - to study eukaryotic ribosome assembly at the molecular level. Our ultimate goal is to understand the function of assembly factors, the order of events as well as the rationale for this order, aiming to delineate principles important for the assembly of other large RNA-protein complexes, such as the spliceosome or the signal recognition particle.

Ribosomes are large macromolecular machines that catalyze protein synthesis in all cells. Groundbreaking work in bacteria has provided insight into the order of binding of ribosomal proteins to ribosomal RNA (rRNA) and has given a structural and thermodynamic rationale for this order. However, in eukaryotic cells the assembly process is much more complex, requiring a macromolecular machinery of > 170 proteins and > 70 RNAs. While we know that this machinery is absolutely essential, we have little understanding of the function of the individual players. By



Katrin Karbstein

taking a biochemical approach to study these proteins, which is complemented by in vivo work in the yeast *S. cerevisiae*, we are pioneering the study of the molecular function of these proteins. To tackle this fascinating problem we have focused on subcomplexes and their functions. Specific projects include:

Chemical Biology Tools for Dissecting Ribosome Assembly

- To rapidly isolate unstable intermediates in ribosome assembly we will establish small-molecule control over ribosome biogenesis. Intermediates will then be purified and analyzed by mass spectrometry and RNA structure mapping. By analyzing distinct assembly intermediates we will establish a ribosome assembly map.

The Role of an Essential GTPase in Ribosome Assembly

- GTPases act as molecular switches triggered by hydrolysis of GTP to GDP. Using mutagenesis and kinetic analysis we are dissecting in molecular detail how the switch operates in the essential ribosome assembly factor Bms1. In addition we are characterizing structurally and functionally a novel RNA binding site within Bms1.

RNA Conformational Changes in Ribosome Assembly

- DEAD box proteins are ATP-dependent enzymes that catalyze unwinding of RNA structures and dissociation of RNA-binding proteins. They are ubiquitously involved in ribosome assembly, yet their function in this process remains unknown. We want to identify and characterize DEAD box proteins involved in a conformational switch that controls folding of the small ribosomal subunit.



Nicolai Lehnert

Nicolai Lehnert

Assistant Professor of Chemistry

Ph.D., University of Mainz, Germany

Bioinorganic Chemistry, Physical Inorganic Chemistry, Bioorganometallic Chemistry

Research that is currently pursued in my group is focused on the biological nitric oxide (NO) metabolism; i.e. the synthesis, function and degradation of nitric oxide in the biosphere. Nitric oxide is a poisonous gas, which, however, has proven to be of great biological significance. It plays a key role in nerve signal transduction, vasodilation, blood clotting and immune response by white blood cells. Many of the biologically important reactions of NO are mediated by heme proteins. Nitric oxide also occurs as intermediate in denitrification. Here, NO is produced by nitrite reductase (NIR) and further reduced to nitrous oxide by the nitric oxide reductases (NOR). Current research goals are the elucidation of the reaction mechanisms of the corresponding bacterial (NorBC) and fungal (P450nor) NORs, which catalyze the same reaction but utilize very different active sites and hence, reaction mechanisms. To this end, a dual strategy is applied. Firstly, “simple” model complexes of type $[\text{Fe}(\text{TPP}^*)(\text{L})(\text{NO})]^{n+}$ (TPP^* = tetraphenylporphyrin type ligand; $\text{L} = \text{N}$ -donor, thiolate, etc.) are synthesized, which allow for the routine investigation of the porphyrin substituent and trans-ligand effect on the coordinated NO. Complementarily, we are working on the synthesis of sophisticated model complexes for both NorBC and P450nor. These compounds are then investigated using a variety of spectroscopic techniques including vibrational (FT-IR and resonance Raman), magnetic circular dichroism (MCD), electron paramagnetic resonance (EPR), nuclear magnetic resonance (NMR), and Mössbauer spectroscopy in correlation with density functional theory (DFT) calculations. The results obtained are not only important for the understanding of the mechanisms of these enzymes, but are also relevant for the various biological functions of NO.

Besides the research on the biological role of nitric oxide, we are also very interested in the fields of (a) Bioorganometallic Chemistry; i.e. the conduction of organometallic chemistry in aqueous solution using proteins with modified active sites. In this respect, I am especially interested in the usage of small heme proteins for organometallic reactions. (b) Anti-Cancer Drugs based on Ru-NO compounds, especially their interaction with DNA, their photophysical properties, and their mechanisms of activation. These research areas are currently being developed in my group.

Faculty News

Anna Mapp (NSF) and **Melanie Sanford** (NIH) have been awarded 2005 Presidential Early Career Awards for Scientists and Engineers. They were two of fifty-six researchers honored on July 26, 2006 in a ceremony presided over by John H. Marburger III, science advisor to the President and Director of the White House Office of Science and Technology Policy. Each presidential award winner receives a citation, a plaque, and a commitment for continued funding of their work for five years from the agency that nominated them.

Anna Mapp received one of the three GlaxoSmithKline Chemistry Scholars Awards in 2005, an award recognizing excellence in synthetic chemistry and chemical biology. Anna also was named recipient of the 2006 Amgen Young Investigator Award to recognize scientific contributions and academic excellence. She received the 2006 Class of 1923 Memorial Teaching Award from the College of Literature Science and the Arts for the teaching of undergraduates. The 2007 Eli Lilly Award in Biological Chemistry, from the Division of Biological Chemistry of the American Chemistry Society will be awarded to Anna at the ACS national meeting in Boston in August, 2007.

Melanie Sanford has been awarded the Boehringer Ingelheim New Investigator Award in Organic Chemistry for 2004. She was recipient of the Bristol-Myers-Squibb Unrestricted Grant in Synthetic Organic Chemistry in 2005, and one of two recipients of an AstraZeneca Excellence in Chemistry Award for 2006. Melanie has been awarded a Research Corporation Cottrell Scholar Award (2006) for her ability to mount a strong research program and her contributions to teaching, particularly undergraduates.

Alfred P. Sloan Research fellowships have been awarded to **Melanie Sanford** (2006) and **Adam Matzger** (2005). These awards are intended to enhance the careers of the best young faculty members in various fields of science.

John Wolfe and **Melanie Sanford** were recipients of the 2005 Lilly Grantee Award in Organic Chemistry, (out of three grantees). John is also one of the 2006 Camille Dreyfus Teacher-Scholar awardees

for his accomplishments as a researcher and educator.

Kristina Hakansson has been awarded the American Society for Mass Spectrometry Research Award for 2005. She is also the recipient of an Eli Lilly Analytical Chemistry Award made to untenured faculty in recognition of their developing research program.

Ioan Andricioaei, Heather Carlson, Kristina Hakansson and **Melanie Sanford** received a 2005 National Science Foundation Career Award.

Heather Carlson received the Wiley International Journal of Quantum Chemistry Young Investigator Award (2006), and the College of Pharmacy's Student Appreciation Award for Excellence in Teaching (2005).

Mark Meyerhoff has been selected to receive the inaugural University of Michigan Rackham Distinguished Graduate Mentor Award for 2006. Mark was awarded the Charles N. Reilly Award in Electroanalytical Chemistry from the Society for Electroanalytical Chemistry at the March 2006 PittCon conference.

The 2005 ACS Division of Analytical Chemistry Award in Spectrochemical Analysis was awarded to **Raoul Kopelman** at a symposium in his honor at the Spring 2005 ACS meeting. Raoul has been appointed as the Richard Smalley Distinguished University Professorship of Chemistry, Physics, and Applied Physics. He was previously the Kasmir Fajans Collegiate Professor in the College of Literature, Science and Arts.

Michael Morris has been awarded the Mann Award given by the Federation of Analytical Chemistry and Spectroscopy Societies for achievements in applied Raman spectroscopy. He is also the recipient of the Meggers Award given by the Society of Applied Spectroscopy for the best paper in Applied Spectroscopy in 2005.

The Margaret and Herman Sokol Faculty Award in the Sciences were awarded in 2005 to **Vincent Pecoraro** and in 2006 to **Michael Morris**. This annual award recognizes distinguished contributions to graduate education, scholarship and research.

Carol Fierke was selected for the Distinguished Faculty Achievement Award for 2005 by the University of Michigan.

Carol also received the 2005 Power Award for her leadership, scholarship and sustained service on behalf of women.

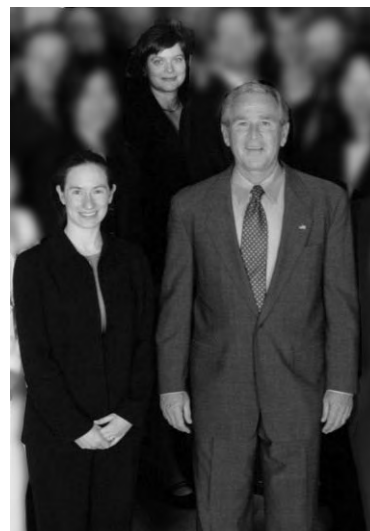
The 2006 James Flack Norris Award for Outstanding Achievement in the Teaching of Chemistry has been awarded to **Brian Coppola**. The award is given annually by the ACS Northeastern Section. It recognizes an individual whose dedication and excellence in the teaching of chemistry have had wide-ranging effects on the profession.

Dimitri Coucouvanis was elected a fellow of the American Association for the Advancement of Science, one of five University of Michigan faculty so recognized in 2006, for distinguished contributions to their field.

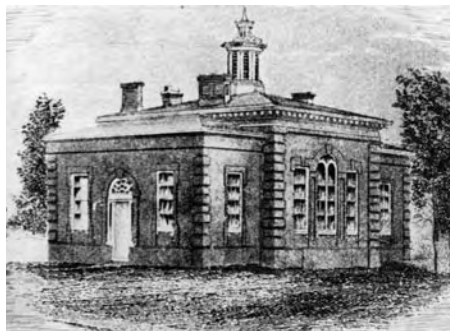
Roseanne Sension has been selected as a recipient of an LSA Excellence in Education Award for her special contributions to the College's educational mission.

Neil Marsh was admitted as a Fellow of the Royal Society of Chemistry. This honor is bestowed on individuals who have demonstrated "substantial career progression and who can offer evidence of seniority and maturity of experience in any field which involves or promotes the advancement or wider application of chemical science."

Jim Penner-Hahn will serve as LSA Associate Dean for the Natural Sciences for a three year term beginning September 1, 2006. He joins **Anthony "Rick" Francis**, Associate Dean for Budget, as a member of the College's senior staff.



Melanie Sanford, Anna Mapp and George W. Bush



1857 Chemistry Building



1908 Chemistry Building



1988 Chemistry Building

Michigan Chemistry 150th Birthday

In the fall of 1856, the Regents of the University of Michigan authorized the construction of the first chemistry building at a U.S. public institution with an allocation of \$2,500. Construction began in 1857.

To celebrate this anniversary, the Chemistry Department is planning two days of activities in the spring, 2007. The celebration will begin with the annual Pfizer-Chemistry Department symposium on Friday, May 11, 2007. The four speakers, yet to be announced, will focus on recent research at the interface of chemistry, chemical biology and medicinal chemistry. After these presentations, remarks to commemorate the history of the department will be made, and Harold Kroto (Nobel Laureate, 1966) will present an exciting chemistry talk of general interest, followed by a reception in the atrium. A banquet to which the department faculty and students invites its alumni and alumnae will conclude the day's activities. On Saturday, May 12, the department will have an open house with several workshops/presentations that highlight recent educational and research initiatives in the department. Educators and students from across Michigan and neighboring states will attend. For further information contact Nils Walter, Neil Marsh, Bob Kuczkowski or Brian Coppola, co-chairs of the events.

Celebration Dates

Annual Pfizer-Chemistry Symposium
Friday, May 11, 2007

Birthday Banquet Celebration
Friday, May 11, 2007

1st Annual UM Chemistry Research & Education Symposium
Saturday, May 12, 2007

*Details will be posted on the Chemistry Department website at
<http://www.umich.edu/~michchem>*

Graduate Program News

Graduate Student Awards 2005 & 2006

Departmental Awards

American Chemical Society Outstanding Graduate Student Award for Research and Teaching

This award is given by the Huron Valley Section of the American Chemical Society. It is intended to recognize achievement in teaching and research by a Graduate Student.

2005 – Christopher Price (Adam Matzger)

2006 – Jun Pan (Arthur Ashe)

Florence Fenwick Outstanding Graduate Student Instructor Award

Presented to Graduate students who taught undergraduate courses in Chemistry during the 2004-05 and 2005-06 academic years. Winners are chosen by their contribution to innovation in the lab or classroom, teaching evaluations, and faculty recommendations. These awards are provided from the Florence Fenwick Memorial Fund.

2005 – Mehmet Karabiyik (James Penner-Hahn)

2006 – Jiong Yang (Kristina Hakansson)

Wirt & Mary Cornwell Outstanding Graduate Student Research Award

Presented to Graduate students based on research advisor recommendation, publications, posters, meetings presented at, uniqueness of research and nature of research. These awards are provided from the Wirt and Mary Cornwell Prize.

2005 – Amelia Fuller (Anna Mapp), Christopher Price (Adam Matzger)
2006 – Qi Zhang (Hashim Al-Hashimi), Xiaoyun Chen (Zhan Chen)

Milton Tamres Outstanding Teaching Award

This award was provided by one of our emeritus faculty, Professor Milton Tamres. The award recognizes outstanding cumulative teaching service.

2005 – Mehmet Karabiyik (James Penner-Hahn)
2006 – Julie Adamson (Kristina Hakansson)

Robert & Carolyn Buzzard Graduate Chemistry Student Leadership Award

The Leadership Award is given to a graduate student who has shown the skills of a leader. The person takes an active role in the Department - assisting with graduate recruitment; working with faculty and staff to provide a better environment for graduate students; also serves as a morale and welfare support person. This award is provided by Bob and Carolyn Buzzard.

2005 – Jennifer Cunliffe (Robert Kennedy)
2006 – Amy Payeur (Robert Kennedy)

Dow Chemical Company Summer Support Award

This award is for a first year graduate student who has shown special promise doing research.

2006 – Matthew Leathen (Anna Mapp)

Seyhan Ege ADVANCE Travel Awards

The ADVANCE Travel Awards are given to female students who are interested in an academic career and will be attending a conference.

2005 – Sarah Buhrlage (Anna Mapp), Angela Fleischhacker (Rowena Matthews), Paweena Kreunin (David Lubman), Katherine Plass (Adam Matzger), Wei Tang (Raoul Kopelman), Hui Wei (Robert Kennedy)

Departmental Fellowships

Bristol-Myers Graduate Fellowship

2005 – Thomas Dineen (William Roush)
2006 – Lopa Desai (Melanie Sanford)

Eli Lilly Graduate Fellowship

2005 – Allison Dick (Melanie Sanford), Jana Sefcikova (Nils Walter), Jonathan Shackman (Robert Kennedy)
2006 – Xiaoyun Chen (Zhan Chen), Jeremy Holtsclaw (Masato Koreeda), Allison Dick (Melanie Sanford), John Hoerter (Nils Walter)

Margaret and Herman Sokol Graduate Fellowship in Chemistry

2005 – Stephen Caskey (Marc Johnson)

Novartis Graduate Fellowship in Organic Chemistry

2005 – Kami Hull (Melanie Sanford)

Pfizer Graduate Fellowship in Organic Chemistry

2005 – Joshua Ney (John Wolfe)

Rackham One-Term Dissertation Fellowship

2005 – Anthony Boitano (Gary Glick), Sara Woodcock (Zhan Chen)
2006 – Katherine Plass (Adam Matzger), Jana Sefcikova (Nils Walter), Xiaoyun Chen (Zhan Chen), Randy Lambertus (Richard Sacks)

Rackham Pre-Doctoral Fellowship

2006 – Matt Clarke (Zhan Chen), Cheryl Loch (Zhan Chen)

Regents Fellowships

2005 – Timothy DeVries (Edwin Vedejs), Trisha Duffey (Edwin Vedejs), Stephanie Gantt (Carol Fierke), Jonathan Mortison (David Sherman), Jesse Ward (James Penner-Hahn), Nissa Westerberg (Carol Fierke)
2006 – Stephanie Gantt (Carol Fierke), Jesse Ward (James Penner-Hahn), Jonathan Mortison (David Sherman), Anna Clark (Robert Kennedy)

Non-Departmental Fellowships

Eastman Chemical Company Focus School Fellowship

2006 – Julie Adamson (Kristina Hakansson)

Hertz Foundation Fellowship

2005 – Katie Mitchell-Koch (Adam Matzger)

Link Foundation Fellowship

2005 – Jesse Rowsell (Omar Yaghi)

National Aeronautics and Space Administration Fellowship

2005 – Steven Rowe (Anna Mapp)

National Science Foundation (NSF) Fellowship

2005 – Maria Rhodes (Walter), Thomas Sundberg (Gary Glick)
2006 – Kami Hull (Melanie Sanford), Thomas Sundberg (Gary Glick)

Natural Sciences & Engineering Research Council of Canada Fellowship

2005 – Jennifer Cunliffe (Robert Kennedy)
2006 – Jennifer Cunliffe (Robert Kennedy)

Rackham Merit Fellowships

2005 – Tara Lynn Conser (James Coward), Joseph Gallegos (Anthony Francis), William C. Johnson (Zhan Chen), Rebecca Tinsley (Nils Walter), Ricardo Lira (William Roush), Zikiya Norton (Anna Mapp), Lidaris SanMiguel (Adam Matzger), Salena Whitfield (Melanie Sanford)

2006 – Frank Vazquez (Eitan Geva), Michael Orozco (Roseanne Sension), Zikiya Norton (Anna Mapp), Lidaris San Miguel (Adam Matzger)

Rackham Science Awards

2005 – Max Bailor (Hashim Al-Hashimi), Christopher Cabello (Vincent Pecoraro), Anette Casiano (Hashim Al-Hashimi), SusAnn Winbush (William Roush)

2006 – Nicholas Ball (Melanie Sanford), Max Bailor (Hashim Al-Hashimi), Anette Casiano (Hashim Al-Hashimi), Christopher Cabello (Vincent Pecoraro)

Sloan Fellowship

2005 – Francisco Vazquez (Eitan Geva), Salena Whitfield (Melanie Sanford)

2006 – Ryan Casey (Anna Mapp)

Sokol International Summer Research Fellowship in the Sciences

2005 – Curtis Schneider (Vincent Pecoraro)

Training Grants

Cellular Biotechnology Training Program (CBTP)

2005 – Kristin Smith (Fierke)

2006 – Tamiika Hurst (Carol Fierke), Kristin Smith (Carol Fierke), Claire Chisolm (Robert Kennedy)

Chemistry-Biology Interface Training Program (CBI)

Training Grant provided by National Institutes of General Medical Sciences for research at the interface of chemistry and biology. Includes units of Chemistry, Biological Chemistry in the Medical School and Medicinal Chemistry in the College of Pharmacy.

2005 – Sara Buhrlage (Anna Mapp), Christopher Cabello (Vincent Pecoraro), Susan Deeter (Edwin Vedejs), Lindsey Gottler (Neil Marsh), Robert Rarig (Edwin Vedejs), Curtis Schneider (Vincent Pecoraro)

2006 – Sarah Buhrlage (Anna Mapp), Christopher Cabello (Vincent Pecoraro), Curtis Schneider (Vincent Pecoraro)

Graduate Assistants in the Area of National Need (GAANN)

Enhance teaching and research capacities of chemists to meet the needs of emerging industries vital to our technological competitiveness and to supply our colleges with faculty to meet the 21st Century teaching and research missions.

2005 – Robert Bates (William Roush), Andrew Boughton (Zhan Chen, Ioan Andricioaei), Claire Chisolm (Robert

Kennedy), Andrea Dawson (Marc Johnson), Alex Hansen (Hashim Al-Hashimi), John Henssler (Adam Matzger), Kami Hull (Melanie Sanford), Alan Kiste (Brian Coppola), Pascale Leroueil (Mark Banaszak Holl), Rajan Pragani (William Roush), Kendra Reid (Robert Kennedy), Shaelah Reidy (Richard Sacks), Randon Walker (Mark Banaszak-Holl)

2006 – Andrea Geyer (Marc Johnson), John Henssler (Adam Matzger), Jody Canapp (John Wolfe), Anne Desimone (Zhan Chen), Elizabeth Dethoff (Hashim Al-Hashimi), Nicolette Guthrie (John Wolfe), Andrew Higgs (Melanie Sanford), Alan Kiste (Brian Coppola), John Nelson (Edwin Vedejs), Matthew Remy (Melanie Sanford), Grant Sormunen (John Montgomery), Jessica Stover (Kevin Kubarych), Laura Zimmerman (Mark Meyerhoff)

Molecular Biophysics Training Program (MBTP)

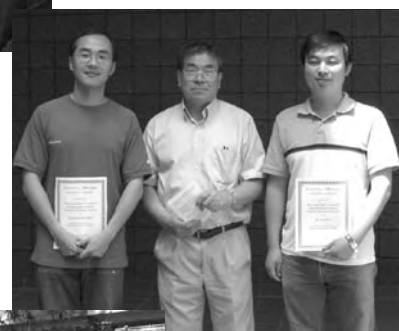
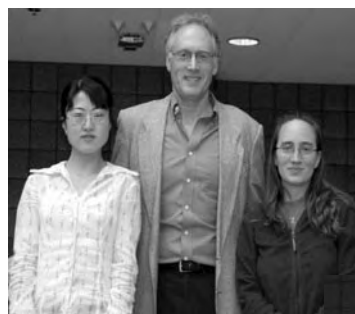
2005 – John Hoerter (Walter), Miguel Pereira (Walter)

2006 – Catherine Musselman (Hashim Al-Hashimi), Jesse Ward (James Penner-Hahn)

Pharmacological Sciences & Biorelated Chemistry Training Program (PSTP)

2005 – Heather Hartman (Fierke)

2006 – Amberlyn Wands (Anna Mapp)





Graduate Degrees - Masters & Ph.D

Doctorates for August, December, 2004

Chien, Tun-Cheng Townsend, Leroy B
Design, Synthesis and Biological Evaluation of Imidazo[4,5-c]pyrazole Nucleosides as 5:5 Bicyclic Analogs of Purine Nucleosides.

Harris, Dinari A Walter, Nils G
Conformational Changes and Metal-Ion Binding in the Hepatitis Delta Virus Ribozyme.

Hering, Kirk William Pearson W.; Marletta, Michael I.
I. The Synthesis of YC-1 Analogues for a Photoaffinity Study of Soluble Guanylate Cyclase. II. Synthesis of Kifunensine and Analogues as Inhibitors of Endoplasmic Reticulum Alpha Mannosidase I.

Stoy, Patrick Pearson, William
I. Completion of the Synthesis of Kopsia Lapidilecta Alkaloid(?) - Lapidilectine B. II. Synthesis of 1-Azabicyclo[N.3.0]alkanes via [3 + 2] Cycloadditions of Nonstabilized Azomethine Ylides.

Doctorates for May, December 2005

Buchanan, Stacey Anne Meyerhoff, Mark E.
Polyion-Sensitive Membrane Electrodes: Fundamental and Applied Studies.

Cao, Ganfeng Marino, Joseph; Koreeda, Masato
Development of a New Strategy for the Enantiospecific Synthesis of Aspidosperma Alkaloids: Total Syntheses of Aspidospermidine and Aspidophytine.

Cao, Youfu Kopelman, Raoul
Developing Optical Ratiometric Nanosensors/Nanoprobes for Biomedical applications.

Chen, Bin Mapp, Anna K.
I. Methodology Development for the Synthesis of Geminally Disubstituted beta-Amino Acids, beta-Proline Analogs and Allylic Amines. II. Progress Towards the Synthesis of An Artificial Transcription Activator.

Cheng, Mou-Chi Marsh, E. Neil G.
Mechanistic Studies of Adenosylcobalamin Homolysis in Glutamate Mutase.

Crane, Nicole J Morris, Michael D
Raman Microspectroscopic Studies of Normal and Pathological Musculoskeletal Tissues.

Dietz, Amber L Pearson, William
I. Synthesis of N, N-Bis(3-Butenyl)Amines from (2-Azaallyl)Nitriles. II. Synthesis of Highly Substituted Pyrrolidines from Cyclic CarbinolAmides. III. Synthesis of Potential Phototriggered DNA Crosslinking Agents.

Hartman, Heather Lynn Fierke, Carol A
Protein Farnesyltransferase and Protein Geranylgeranyltransferase Type I: Metal Requirements and Substrate Specificities.

Jameson, Emily Elizabeth Kennedy, Robert T.
Probing Bioaffinity Interactions by Capillary Electrophoresis: Application to G Protein Signaling.

Jeong, Sohee Fierke, Carol A
Functional Assemblies of Nanocrystal Quantum Dots on Microtubule Scaffolds.

- Kuntzleman, Thomas Scott** Yocum, Charles F.
Redox Chemistry of the Calcium-Manganese Cluster of Photosystem II as Probed by Chemical Reducing Agents.
- Kravitz, Joslyn Y** Carlson, Heather; Pecoraro, Vincent
Computational Studies of the Vanadium Dependent Haloperoxidase and Vanadyl-imidazole Complexes.
- Lewis, Kevin D** Matzger, Adam J.
Bergman Cyclization of Sterically Hindered Substrates and Cycloaromatization of Diethynyl Sulfides.
- Libardoni, Mark Jeffrey** Sacks, Richard D
Design, Development and Evaluation of a Resistively-Heated Thermal Modulator for Comprehensive Two-Dimensional Gas Chromatography.
- Liu, Christopher Matthew** Roush, William R.
Studies in Acyclic Diastereocontrol. I. Investigations into the Transition States of the Methyl Ketone Aldol Reaction and II. Studies Towards the Total Synthesis of Durhamycin A.
- McCarrick, Robert M** Yocum, Charles F.
Characterization of the Reaction Between N, N, N', N'-Tetramethyl-P-Phenylenediamine (TMPD) and the Photosystem II Mn Cluster.
- McGuigan, Megan E** Sacks, Richard D
Optimization and Application of Selectivity Enhancement Techniques for GC Separations using Series-Coupled Dual Column Ensembles.
- Ockwig, Nathan W** Yaghi, Omar M
Development and Illustration of a Unified Conceptual Framework for the Design of Extended Metal-Organic Structures.
- Park, Edwin Jay** Kopelman, Raoul
Optical PEBBLE Nanosensors and Fiber Optic Sensors for Real-time Intracellular Imaging and Analysis of Magnesium and Oxygen.
- Peng, Hailin** Kopelman, Raoul
Reaction Kinetics in Low-Dimensional Diffusion-Limited Systems: Experiments and Simulations.
- Price, Christopher Patrick** Matzger, Adam J.
Methods for and Implications of Controlling Solid Form in Organic Crystals.
- Rowell, Jesse** Yaghi, Omar M.
Hydrogen Storage in Metal-Organic Frameworks: An Investigation of Structure Property Relationships.
- Schaeffle, Nathaniel John** Sharp, Robert R
Nuclear Magnetic Resonance Paramagnetic Relaxation: Influence of the Electron Spin Energy Level Structure.
- Scheideman, Matthew Howard** Vedejs, Edwin
Heteroatom-Directed Intramolecular Hydroboration using Activated Borane Complexes.
- Shackman, Holly Merideth** Kennedy, Robert T.
Advances in Capillary Liquid Chromatography - Multi-Stage Mass Spectrometry for Online Monitoring of Neuropeptides and Neurotransmitters in Dialysate.
- Shackman, Jonathan G** Kennedy, Robert,
Monitoring Hormone Release from Islets of Langerhans via Rapid Electrophoresis-Based Immunoassays on a Microfluidic Chip.
- Sudik, Andrea C** Yaghi, Omar M
Design, Synthesis, Characterization, and Sorption Properties of Metal-Organic Frameworks and Polyhedra based on $[\text{Fe}_3\text{O}(\text{RO}_2)_6\text{L}_3]^{10+}$ Clusters.
- Sumner, James Patrick** Kopelman, Raoul
Development and Characterization of PEBBLE Nanosensors for Transition Metal Ions.
- Westerberg, Nissa M** Fierke, Carol A
Protein Based Fluorescent Biosensors for Small Molecule Analytes: Development, Optimization and Use.
- Wilson, Erin Elizabeth** Beck, Larry W.
Determination of Structure in Heterogeneous Solids using Heteronuclear Dipolar Coupling Solid State NMR.
- Wilson, Mark V** Beck, Larry; Sacks, Richard
Measurement of Quadrupolar Coupling Strength of Metals in Zeolite Materials.
- Woodcock, Sara E** Chen, Zhan
Interfacial Studies of Polymers and Proteins with Atomic Force Microscopy.
- Zaleski, Curtis M** Pecoraro, Vincent L.
Utilizing Metallacrowns to Develop New Single-Molecule Magnets.
- Zheng, Nan** Roush, William R.
I. Total Synthesis of Concept Molecule (CM) II. Progress Towards the Total Synthesis of Pectenotoxin 2.

Doctorates for May 2006

- Buchanan, Nathan S** Lubman, David M.
Studies of Human Breast Cancer Utilizing Two-Dimensional Liquid Separations and Mass Spectrometry
- Chen, Tso-Ching** Morris, Michael D.
Raman Spectroscopy for Study of Genetic and Metabolic Disorders of Bone Tissue.
- Haines, Brian Michael** Gland, John L.
Catalytic Hydrodechlorination of Chlorinated Aromatics on the Pt(111) Surface.
- Millward, Andrew R** Yaghi, Omar M
Adsorption of Environmentally Significant Gases (H_2 , CO , H_2S , CH_4) in Metal-Organic Frameworks
- Peris, Gorka** Roush, William; Vedejs, Edwin
Asymmetric Synthesis of the Quaternary Carbon of the Diazonamides.
- Tinsley, Rebecca Ann** Walter, Nils G.
Probing the Structure-Function Relationship of Two Non-Coding RNAs: The Hepatitis Delta Virus Ribozyme and glms Catalytic Riboswitch.
- Williams, Paul Douglas** Goldstein, Richard A.
Evolutionary Insights into Protein Structure, Stability, and Functionality.
- Zheng, Suping** Lubman, David M.
Proteomic Methods Development and Analysis of Proteomic

Response of Psychrobacter 273-4 and Escherichia Coli in Extreme Environments.

Zhu, Yi

Lubman, David M.

The Development of the 2-D Liquid Phase Mass Mapping Method as a Proteomic Approach and its Applications in Cancer Study.

Masters - August, December, 2004

Liu, Christopher Matthew
Rowell, Jesse
Va, Porino Jinjo
Wildon, Antony Ross
Yang, Jiong
Zhao, Jia
Haldar, Suranjana
Li, Jingjing
Touw, Debra S

Roush, William
Yaghi, Omar
Roush, William
Vedejs, Edwin
Kennedy, Robert
Lubman, David
Penner-Hahn, James
Woodard, Ronald
Pecoraro, Vincent

Masters - May, August, December, 2005

Davidson, Joseph David
Desai, Lopa Vrushank
Grzesiak, Adam Leo

Ashe III, Arthur
Sanford, Melanie

Hay, Michael Bryan
Mo, Jingjie
Ney, Joshua Edward
SanMiguel, Lidaris
Bartolin, Jeffrey
Gottler, Lindsey Marie
Hansen, Alexander Louis
Lewis, Kevin D
Musselman, Catherine Anne

Wolfe, John
Hakansson, Kristina
Wolfe, John
Matzger, Adam
Banaszak Holl, Mark
Marsh, E Neil
Ramamoorthy, A.
Matzger, Adam
Andricioaei, Ioan; Al-Hashimi, Hashim

Masters - May, 2006

Dishinger, John Francis
Gawlik, Gayle Marie
Hunt, Kathryn Sensenig
Kristalyn, Cornelius Bruce
Nakhla, Josephine Saad
Payeur, Amy Lynn

Kennedy, Robert
Mapp, Anna

Chen, Zhan
Wolfe, John P
Meyerhoff, Mark.;
Sacks, Richard
Kennedy, Robert
Coucovanis, Dimitri
Penner-Hahn, James

Pei, Jian
Wang, Lin
Ward, Jesse Dylan

Organic Symposium, October 16, 2006

David Madar (BS, 1992) from Abbott Laboratories and David Collum from Cornell University were the industrial and academic speakers at the department's organic mini-symposium on Oct. 16, 2006. The event is underwritten by Abbott Laboratories. Graduate students Ms. Dipa Kalyani (Sanford group) and Mr. Josh Ney gave outstanding oral presentations. Dipa spoke on new approaches in C-H bond activation using a Pd(II)/Pd(IV) catalytic cycle. Josh talked about his work on developing new Pd-catalyzed syntheses of nitrogen heterocycles. Chemistry graduate students won four prizes for poster presentations. First prize: Adam Grzesiak (Matzger group), "Application of Polymer-Induced Heteronucleation to the Polymorphic Analgesics Flurbiprofen and Sulindac." "Second Prize: Trisha Duffey (Vedejs group): "Chiral Nucleophilic Catalysis: Synthesis and Rearrangement of O-acylated oxindoles". Third prizes: Gayle Gawlik (Mapp group): "Triplex-forming Oligonucleotide-based Artificial Transcriptional Activators". Nick Ball (Sanford group): "Palladium-Catalyzed Fluorination and Trifluoromethylation of Carbon-Hydrogen Bonds".

Graduate Student Council News

The graduate student council (GSC) organizes several events for the chemistry department throughout the year to support the student body and reach out to the community. This year one of our goals was to provide an avenue for students to get involved in department fundraising at a level they could afford. Thus, at the start of the year we put together our first ever departmental fund

raiser, a department wide "penny war". In the penny war each student class, the staff, and the faculty competed against each other to see who could collect the most pennies. Water jugs were put out for 4 weeks to collect each team's pennies. Additionally by putting non-penny currency into another team's jug one could bring their score down. The staff won followed closely by the first year students and graciously donated the price of their prize to the proceeds. We had a great time and were able to raise \$800 for the department, which went to the Richard D. Sacks Memorial Travel Award fund. We received great feedback and hope to hold this event annually.

In the spring we held an ice cream social in conjunction with the student awards ceremony, and during the summer organized a staff appreciation day to honor our great staff for all of their hard work. We also sponsored a student trip to a Tigers game this summer. We coupled the baseball game with a canned-food drive collecting 150 cans of food which were donated to the Food Gatherers. We continued our big sib/little sib program this year in which senior students are paired up with incoming students to provide support during their transition to Ann Arbor and graduate school, and during new student orientation organized lunches between the big and little sibs. And of course, this fall we held our annual barbecue to start off the semester and welcome the new students into the department.

This year the GSC Officers and Representatives were Allison Dick, Andrew Higgs, Catherine Musselman, Claire Chisolm, Chris Avery, Gayle Gawlik, Jody Canapp, Jennifer Cunliffe, Kendra Reid, Matthew Leathen, Marisa Macnaughtan, Nick Cellar, Amy Payeur, and Meagan Wagner.

Undergraduate Program News

Research Experience for Undergraduates (REU) Program

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.



For the past 16 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, engaged in joint efforts that encourage educational discovery through a range of learning perspectives. The REU program reflects the Department's conviction that collaborative intellectual relationships are an essential component of successful learning experiences. 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.

In response to the increasing requests from non-U.S. citizens for summer research experience such as the REU program provides, the UM Rackham Graduate School this year provided matching funds to bring two such undergraduate researchers onto campus in an expansion of the traditional program.

Summer 2005

Student	Home University	Advisor
Felix Chavez	University Incarnate Word	Sherman
Albert Coombs	Kenyon College	Al-Hashimi
Sean Gant	University of Michigan	Banazak Holl
Ashley Garner	Texas Southern University	Woodard
Christopher Grant	University of Michigan	Vedejs
Steven Harris	Langston University	Mapp
Stephen Leonard	Indiana Wesleyan Univ.	Coward
Dalvin M. Hernández	Universidad Metropolitana	Matzger
James Patterson	Indiana University	Walter
Jennifer Reece	Grinnell College	Sacks
Norma Iris Rodriguez	U of Puerto Rico-Mayaguez	Coward
Josephine S-Tenkoramaa	College of Wooster	Matzger
Christen Strollo	Muhlenberg College	Kopelman
Abbey Sjogren	Saint Cloud State Univ.	Pecoraro

Summer 2006

Student	Home University	Advisor
Alexander Buck	Northern Michigan Univ.	Carlson
Matthew Elliott	Auburn University	Meyerhoff
Sabrina Wells	Truman State University	Meyerhoff
Dalvin Mendez	University Metropolitana	Matzger
Lindsay Fay	Kettering University	Goodson
Vanessa Guzman	Stanford University	Sanford
Rosaura Padilla	Colorado Springs	Wolfe
Julia Silveira	University of Rochester	Coward
Marsha Ng	Univ. Hawaii	Andricioaei
Hannah Burseson	Catawba College	Hakansson

Undergraduate Awards

2005–2006

AIC/Alumni Biochemistry Award

2005 – Lev Prasov (Mapp)
2006 – Amber Warnat (Schacht)

AIC/Alumni Chemistry Award

2005 – Rebecca Farmer (Townsend)
2006 – Andy Tsai (Matzger)

Alpha Chi Sigma (AXE) Outstanding First Year Student Award

2005 – Katie Lutker
2006 – Sarah Carmen

American Chemical Society (ACS) Analytical Chemistry Award

2005 – Andy Tsai (Matzger)
2006 – Kearly Engle (Matzger)

American Chemical Society (ACS) Huron Valley Section Outstanding Senior-Leadership Award

2005 – Costas Lyssiotis (Glick)
2006 – Alison Hardin (Wolfe)

Alumni Achievement Awards

2006 – Elise Jeffrey

Alumni Achievement Award Outstanding First Year Student

2005 – Andrew Kim, Justin Lomont, Corina Mommaerts, Sara Na
2006 – Grace Lee, Kurun Oberoi, Rebecca Kow, Jeffrey Simon

Alumni Achievement Award Outstanding Second Year Student

2005 – Susie Chen
2006 – Hana Russo

Alumni Achievement Award Outstanding Third Year Student

2005 – Xin Li
2006 – Osman Yilmaz (Matthews)

Alumni Achievement Award Outstanding Senior Student

2006 – Carissa Orizondo (Uhler)

CRC Outstanding Freshman Achievement Award

2005 – William Geisert
2006 – Christina Krokosky

Jerome & Isabella Karle Natural Science and Math Prize Nominee (Honors)

2005 – Lev Prasov (Mapp), Rebecca Farmer (Townsend)

Sidney Fine Teaching Prize Nominee (Honors)

2005 – Costas Lyssiotis (Glick)

Seyhan N. Ege - WISE Award

2005 – Melissa Gondert (Walter)
2006 – Andrea Haber (Glick)

Seyhan Ege UG Research in Chem

Sarah Isquick (Glick)

Honors College Vanko Award

2005 – Sanyo Tsai (Coward)
2006 – Bethany Schroeder (Sherman)

Barry M. Goldwater Scholar

2005 – Eric Chanowski (Coppola)

Florence Fenwick Memorial

2006 – Ashley Tan (Penner-Hahn)

Florence Fenwick Memorial Scholarships

2005 – Lara Czabaniuk, Amber Warnat
2006 – Alan Commet (Yocum), Lara Czabaniuk (Koreeda)

Florence Fenwick Outstanding Senior Award

2005 – Alan Poon, Zachary Tolstyck
2006 – Andy Tsai (Matzger), Jia Wang (Banaszak Holl), Amber Warnat (Schacht)

Lubrizol Scholarship

2005 – Kathryn MacKool (Koreeda)
2006 – Justin Lomont (Coppola)

Margaret and Herman Sokol Scholarships

2005 – Meghan Dubois, Justin Lomont
2006 – Yihe (Yao Yao) Guan (Glick), Samuel Eaton, Sarah Carmen, Tiffany Chen (Koreeda), Osman Yilmaz (Matthews)

National Starch Scholarships

2005 – Andy Tsai (Matzger), Osman Yilmaz (Matthews), Alice Zheng (Schacht)
2006 – Marty Tam (Koreeda), Kathryn MacKool (Koreeda), Katherine Kurnit (Saper)

Pfizer Synthetic Organic Scholarship

2005 – Kathryn MacKool (Koreeda)

Merck Index Award to Outstanding Seniors

2005 – Kevin Hagedorn (Yaghi), Luke Janik (Fierke), Bethany Percha, Ralph Petty III (Uhler), Todd Senecal (Koreeda)
2006 – Gloria Jih (Ballou), Henry Lu (Fierke), Eric Chanowski (Coppola), Melinda DeSantis (Kaufman), James Mainero (Rasmussen), Jia Wang (Banaszak Holl)

Summer Research Awards

Alumni Award

2005 – Alice Zheng (Schacht), Xin Li (Koreeda)
2006 – Robert Clarren (Wolfe)

David W. Stewart Memorial

2006 – Nicholas Preketes (Geva)

Dow Chemical Company

2005 – Daniel Tai (Pecoraro)
2006 – Walter Haberaecker (Koreeda)

Gomberg Scholarship

2005 – Cindy Lin (Menon), Milad Sharifpour (Coppola)
2006 – Justin Lomont (Coppola), Katie Lutker (Matzger)

Gomberg Alumni Award

2006 – Tiffany Chen (Koreeda), Alan Commet (Yocum)

James E. Harris Scholarship

2005 – Andrea Haber (Glick), Jia Wang (Banaszak-Holl)
2006 – Yihe (Yao Yao) Guan (Glick), Brian Haber (Ninfa)

Eli Lilly Organic

2005 – Walter Haberaecker (Koreeda)

Margaret & Herman Sokol Endowment

2005 – Waseen Anani (Sanford), Lara Czabaniuk (Koreeda)
2006 – Chelsea Durgan (Ballou)

PPG Scholarship

2005 – Barry Leonard (Johnson), Robert Dood Jr. (Johnson)
2006 – Gloria Lee (Marsh), Kathryn MacKool (Koreeda)

Walter R Yates

2005 – Eric Chanowski (Coppola), Osman Yilmaz (Matthews)
2006 – Whitney Carlson (Pecoraro), Rahul Neogi (Ramamoorthy)



Bachelors Degrees

August, December, 2004 and May, 2005

Chemistry

Amina-Louise Asabigi
Stephen Chung
Rebecca Farmer
Richard Fredricks
Adrian Gasperut
Andrew Getsoian
Ian Gifford
Landon Greene
James Haskins IV
Steven Kaneti
Rami Kassis
Karen Kehbein
Falen Lockett
David Mitchell
Robert Murphy
Julie Pannuto
Amy Putin
Kathleen Rainey
Joel Schraub
Todd Senecal

Matthew Tennis
Zachary Tolstyka
Eric Watt
Brian Wiers
Sarah Zeile

Biochemistry

Eseroghene Agari
Uzoma Anyanetu
Ebinehita Arhebamen
Matthew Bai
Jeremy Berman
Kyle Bolduc
Rachelle Caoagas
Brantley Carlson
Jacob Carlson
Tracy Chapman
Kenny Chen
Joseph Colombo
Elizabeth Cooper
Ken Gelhaus

Geoffrey Giarmo
Zubair Giga
Melissa Gondert
Bianca Gruber
Amy Harlow
Katharine Heeringa
Anna Hodges
Luke Janik
Austin Johnson
Arieh Kestler
Jonathan Lee
Suheung Lee
Angela Liang
Costas Lyssiotis
Juie Mahajan
Mark McCubbin
Michael Oleyar
Michael Palte
Bhumit Patel
Dilesh Patel
Ravi Patel

Ralph Petty III
Mary Pinter
Alan Poon
Sahand Rahnama-Moghadam
Krishna Rangarajan
Kara Rudolph
Michael Schoonover
Janice Shih
Erin Shovlin
Alexander Shune
Neil Sink
Jordan St Charles
Ellen Swenson
Jennifer Szabo
Sanyo Tsai
Ramona Vanel
Vitaly Volberg
Jeffrey Wargo
Natalie Wolters
Yun Xie
Wee Sing Yek

December, 2005 and May 2006 Graduates

Chemistry

Amina-Louise Asabigi
Maxim Burgman
Eric Chanowski
Mun Choe
Christopher Cornelio
Dawn Cushman
Raquel Daboul
Richard Fredricks
Anshu Giri
Christopher Grant
Jason Grunewald
Kush Gulati
Andrea Haber
Niles Harding
David Hucul
Erin Larkspur
Barry Leonard
James Mainero
Kate Mazur
Scott Milam
Melissa Osquist
Sanjaykumar Ramoliya
Derek Rothhaar
Andrew Scarpelli
Amy Taylor

Andy Tsai
Henderson Williams
Jason Wong

Biochemistry

Shailesh Agarwal
Olga Astapova
Matthew Bai
Maxim Burgman
James Carson
Han Chang
Eric Chanowski
Dharmraj Chauhan
Divya Chillapalli
Courtney Crocket
Raquel Daboul
Melinda DeSantis
Latoyia Floyd
Amanda Gomez
Eric Holmberg
Gloria Jih
Paul Johnson
Joseph Kenwabikise
Akihisa Kimura
Benjamin Lack
Eric Liao

Cindy Lin
Yi Liu
Henry Lu
Rebecca Lynch
Nick Mank
Seyedeh-Neda Moezzi
Madani
Brett Mollard
Andrew Scarpelli
Bethany Schroeder

Eirwen Scott
Sheryl Serbowicz
Daniel Son
Michael Song
Alexandria Suchy-Mabrouk
Marty Tam
Amber Warnat
Marc Witcher
Stephen Zins



Gifts

Contributions from private and corporate donors received from July 1, 2004 – June 30, 2006

(* Indicates corporate matching funds.)

Alumni Discretionary Fund

Norman and Isabelle Arends
John Bauman
Timothy G. Bee
Rene Bergero
J.M. Goldberg and B.J. Burroughs
Cargill, Inc.*
Thomas Caughey
S. Thomas Cleveland
Alice S. Cohen
Eunice Fraser Connors
Alice S. Corey
Frederick Crane
Sue and John Delos
Richard and Judith Doyle
Dow Chemical Co. Foundation*
Dow Corning Co.*
Vincent P. and Roxanne M. Drnevich
David and Patricia A. Ebdon
Michele Green Eickholt
P. L. and Helen Fan
Larry Fink
Howard S. and Lori M. Friedman
Ralph E. Friedrich
Scott and Jackie Funt
Phyllis H. Garland
Howard Garrett
Erich Gess
Joel M. Goldberg
Michele Eickholt and Lee Green
David Hart
Kathy and Kurt Hillig
Terrance K. Hilty
Thomas Houser
IBM*
James and Irene S. Jackson
Marilyn Jacob
Theodore G. Jacob
Norman P. Jensen
Douglas and Sheryl Kalvin
Phyllis E. Karseboom
Dominick and Carol Ann Labianca
Robert A. Landowne
Antone Lott
George Lowrie
Kelly McGashen
James D. McLean
Merck Co.*
Monsanto Co.*
John M. Moote
Amos Newton
Edward D. North
Walter and Ruth Ann Opdycke
Gordon Parrington and Mary Ellen Heyde
James V. Pivnichny
Wayne and Carol Pletcher
Rayber LLC *
James and Jan Reh
Omar Robbins
John C. Rosemergy
Morley and Maureen Russell
Erich and Suzanne Schulz
John Vincent Scibelli
Ronald Seamans
Elaine G. Shafirin

Joseph and Alfreda Shepard
Kristi D. and Hilary E. Snell
Graham Stewart
Clarke and Ann Swayze
Jack Sweet
Walter and Audrey Syrkowski
Lazarus Thomas
3M Corp.*
Kelly Bruce Triplett
Robert C. Tripp
Howard Un
William KC Wong

Bachmann Memorial Lecture

Alice Carlson
Robert A. Gregg
Arthur C. Stevenson

Chair's Discretionary Fund

Mark M. and Jane Banaszak Holl
Diane H. Burley
John J. and Rosemary J. Callahan
Alice S. and Allen F. Corey
Comcast Corp.*
Lyubica Dabich
R. R. Damrauer
Carol Ann Fierke
David J. Hart
Jerome and Isabella Karle
Masato and Koko Koreeda
Robert L. and Ann E. Kuczowski
Eli Lilly & Co.*
Antone L. Lott II
Lucian J. Phillion Estate
The P&G Fund*
Edwin and Roberta Przybylowicz
Daniel J. and Jean L. Ricca
Erich and Suzanne E. Schulz
Joseph W. and Elfreda Shepard
Clark E. and Ann I. Swayze
3M Corp.*
Howard H. and Mary C. Un
Paul Zittel

Chemistry - Special Scholarships

American Chemical Society
BASF
Bristol-Myers Squibb Co.
John Campbell
CIBA Education Foundation
Dow Chemical Co.
Eastman Chemical Foundation
Eli Lilly & Co.*
Lubrizol Foundation
National Starch & Chemical Co. Fdn.
Novartis Institute for BioMedical Research
Pfizer, Inc.
PPG Industries Foundation
Proctor and Gamble*
Chemistry Dept Fund
Theodore and Phyllis Anderson
BASF*
Larry G. Bell
Betsey K. Blosssey
Boeing Co.*
Albert E. Champney
Ellen Tratas and George Contis
Renee I. Cribbins
Gregg and Loraine Dieckmann
David and Priscilla A. Ebdon
Elizabeth Hugel and Manfred Egerer
Kenneth and Anna C. Egger
Ralph E. Friedrich
Christopher Fulton
Thomas J. Giordano
Stewart E. Glover
Steven and Juliana Boerio Goates
Thomas W. Gougeon

Lynn Dean Hawkins
Steven P. Henry
Rebecca D. Henry
Roland Hirsch
James and Linda K. Holcombe
Walter M. Holloway
Jeffrey D. Hsi
Johnson & Johnson Fund*
Harold Kohn
Paul Martin Kovach
James and Jeanne Lagowski
Lockeed Martin Co.*
Metropolitan Life Fdn.*
Richard W. Loeppky
Annabel Muentner
Irvin W. Potts
Russell E. and Margaret G. Price
Walter E.F. Rupprecht
James M. Samanen
Klaus Schmiegel
Jack Sweet
Ching-Leou and Kelly Teng
James Hunter Thirtle
Lazarus D. Thomas
John K. Tomlinson
Veronica H. Wiley
Joel and Susan Wolfe
William Koon Chong Wong, Trust
Paul F. Zittel

Chemistry Dept. - Library

John Callen
Stephen L. Gaudioso
Janet C. Haartz
Irene C. Piscopo
James and Christine Sabatowski
Xerox Foundation*

Chemistry Graduate Fellowships

Dorothy M. Dolfini
Eastman Chemical Foundation*

Chemistry Strategic Fund

Thomas Adamson
Michael and Linda Balogh Balogh
J. Dolf Bass
Steven and Juliana Boerio-Goates
James L. Brewbaker
Jeanne A. Bucselo
Kathryn L. Burda
Diane M. Burley
Dan L. Curtis
Colleen M. DeKay
Virginia A. Dilkes
David and Shirley Emerson
Larry Fink
Bernam and Shirley S. Fraley
Charles Gallagher
Michael D. Gordon
Mark T. Goulet
Milton and Dorothy Heller
Mark E. Jason
Norman P. Jensen
Richard Hugh Kolloff
Robert and Ann Kuczowski
Patty Laswick
Ginny Shen Lin
E. Neil G. Marsh
Monsanto Co.*
Randolph K. Otto
Carlton Placeway
Thomas Michael Rosseeel
Helen S. Schaefer
James and Judith Seydel
Ginny Shen Lin
Merck Co.*
Claude F. and Louise W. Spencer
David R. Taylor
Evelyn P. Tyner

Edwin Vedejs
Paul Denzle Walker
Steven and Susan Zawacky

CSIE-Coppola; Teaching Award Gift

Frederick C. Matthaeci

Departmental Scholarships

Richard Bard
Randel and Ann Little
Timothy F. Merkel
Valero Energy*

Gomberg Lecture Series

E.I. Dupont DeNemours & Company

James E Harris Scholarship Fund In Chemistry

Marian Harris

Membrane Biophysics Symposium

Aldrich Chemical Company, Inc.
Bruker Biospin Corporation
Spectra Gases, Inc.
Varian, Inc

Milton Tamres Teaching Award

Irving and Frances Adler
Marjorie and Donald Carter

Other

Sheldon Shore

PECRUM Symposium

DuPont Automotive
Pfizer

Peter A.S. Smith Fellowship

Jerome Horwitz
Roy Pointer
Peter A.S. and Mary Walsh Smith

Richard D. Sacks Memorial Student Travel Fund

David R. Lisa M. Albers
Stephen and Ruby Meis Brewer
Bonnie Fox
Lawrence and Elizabeth Holzman
James C. and Tindera M. MacBain
Mark E. Meyerhoff
Michael D. and Leslie J. Morris
Christer E. Nordman
Teng-Ke J. Pang
Thomas Michael Rosseeel
James Windak and Patricia Bialkowski
Chemistry Department Staff

Robert & Carolyn Buzzard Grad Chem Student Leadership

Robert B. and Carolyn A. Buzzard

Robert Parry Scholarship Fund

Charles Leona Heitsch
Karen W. and Joseph G. Morse
Robert and Bonnie Paine
Duward Shriver
John and Mary Yoke

Margaret and Herman Sokol Fellowship

Margaret Sokol

Willard Memorial Lecture Fund

Richard and Beverly Northrop
George and Dorothy M. Towe
Graham Stewart

Alumni News

E-Mail your news: chem.alum@umich.edu

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.

Sultan Tawfiq Abu-Arabi (PhD 1982, Ashe) is president of Tafilina Technical University in Tafilina, Jordan. He is president of the Jordanian Chemical Society and also the Arab Union of Chemists.

Irving Adler (PhD 1970, Brockway) is president of iMag, LLC. Irving is manager Business Development North America for CRU International, a business intelligence and marketing information firm in commodity materials.

Norman Arends (BS 1967; MBA 69, UNC) has retired as president of Transatlantic Technologies. He resides in La Bouexiere, France.

Michael Bury (MS 2006) is working for GlaxoSmithKline in Philadelphia, PA.

John A. Campbell (BS 1987; MD 1993, MN). After three years as a Navy general medical officer, he went on to a neurosurgery residency at the Medical College of Virginia and is now in private practice in Jackson, TN.

Robert W. Carling (PhD 1975, Westrum) is Director of the Physical and Engineering Sciences Center at Sandia National Laboratories in Livermore, CA.

Charles R. Cornman (PD 1989-91, Pecoraro) is Director, Formulated Products, R&D, Grace Construction Products, W.R. Grace and Co in Cambridge, MA.

Liping Cui (MS 2006, Hakansson) is employed as Research Associate at Theravance, San Francisco, CA.

Pauline Farmer-Koppenol (MS 1999) is a Juris Doctor Candidate, Dec. 2006, UM Law School. After graduation she will be a patent attorney in Silicon Valley.

Stanley A. Forfa (BS Biochemistry, 1997) graduated from Michigan State University College of Osteopathic Medicine. He is pursuing an osteopathic internship and general surgery residency at Botsford General Hospital in Farmington Hills, MI.

Susan K. Gregurick (BS 1987) is assistant professor of chemistry at the University of Maryland, Baltimore County.

Terrence Hilty (PhD 1981, Rudolph) is Global Manager of the Knowledge Management Group at Dow Corning in Midland, MI.

Morton Z. Hoffman (PhD 1960, Bernstein) received emeritus status at Boston University after 44 years of service. Morton received the 2005 James Flack Norris Award for Outstanding Achievement in Teaching Chemistry from the Northeastern Section of the ACS. He will receive the 2007 National Award for Volunteer service to the ACS in the spring 2007 ACS meeting in Chicago.

Jerome Horwitz (PhD 1950, Smith; PD, Bachmann) retired as Professor Emeritus, Internal Medicine, Karmos Cancer Institute, Wayne State University School of Medicine after 49 years of publishing (and not perishing). Jerome synthesized the anti-AIDS drug AZT (GlaxoSmithKline) in 1964 hoping that it would be useful in cancer therapy. In 1985, the compound was found to be effective in slowing the growth of HIV, the virus that causes AIDS, demonstrating the serendipity of basic research.

Jeffrey Hsi (PhD 1990, Koreeda; JD Rutgers) is a patent attorney and partner at Edwards Angell Palmer and Dodge, LLP. He participated in a Town-Hall meeting in January 2005 arranged by the GSC to discuss career alternatives.

David M. Johnson (PhD 2000, Rasmussen) is assistant professor of chemistry at the University of Texas, San Antonio.

Douglas M. Kalvin (MS 1970, Marino; PhD 1985, Woodard) is senior research chemist at Abbott Laboratories in Abbott Park, IL.

Mark Klemp (PhD 1991, Sacks) is assistant professor of chemistry at the University of Wisconsin, Marinette.

Dominic A. Labianca (PhD 1969, Overberger), Professor of Chemistry at Brooklyn College of CUNY, is the recipient of the 2005 Brooklyn College Award for Excellence in Teaching.

Richard LeSar (BS, 1975; PhD 1981, Harvard) left Los Alamos National Lab to become professor and chair, Material Sciences & Engineering, Iowa State Univ.

Walter Maruszczak (BS, 1978) is a market development engineer at Ticona Co. advancing the replacement of metal and metal alloys in vehicles with engineering polymers and materials science.

Anderson Marsh (PhD 2003, Gland) is assistant professor of chemistry at Lebanon Valley College in Annville, PA.

James S. Mattson (PhD 1970, Mark) graduated from the George Washington University School of Law in 1971. He practiced Environmental and Land Use Law in the Florida Keys for 22 years. He remains interested in the science-law interface.

David Mendenhall (BS 1966) has retired as professor of chemistry at Michigan Tech University and is President of Eastern Sources, Inc. doing custom synthesis.

Richard S. Myers (PhD 1981, Groves) is Vice President for R&D, Performance Chemicals and Thermosets, Dow Chemical Co in Midland, MI.

Wayne Pletcher (PhD 1971, Wiseman) is president and CEO of Minnesota Technology, Inc, a provider of business consulting services.

Todd Ryder (MS 1996) completed his PhD in chemistry at the University of Rochester and is employed at a biotech company in Connecticut.

Dana Shea (PhD 2000-02, Morris) is Analyst in Science and Technology; Resources, Science and Industry Division, Library of Congress, Washington D.C.

Sheldon Shore (PhD 1957, Parry) of Ohio State University will receive the 2007 ACS Award in Inorganic Chemistry sponsored by Aldrich Chemical.

Aaron Small (PhD 2000, Pugh/Pecoraro) has joined Luna Innovations in Blacksburg, VA as a Senior Research Scientist.

John P. Snow (BS 1998; JD 2005) is a patent attorney at the firm of Leydig, Voit and Mayer, Ltd. in Chicago, IL

Graham Stoner (BS, MS 1951; PhD Tulane, 1956) is semi-retired and teaching part-time at Houston Community College.

In Memoriam

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



Richard D. Sacks, Professor of Chemistry, died peacefully at his home in Ann Arbor on February 11, 2006 after a courageous battle with cancer. He was 63.

Sacks received his BS from the University of Illinois in 1965, and his PhD from the University of Wisconsin in 1969. He began his career as an assistant professor in Ann Arbor that same year and was promoted to associate professor in 1974 and full professor in 1979. He served the Chemistry Department

as associate chair for graduate studies from 1987-1992.

During his 37 years as a faculty member, Sacks was an outstanding educator, teaching students the principles of analytical chemistry and instrumentation. Over this period, he was a driving force in modernizing the analytical chemistry curriculum. He developed completely new courses on chemical instrumentation at the undergraduate level and, at the graduate level, he introduced courses on electronic measurements and microcomputer control of instruments, as well as modern separations methods.

He served as mentor to many PhD graduate students, who have gone on to distinguished careers in academia, industry and government laboratories.

Professor Sacks was internationally recognized for his pioneering work on analytical instrumentation. During the early part of his career, his research focused on novel atomic emission spectroscopic methods including direct solid-sample elemental analysis. In the 1970's he developed exploding thin film platforms for solids analysis combining simplicity of sample introduction with unprecedented low detection limits. In the mid-1980s, he turned his attention to innovative approaches to high-speed gas chromatographic separations of complex mixtures of volatile organic compounds. His methodologies reduced measurement times for complex mixtures almost 100-fold and attracted great academic and industrial interest, eventually leading to formation, with several of his students, of a spin-off company, Chromatofast Inc., that commercialized instrumentation invented in the Sacks laboratory. In recent years he helped to lead efforts at the University to create wireless micro-analytical systems for environmental, homeland security, and deep-space applications. During his career, Prof. Sacks and his coworkers published more than 150 research papers on these topics.

Prof. Sacks is survived by his wife Kristine and his daughter Jenny. A public memorial service was held on March 9, 2006. The Richard D. Sacks Memorial Travel Award has been established to support yearly travel awards for analytical chemistry graduate students to present their research at technical conferences.

Margaret McCormick Sokol died in New York City on June 4, 2006. Margaret and her late husband Herman were long time friends and benefactors of the Chemistry Department and the University of Michigan.

Margaret and Herman Sokol received their undergraduate degrees from Montclair State College in New Jersey. At the beginning of their careers both taught high school math and science. Herman Sokol received an M.S. in chemistry from the University of Michigan in 1940 and subsequently received a Ph.D. in Organic Chemistry from New York University.

During World War II, Dr. Sokol was involved with the Rubber Reserve Corporation in the government's synthetic rubber program and later, with Heyden-Newport Chemical Corporation, now a part of Tenneco, Inc. He was one of the pioneers in the American antibiotic production program. After the war, Dr. Sokol was responsible for the design, construction and start-up of the first antibiotic plant built in Europe under the Marshall Plan. In the early 1950's, Dr. Sokol and several associates discovered the important antibiotic tetracycline and developed that basic processes for its manufacture which are used world-wide.



In 1962, Dr. Sokol joined the Bristol-Myers Company where he organized the company's international pharmaceutical program. In 1967, he was named President of the Bristol-Myers Company International Division. In 1976 Dr. Sokol became President of the Bristol-Myers Company. He retired in 1981.

Margaret Sokol taught high school mathematics for 15 years after graduation from Montclair State College. She then resigned her position to accompany her husband on all his world-wide trips, over a period of 20 years. She was active in the alumni affairs of the University of Michigan, New York University and Montclair State College. She served on the board of directors of the Whitehead Institute for Biochemical Research, was chairman of the Educational Foundation and was past director and historian of the American Association of University Women. Mrs. Sokol was a volunteer at the Metropolitan Museum of Art. She herself was an active and enthusiastic art collector and owned an extensive collection of modern art.

In 1984 Dr. and Mrs. Sokol established the Margaret and Herman Sokol Fellowships for the support of graduate students in the Chemistry Department. At the establishment of this Fellowship both Dr. and Mrs. Sokol expressed the desire to meet with the recipients and to hear about their careers. The first Sokol fellowship was awarded in 1985 when unfortunately Dr. Sokol died. Most of the awardees have met with Mrs. Sokol, either in New York or in Ann Arbor on her periodic visits to the campus. She believed that the help that she and Herman provided for these

young scientists carried Dr. Sokol's contributions into the next generation. During the visits several faculty here, particularly Professors Ashe, Curtis and Kuczkowski, became friends. Her last visit was in 2003 when she was able to meet several junior faculty members.

Over the years, Margaret saw new opportunities to help us. In 1990 she established the Sokol Scholar program for eight incoming undergraduate students who indicated an interest in chemistry and show academic promise. In 1991 she established the Margaret and Herman Sokol Faculty Award. This award is presented annually to a member of the faculty in LSA in the Department of Astronomy, Biology, Chemistry, Geology, Mathematics or Physics. Since that time Chemistry professors Kopelman, Morris, Pecoraro and Coucouvanis have received the award. In

1992, the Margaret and Herman Sokol International Travel grants were instituted to enable graduate students to work abroad.

The Department of Chemistry has very recently been informed of the Sokol's bequest to support programs in Chemistry and in LSA. The bequest provides two million dollars to endow the Margaret and Herman Sokol Chair in Medicinal Chemistry in the Department of Chemistry. One and a half million dollars will endow two graduate fellowships in Chemistry. An additional two million dollars will be used to establish the Margaret and Herman Sokol Faculty Award Fund for grants for research projects of exceptional promise. This award is for science departments in LSA.

This bequest means that Margaret and Herman Sokol's exceptional generosity will continue to be felt and appreciated by Michigan Chemists!

Jean W. Clappison (BS, 1948) passed away March 6, 2004.

Bob Cook, the former handyman for the department, died October, 11, 2006 at the age of 74. He retired in 1994 after working at the department for almost 15 years. To this date, many of Bob's creations are still in active use.

Don Eden (BS, 1966; PhD 1971, MIT) died on Aug 23, 2000. He was professor of chemistry and biochemistry at San Francisco State University. The Eden Academic Excellence Award in Chemistry and Physics has been established for upper level undergraduates.

Walter Kilbourn Duerkson (PhD 1967, Tamres) passed away on Oct. 12, 2005. He was employed with Y-12 in Oak Ridge as a research chemist with 38 years of service.

Howard Hetzner (BS Illinois; PhD 1939, Schoepfle/Gomberg) passed away on Oct. 30, 2004. Hetzner worked as a research chemist for Standard Oil of California at the Richmond refinery. He served as a petroleum specialist for the Petroleum Administration during the War from 1942-44 in Washington D.C. and for the Atomic Energy Program in Livermore. After appointments with Standard Oil in Phoenix, AZ and San Francisco, CA, he became Manager of Product Engineering and retired in 1977.

Alan Hutchcroft (PhD 1969, Lawton) died on Oct 8, 2005. He was Professor Emeritus of Chemistry, Rockford College, where he had served over 36 years.

Oliver Johnson (BS Northern Michigan; PhD 1943, Fajans) passed away on July 10, 2001. He worked on the Manhattan Project at Iowa State College (now Univer-

sity) contributing to the extraction of pure metallic uranium, making nuclear reactors possible. In 1946, he became a research chemist for Shell Development Company Research Center in Emeryville, CA. After retiring in 1971, he continued research on the interstitial model of the electronic structure of metals and alloys with a series of appointments at academic institutions in the U.S. and abroad in China, Japan, Sweden, and France. As a member of the Federation of American Scientists, and throughout his life, he continued to be concerned about the unprecedented dangers of nuclear war.

Bruce H. Justice (BS 1955, Dartmouth; PhD 1961, Westrum) died on Feb 22, 2005. He was employed by Dow Corning and retired from Allied Signal Corp in Buffalo NY in 1987. Bruce contributed to the development of rocket propellants for the U.S. Department of Defense as well as a variety of patent and proprietary processes used to manufacture integrated circuits. After retirement he lived in Traverse City where he continued research and publishing in the field of calorimetry and heat capacity data with Ed Westrum.

Gloria D. Manalo (MS 1944; PhD 1945, Willard) passed away on June 27, 2006 at the age of 88. After retiring she worked on a literature survey of studies of Philippine plants that was published with coauthor Maureen Genetiano for the National Research Council of the Philippines.

Richard E. Smalley (BS, 1965; PhD, 1973, Princeton) died on Oct. 25, 2005. Smalley shared the 1996 Nobel Prize in Chemistry with Robert Curl and Harold Kroto for co-discovering buckminsterfullerene commonly known as buckyball (C_{60}). This led to the new field of fullerene research on carbon

cage molecules and carbon nanotubes. Smalley began his career as a research chemist at Shell Chemical Co where he worked for 4 years after graduation from Michigan before pursuing the PhD. He undertook postdoctoral study at the University of Chicago with Donald Levy, Lennard Wharton and Daniel Auerbach where he helped to develop supersonic nozzle beam techniques applied to laser spectroscopy. This interest eventually led to the experiment in 1985 involving the laser ablation of carbon probed by mass spectrometry that produced C_{60} . In the latter decade of his career he became known for his influence on the nanotechnology field. He played a key role in creating the National Nanotechnology Initiative and became a spokesperson on the energy crises.

David W. Stewart (BS, 1935; PhD, 1939, Fajans) died May 9, 2004. He investigated isotope separation as a postdoc with Harold Urey at Columbia, and moved to Rochester, NY when this project was transferred to the Kodak Research Labs. He was detached to the Manhattan Project, in Oak Ridge, from 1942-44 to work on the magnetic separation of U-235. Stewart retired as Senior Laboratory Head of analytical instrumentation at Kodak in 1975. He was trustee, president, assistant controller and controller of the First Unitarian Church in Rochester over 30 years. He is survived by his two sons. The David W. Stewart Memorial Fund has been established in his memory in the department.

Charles (Chuck) E. Woodard (BS, 1951) passed away on Oct 31, 2002. Since retiring from Reflexite Corp in 1994, Chuck volunteered for Habitat for Humanity, AARP as a teacher of 55 Alive courses and was a deacon at his church.

Faculty

Hashim M. Al-Hashimi, Assistant Professor of Chemistry; Assistant Research Scientist, Biophysics Research Division. *Chemical Biology*.

Ioan Andricioaei, Assistant Professor, Chemistry; Research Assistant Professor, Bioinformatics. *Chemical Biology*

Arthur J. Ashe III, Professor of Chemistry; Professor, Macromolecular Science and Engineering. *Organometallic Chemistry*.

Mark M. Banaszak Holl, Professor of Chemistry; Professor, Macromolecular Science & Engineering. *Synthetic and Mechanistic Solution, Surface, and Solid State Chemistry*.

John R. Barker, Professor of Atmospheric, Oceanic and Space Sciences; Professor, Chemistry. *Chemical Kinetics, Atmospheric Chemistry*.

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. *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*.

James K. Coward, Professor of Medicinal Chemistry; Professor, Chemistry. *Bioorganic Chemistry and Medicinal Chemistry*.

Barry Dunitz, Assistant Professor. *Theoretical and Computational Chemistry*

Carol A. Fierke, Chair, Jerome and Isabella Karle Collegiate Professor of Chemistry; Professor, Biological Chemistry. *Biological 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. *Bioorganic Chemistry, Molecular Recognition*.

Theodore Goodson, III, Professor of Chemistry; Professor, Macromolecular Science & Engineering. *Physical Chemistry*

Kristina Hakansson, Dow Corning Assistant Professor. *Analytical Chemistry*.

Marc J. A. Johnson, Assistant Professor. *Inorganic Synthesis*

Katrin Karbstein, Assistant Professor. *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*

Nicolai Lehnert, Assistant Professor. *Bioinorganic Chemistry, Physical Inorganic Chemistry*

David M. Lubman, Professor of Surgery; Professor, Chemistry. *Biological Mass Spectrometry, Spectroscopy and Instrumentation*.

Anna K. Mapp, Associate Professor of Chemistry; Professor, Medicinal Chemistry. *Organic Chemistry, Chemical Biology, New Synthetic Methods*.

E. Neil G. Marsh, Associate Professor of Chemistry; Associate Professor, Biological Chemistry. *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*.

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, Associate Professor of Chemistry; Associate Research Scientist, Biophysics Research Division. *Structural Studies of Biological Molecules*.

Melanie Sanford, Assistant Professor, *Organometallic Chemistry*.

Roseanne J. Sension, Associate Professor of Chemistry; Associate Professor, Physics. *Physical Chemistry, Ultrafast Laser Spectroscopy*.

Robert R. Sharp, Professor. *Multidimensional and Multiquantum NMR of Paramagnetic Systems*.

David H. Sherman, John G. Searle Professor of Medicinal Chemistry; Professor, Microbiology and Immunology; Professor, Chemistry; Research Professor, Life Sciences Institute. *Medicinal Chemistry*

Jadwiga Sipowska, Lecturer IV. *General Chemistry*

Edwin Vedejs, Moses Gomberg Collegiate Professor of Chemistry. *Organic Chemistry*.

Nils G. Walter, Associate Professor of Chemistry; Associate Research Scientist, Biophysics Research Division. *Chemical Biology*.

John P. Wolfe, Assistant Professor. *Organometallic Chemistry*.

Ronald W. Woodard, Professor and Chair of Medicinal Chemistry; Professor, Chemistry. *Medicinal Chemistry*.

Edward T. Zellers, Professor of Environmental and Industrial Health; Professor, Chemistry. *Environmental-Analytical Chemistry*.

Erik R. P. Zuiderweg, Research Scientist, Biophysics Research Division; Professor, Biological Chemistry; Professor, Chemistry. *NMR Studies of Biomacromolecular Conformation and Dynamics in Solution*.

Professors Emeriti and Emerita: Lawrence S. Bartell, S.M. Blinder, M. David Curtis, Thomas M. Dunn, Seyhan N. Ege, B.J. Evans, Adon A. Gordus, Henry C. Griffin, Robert L. Kuczkowski, Richard G. Lawton, Lawrence L. Lohr, Daniel T. Longone, Joseph P. Marino, Christer E. Nordman, Paul G. Rasmussen, Peter A.S. Smith, Leroy B. Townsend, Edgar F. Westrum, Jr., John R. Wiseman

University of Michigan
Department of Chemistry
930 N University
Ann Arbor MI 48109-1055

NON-PROFIT
ORGANIZATION
US POSTAGE
PAID
ANN ARBOR, MI
PERMIT #144

Address Service Requested

Nondiscrimination Policy Statement

The University of Michigan, as an equal opportunity/affirmative action employer, complies with all applicable federal and state laws regarding nondiscrimination and affirmative action, including Title IX of the Education Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973. The University of Michigan is committed to a policy of nondiscrimination and equal opportunity for all persons regardless of race, sex, color, religion, creed, national origin or ancestry, age, marital status, sexual orientation, disability, or Vietnam-era veteran status in employment, education programs and activities, and admission. Inquiries or complaints may be addressed to the University's Director of Affirmative Action and Title IX/Section 504 Coordinator, 6041 Fleming Administration Building, Ann Arbor, Michigan 48109-1340, (734) 763-0235, TDD (734) 647-1388, FAX (734) 763-2891.