

## Inside

Chair's Letter .....	2
Faculty News .....	3
Faculty Profile.....	6
Undergraduate Program News.....	7
Graduate Program News.....	8
Alumni News .....	10
In Remembrance .....	12
Gifts .....	14
Alumni Reply Form .....	15
Save the date! .....	16

## UM Chemistry on the rise

**Our graduate program is now ranked #15 in the nation.**

**Two specialties are ranked in the top ten:**

- **Analytical at #7**
- **Organic at #9**

**Biochemistry is #13.**

\* latest US News & World Report Rankings



## CSIE|UM Aims to Prepare the Next Generation of Chemistry Faculty

This fall the UM Department of Chemistry launched Chemical Sciences at the Interface of Education | University of Michigan or CSIE|UM (pronounced “cesium”.) Built on twenty years of experience in exploring ways to prepare the next generation of chemistry faculty, CSIE|UM is a comprehensive program for broadening the education of our students at all levels: undergraduate and graduate students, and postdoctoral fellows who are interested in academic careers.

“The exciting change, starting in 2014, is our decision to institutionalize these activities as a part of our core mission,” explains Brian P. Coppola, professor of chemistry, who has been developing these activities throughout his career and directs the CSIE|UM. He has been appointed the department’s first Associate Chair for Educational Development and Practice.)

CSIE|UM takes the familiar model of research groups and expands the idea by teaming up chemistry faculty members with chemistry students to work on education projects, explains Coppola. Postdoctoral associates can participate in a dual mentorship research and teaching position, where they get a teaching assignment as a lecturer in addition to their work as a member of a research group. Graduate students can apply for Future Faculty Graduate Student Instructor (FFGSI) positions, take their cognates in education, and earn an MS degree in Post-Secondary Science Education. There are many opportunities for undergraduates to participate in peer-led instruction and to be part of any of the department’s teaching teams.

“We are also interested in building a network of our alumni who are in academic positions, and connecting them with the future faculty cohort,” says Coppola. If you would like to be on the mailing group for CSIE|UM Network, please send us a message or sign up at the CSIE|UM website: <http://sites.lsa.umich.edu/csie-um/>

## Chemistry By the Numbers

Faculty	40
Graduate Students	241
Undergrad credit hours	33,621
Facilities	180,299 sq. ft
Sponsored Research*	\$16.5 million

\* FY 13; others figures FY14

### Support CSIE|UM

The Department has designated a development fund for supporting CSIE|UM activities. See the inside back cover for information on how to donate to this fund.



*Carol Fierke, Jerome and Isabella Karle  
Distinguished University Professor of Chemistry  
Chair, Chemistry Department  
Professor, Biological Chemistry*

*She has received the Thomas Emil Kaiser  
Award from the Protein Society and was  
named a 2014 American Chemical Society  
Fellow.*

### Department of Chemistry Newsletter

University of Michigan  
Department of Chemistry  
Ann Arbor, MI 48109-1055

Chair: Carol Fierke  
Editors: Arthur J. Ashe, III  
Suzanne Tainter  
Alumni News: Arthur J. Ashe, III  
Robert Kuczkowski

#### Web Address:

[www.lsa.umich.edu/chem](http://www.lsa.umich.edu/chem)

Email: [chem.alum@umich.edu](mailto:chem.alum@umich.edu)

#### The Regents of the University of Michigan:

- Michael J. Behm, Grand Blanc
- Mark J. Bernstein, Ann Arbor
- Laurence B. Deitch, Bloomfield Hills
- Shauna Ryder Diggs, Grosse Pointe
- Denise Ilitch, Bingham Farms
- Andrea Fischer Newman, Ann Arbor
- Andrew C. Richner, Grosse Pointe Park
- Katherine E. White, Ann Arbor
- Mark S. Schlissel, *ex officio*

A Non-discriminatory, Affirmative Action Employer

### Greetings!

Perhaps you remember that cesium compounds burn with a blue color. How apt then, that the pronunciation of the element is how we now say the name of our reinvigorated future faculty preparation program, Chemical Sciences at the Interface of Education–University of Michigan or CSIE|UM. This innovative program, which you can read about on page 1, is indicative of the energy and excitement in chemistry at Michigan over the last year.

We are pleased to announce that Stephen Maldonado and Bart Bartlett were promoted to the associate professor rank this year and Robert Kennedy was named a Distinguished University Professor; also promoted was Dentistry professor Kenichi Kuroda, who has an appointment in Chemistry and mentors our students.

Read about our research directions, including studies that Brent Martin will undertake with an NIH Innovator Award. He was one of 50 early career scientists across the country to receive this award. Our faculty lead more than 130 sponsored research projects, with research expenditures of \$16.5 million last year.

Many of our alumni and colleagues from the last 35 years likely remember Mark Meyerhoff. Catch up with his research and teaching activities in the profile on page 6.

Chemistry is also leveraging collaborations with other units. LUMOS (Laboratory for Ultrafast Multidimensional Optical Spectroscopy) is being developed with a \$1.4 million major instrumentation grant from the National Science Foundation obtained by Jennifer Ogilvie (BioPhysics), Kevin Kubarych (Chemistry) and others. Though the lab will be housed in the physics building, it will be a true multidisciplinary instrument with applications spanning biophysics to materials science, proteins to organic photovoltaics.

Our facilities and teaching staff keep busy maintaining our 180,300 square feet of research and teaching spaces. This year we renovated space to create two new biochemistry teaching labs needed to support our growing Molecular Biosciences major. Congratulations go to our staff for obtaining sustainability certification for our teaching labs.

We are deeply committed to enhancing undergraduate education, including participation in a NSF-sponsored REBUILD Project: STEM Education Under Construction to change the culture of STEM instruction.. Read about the plans that Associate professor Anne McNeil has for her \$1 million HHMI grant for improving undergraduate education.

Our summer undergraduate research experience programs provided more than 30 students with important opportunities to experience the excitement of research and to envision a career in chemistry.

Student interest and employment outlook have combined to motivate us to develop two new MS degree options. The Accelerated Degree Program (ADP) offers outstanding undergraduate students a way to earn a five-year, research-based combination BS/MS degree. In Fall 2016, we will launch a one-year MS degree, designed to upgrade the academic experience of post-graduate students and employees in the chemical industry. You will want to read through the impressive list of forty-three women and men who earned doctorates over the last year. You can get a flavor of the graduate experience in Chemistry from a newly-created video you can view from our website. There is much more to be found on our department and research group websites. Take a look at [www.lsa.umich.edu/chemistry](http://www.lsa.umich.edu/chemistry).

We are grateful for your financial support that allows us to continue to maintain excellence in our programs. Your contributions underlie all our work—from support for awards for undergraduates and graduate students to major infrastructure included in our Victors for Michigan campaign priorities. This year, the Chemistry Department was the beneficiary of two bequests that will provide scholarship support and improve the staff facilities.

Interested in knowing more about current research and in meeting our students? Mark your calendar for the Vaughan Symposium on August 7, 2015. At this event, graduate students share their work through talks and poster sessions. The symposium will be followed by an informal dinner for alumni and students. We hope to see you there.

In the meantime, please stop by when you are in Ann Arbor and let us know what you are doing by dropping us a line.

Best wishes,

Carol Fierke

*Jerome and Isabella Karle Distinguished University Professor of Chemistry  
Chair, Chemistry Department; Professor, Biological Chemistry*



## Distinguished University Professorship for Kennedy

Robert T. Kennedy became the Hobart Willard Distinguished University Professor of Chemistry this September. He joined the University of Michigan in 2002, after postdoctoral work at North Carolina and a decade on the chemistry faculty at the University of Florida. Kennedy's research interests are analytical chemistry, and its application to neuroscience, endocrinology, and biotechnology. His research team has developed instrumentation for measuring neurotransmitters, and identifying changes in neurotransmitter concentrations associated with behavior and diseases. He has developed methods for studying insulin secretion, including at the single cell level. His group is also researching the use of rapid electrophoretic and mass spectrometric assays as novel approaches to high-throughput screening for drug recovery. He has published close to 200 peer-reviewed papers on these topics.

He has received two MERIT awards from the National Institutes of Health, a Presidential Faculty Fellowship, a Sloan Foundation Fellowship, a McKnight Award for Technical Innovations in Neuroscience, and a Golay Award for Achievements in Chromatography among others. He was recently listed as one of the most influential analytical chemists in the world by *The Analytical Scientist* magazine. He has served the University as director of the Microfluidics in Biomedical Sciences Training Program and is presently associate editor of *Analytical Chemistry* and analytical director of the Michigan Regional Comprehensive Metabolomics Research Core (MRC2) supported by the National Institutes of Health.

His productivity in research is matched by his dedication to training and mentoring. Kennedy has graduated 50 Ph.D. students and trained 19 postdoctoral fellows. They have moved on to successful careers in industry, academia, and government laboratories. His teaching has been recognized with several awards.

Hobart H. Willard (1881-1974) was a professor in the Department of Chemistry for almost half a century, during which time he became a leader in the era of instrumental analysis in modern analytical chemistry.



**Robert T. Kennedy** was named the Hobart Willard Distinguished University Professor of Chemistry effective this September. A Distinguished University Professorship recognizes exceptional scholarly achievements, national and international reputation and superior teaching and service. It is one of the most prestigious of the University's recognitions.

## Martin receives \$2M NIH Innovator Award to map oxidative stress in cells

Oxidative stress in our bodies is an unavoidable consequence of breathing and eating, but when it gets out of balance, it's implicated in cancer, neurodegenerative diseases, heart disease, diabetes and aging itself. To pinpoint how and where oxidative damage begins, chemistry professor Brent Martin is developing new technologies to map its effects on our cells.

Oxidative stress occurs in cells when "free radicals"—unstable, charged molecules of oxygen or nitrogen—latch on to proteins where they don't belong and inhibit the proteins' function. Martin and his research team have developed a way to see which proteins the radicals target.

"No one has been able to easily study these chemical modifications on proteins before," Martin said. "They haven't had the tools. Now, we can begin to understand the underlying biological processes that lead to damaged proteins in these diseases."

Martin capitalizes on the radicals' reactivity. He introduces chemicals that bind to the proteins damaged by free radicals. Such chemicals are known as tags, allowing precise analysis by protein sequencing, magnetic resonance imaging or by glowing fluorescent, highlighting regions of interest.

Harm to different proteins may lead to different diseases. The researchers believe they may have found a protein linked to Parkinson's disease, and chemicals they use for tags may be one of the ways the body protects against the tremor-causing condition. If it turns out they're right, the knowledge could help advance new ways to protect against Parkinson's disease, for example.—from *UM News*



**Brent Martin**, the William R. Roush Assistant Professor of Chemistry, has received a \$2.2 million Director's New Innovator grant award from the National Institutes of Health for the project

As part of NIH's "High Risk/High Reward" research programs, the New Innovator Awards support researchers doing "unusually innovative research." Martin is one of 50 researchers across the country to receive these awards in 2014.



*Anne J. McNeil has also been named an Arthur F. Thurnau Professor effective July 1. In addition she was awarded a 2014 Provost's Teaching Innovation Prize. McNeil is an associate professor of chemistry in LSA, as well as macromolecular science and engineering in the College of Engineering.*



*Theodore Goodson, III has been selected as a 2014 American Chemical Society Fellow. He has also received the 2014 Imes and Moore Mentorship Award by LSA. The award is presented to faculty members who have made exceptional contributions towards recruiting and mentoring students to the sciences from non-traditional backgrounds.*

## McNeil named HHMI professor, awarded \$1 million to improve chemistry education

Chemistry and engineering professor Anne McNeil is among the 15 scientist educators selected as Howard Hughes Medical Institute professors.

With a five-year, \$1 million grant for science education, McNeil will revamp a chemistry prerequisite, start a research partnership with Washtenaw Community College, and launch a summer science program for high school students.

"I was fortunate because I entered college with a passion for science and I had an amazing professor for my first semester chemistry course," McNeil wrote in her HHMI proposal. "As a professor of introductory chemistry courses, I have both the opportunity and responsibility to excite and nurture a similar passion for science in the approximately 300 undergraduates I teach each year."

She plans to bring the real world into the classroom to help engage students in Chemistry 211, a requirement for those majoring in science, technology, engineering and math, or STEM, fields. Roughly 2,000 students take 211 each year in large lectures, smaller discussion sections and lab periods. While McNeil sees this as an "extraordinary opportunity to nurture and transform how these students view science" she believes it's falling short. She found that 37 percent of those who sign up for a sequence of courses required for many STEM majors discontinue the sequence after they take the class.

"National trends show this can happen in response to uninspiring intro classes," McNeil said, "but I was shocked at the number."

The course is the first lab experience for many students, so it has to cover a lot of basics. "You can't exactly set up a complicated reaction from the start," McNeil said. "They have to learn how to pipette first."

Her plan is to come up with simple but interesting experiments that utilize crowdsourcing and focus on renewable resources. Instead of running chromatography on a Sharpie marker, for example, they might convert waste vegetable oil from a local restaurant into biodiesel for an area farmer's machinery. Students will help design and tweak the experiments. They can share their data and look for patterns. That's where the crowdsourcing comes in.

Transforming the UM class will be McNeil's initial focus. In future years, she'll work to attract more Washtenaw Community College students to pursue chemistry-related degrees at UM through summer research experience programs, advising and other means. She'll also start a summer polymer science program for high school students. The two week course will involve a hands-on lab.

HHMI professorships aim to drive more students into science, engineering and math to maintain American leadership in those fields. HHMI officials point out that much of the responsibility for sustaining excellence in science falls on the nation's research universities. "These scientists are at the top of their respective fields and they bring the same creativity and rigor to science education that they bring to their research," said HHMI President Robert Tjian. "Exceptional teachers have a lasting impact on students." —UM News

---

## Faculty News Round-up

**Hashim M. Al-Hashimi** has left the UM to join the faculty at Duke University.

**Emeritus professor Lawrence S. Bartell** has written a book of memoirs entitled, *True Stories of Strange Events and Odd People*. It is available directly from the publisher at [www.iuniverse.com](http://www.iuniverse.com).

**Bart M. Bartlett** has received the 2014 Class of 1923 Memorial Teaching Award for outstanding teaching of undergraduates. The award from the College of Literature, Science and the Arts recognizes teaching but is only given to individuals whose achievement and promise auger well for a productive career in scholarship.



**Julie S. Biteen** was named a Scialog Fellow by the Research Corporation and the Gordon and Betty Moore Foundation. She was also invited to present her work on plasmon-enhanced fluorescence at the American Chemical Society Younger Investigator National Awardee Forum.

**Nancy Kerner** has retired after 30 years as a Lecturer in the Department of Chemistry. She was honored at a reception in the Department in May.

**Masato Koreeda, Anna K. Mapp, Kathleen V. Nolte, Melanie S. Sanford and David H. Sherman** were recently inducted into UM chapter of *Phi Kappa Phi* National Honor Society. The mission of the society is to recognize academic excellence in all fields of higher education.

**Nicolai Lehnert** received the 2014 Individual Award for Outstanding Contributions to Undergraduate Education from LSA. He has also started an outreach program which has brought four high school students from Cass Tech in Detroit to the Department for a seven week research internship over the summer.

**Anna K. Mapp** has been honored with a 2014 Rackham Distinguished Graduate Mentoring Award. The award is given to tenured faculty members who have guided a substantial number of doctoral students with sustained respect and concern.

**Neil Marsh** has been selected as one of the Graham Institute for Sustainability's Distinguished Faculty Fellows. The award is in recognition of the Marsh laboratory's work on the discovery and characterization of new enzymes that may be useful in the construction of new metabolic pathways for producing biofuels.

**Pavel Nagorny** has received a National Science Foundation CAREER Award entitled, "The development of new stereo-selective organocatalytic processes based on reactions of oxocarbenium ions." Pavel has also received a 2014 Alfred P. Sloan Research Fellowship. The Sloan Program seeks to recognize the achievements of early career scientists.

**James E. Penner-Hahn** has been reappointed for a five-year term as Associate Dean for Budget and Planning for the UM College of Literature, Science, and the Arts.

**Kerri Pratt** has received the 2014 Starter Grant Award from the Society for Analytical Chemists of Pittsburgh. In addition she received the 2014 American Society of Mass Spectrometry Research Award. Both awards are in recognition of her outstanding promise and achievement in the fields of environmental chemistry, atmospheric chemistry, and mass spectrometry.

**Brandon Ruotolo** has been awarded the Eli Lilly and Company Young Investigator Award in Analytical Chemistry for 2013. He was selected for research excellence in developing and using mass spectrometry to investigate important biological problems.

**Melanie S. Sanford** is now an Associate Editor of the *Journal of the American Chemical Society*. She has also been recognized with a Faculty Recognition Award. This UM award is given to faculty early in their careers who have demonstrated substantive contributions to the University through achievements in scholarly research, excellence as a teacher, and service.

**Corey Stephenson** has received the 2014 EROS Best Reagent Award for his use of ruthenium(II) tris(bipy) dichloride.

**Nathaniel Szymczak** has been selected as a 2014 Alfred P. Sloan Research Fellow. He also received a National Science Foundation CAREER award "Design of Catalysts for Cooperative Small Molecule Activation" and the KIAST Chemistry Distinguished Lecture Award.



**Stephen Maldonado** has been awarded the 2014 Robert L. Kuczkowski Endowed Faculty Award based on his outstanding accomplishments in the department. He was promoted to associate professor this year.



**Alex Poniatowski** is a new Lecturer in the Chemistry Department. He graduated from the UM in 2003 with BS in Chem./Biochem. While a UM undergrad, he did research with Anna Mapp; Brian Coppola was his teaching mentor. He then moved to the University of Pittsburgh where he obtained his PhD in organic chemistry in 2009. He stayed on at Pitt teaching both organic and general chemistry until 2013. He was a lecturer at UM Dearborn before beginning his appointment with the Department in June.

## Mark Meyerhoff: Monitoring What Matters



Mark Meyerhoff, the Philip J. Elving Collegiate Professor of Chemistry, received the 2014 Ralph N. Adams Award in Bioanalytical Chemistry at PittCon 2014 in March.

This award recognizes significant contributions to the field of bioanalytical chemistry, broadly defined. It goes to someone who has introduced a significant technique, theory, instrument or application important to the life sciences, and provided an exceptional environment to educate bioanalytical chemists.

Meyerhoff joined the UM faculty in 1979; was promoted to associate professor in 1985, and professor in 1990. He is particularly interested in the development of new ion-, gas-, and bio-selective electrochemical sensors.

### Research Directions

Taking to heart a favorite maxim, “Don’t major in minor things,” Meyerhoff has parlayed his interest in analytical chemistry into ways to attack widespread medical problems. An electrochemical sensor now used in blood analyzers at a patient’s bedside in hospitals to measure carbon dioxide levels in blood was developed by Meyerhoff and a local company in the early 1980s. It has led to a 30-year consulting relationship with this product, now produced and sold all over the world by a larger biomedical company.

His research efforts have also taken on the ever-present risk of blood clot formation on blood-contacting medical devices, including intravascular catheters and extracorporeal circuits—the tubing used during coronary bypass surgery. A notable technology that uses extracorporeal circuits, called ECMO (extracorporeal membrane oxygenation), was developed by UM surgeon Robert Bartlett, who is a Meyerhoff friend and collaborator.

*“I tell my students I don’t like change. I’ve had the same job for 35 years, the same wife for 30 years, and consulted for the same biomedical product for 30 years.”*

Through ECMO, a patient’s blood can oxygenated outside the lungs for an extended time, allowing the lungs to develop fully in the case of premature babies or heal in cases of injury or disease. However, risk of platelet activation and clotting is a big problem in ECMO, which has required a continuous infusion of anticoagulants (e.g., heparin).

Preparing extracorporeal circuits, catheters, and other medical tubing that better mimic the endothelial cells that line normal blood vessels has been a goal of biomedical researchers. These cells release low levels of nitric oxide (NO) to keep blood vessels open by preventing activation of circulating platelets in the blood, and thus greatly reduce the risk of thrombus/clots.

The Meyerhoff lab has developed novel NO releasing polymers that have been used to coat the inner walls of the tubing. Some of these materials can release NO for up to 30 days. Meyerhoff and Bartlett have repeatedly demonstrated that such coatings can greatly reduce thrombus formation when tested in animal models of extracorporeal circulation.

The NO also interferes with the development of microbial biofilms and thus helps to prevent infections. Some 28,000 patients die each year in U.S. from catheter-induced infections within hospitals. The same NO release coatings used for ECMO circuits can be employed to prepare a new generation of intravascular catheters that have potent anticlotting and antimicrobial activities.

Most recently, his group developed a new electrochemical method to generate NO within multilumen catheters via reduction of nitrite to NO. As he explained to the PittCon conference, “I am very excited about our new method to generate nitric oxide (NO) from nitrite ions, electrochemically.” His group made catheters with tiny wire electrodes in a lumen. In *in vivo* studies of these devices, there were many fewer blood clots on the catheter surface and risk of infection was also reduced.

This new technology is inexpensive and robust, and can be applied to intravascular as well as urinary catheters, and can be used to create advanced wound healing patches, he says.

Another recent project in the Meyerhoff lab addressed whether diabetics could be

spared the frequent finger pricks to obtain blood for glucose monitoring. His research group wondered whether glucose levels could be measured in one’s tears. They assessed the sensitivity of various strips already on the market for monitoring blood sugar levels. Only one brand was sensitive enough to detect glucose levels reliably in tears.

Related to his interest in NO levels is a new project that takes the leap from devices to therapy. Often, persons plagued by sinus infections have low levels of the naturally antimicrobial NO in their sinuses. Chronic sinus infections spurred Meyerhoff to consider how he could develop a therapy that could alleviate this problem. Perhaps, he surmised, there is a way to boost NO levels in the sinuses to treat and prevent infections. A new company has just been formed, NOTA Laboratories, to pursue potential commercialization of this very exciting technology.

### Teaching Legacy

In addition to research, Meyerhoff has developed new lecture and lab courses. For the Winter 2011 semester, Meyerhoff taught the principles of modern analytical chemistry using measurements of biomedically important species of blood and urine from clinical chemistry as examples. Since the pilot class with six students, enrollment has doubled each year; for the Fall 2014 term, there were nearly 70 students enrolled. Popular among pre-med and other pre-health students, these courses are now required for the Department’s recently established Biomolecular Sciences major.

At the graduate level, over the past five years, ten new Ph.D. students have completed their dissertation research under his direction, for a total of 60 graduate students and eight postdoctoral scholars who have trained with him. Most of these trainees have gone on to academic positions in the U.S. and around the world. Meyerhoff is proud of his “academic children,” and considers having played a role in helping his students along their career paths his most significant accomplishment.

#### **Advice to undergraduates:**

Major in something that matters!

#### **Advice to 20-somethings trying to build careers in science:**

Find an area of science that you can be passionate about; so much so that ...you would gain satisfaction from that line of research or work even if you were not paid to do it!!





### Bachelors Degrees in Chemistry Awarded

Over the last year, 174 students earned undergraduate degrees in Chemistry. The Department welcomed graduates and their proud families to a reception in May held in the Chemistry Building atrium. See a list of the graduates, their majors, and the degrees earned on the Chemistry website: [www.lsa.umich.edu/chem/](http://www.lsa.umich.edu/chem/)

### American Chemical Society student chapter earns honors

The UM student chapter of American Chemical Society has received an honor mention for activities sponsored over the last year, one of to receive such honors. The ACS Green Chemistry Institute selected the

UM chapter to receive a Green Chemistry Award for activities over the 2013-2014 academic year. Associate professor Bart Bartlett is faculty mentor.

## Undergraduate Honors

The Department was able to recognize fifty-eight outstanding undergraduates at its annual award ceremony. Awards are made possible by generous donations from our alumni and friends. One is highlighted below. See the Chemistry website for information on each award and recent recipients.

### Alumni Outstanding Award

The Department of Chemistry presented its 2014 Alumni Outstanding Award for a Senior to **Sepideh Ashrafzadeh**.

Ashrafzadeh majored in biomolecular science, with a minor in international studies and global health through the LSA Honors Program. A member of the Shipman Society and Phi Beta Kappa, she is a frequent volunteer and recipient of numerous awards.

Through LSA's Undergraduate Research Opportunity Program, she connected with Dr. Sofia Merajver, a professor of internal medicine and epidemiology and director of the UM Cancer Center Breast and Ovarian Cancer Risk and Evaluation Program. She has worked in her laboratory for the last four years.

"I am involved in many things," she says. "But the common theme is nutrition, health and behavior. It ties everything together."

With a fellowship at the Harvard University School of Public Health, she is researching global dietary patterns, health policy and the economic benefits of healthy diets.

She plans to become a doctor and work on health policy in the Middle East, where diabetes and heart disease are rampant.

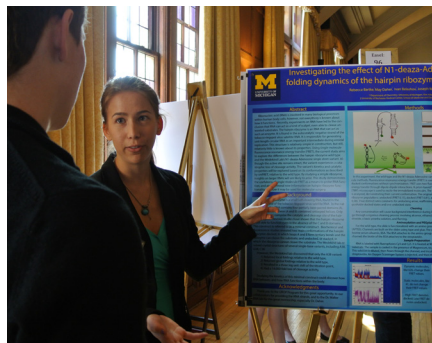
—excerpted from the *University Record*

Chemistry majors were also nominated for prestigious awards from among the entire UM student body.

### Astronaut Scholarship to Jain

Honors Chemistry major **Nirbhay Jain** has been selected to receive a 2014 Astronaut Scholarship. Created in 1984 to honor the Mercury 7 astronauts, the Astronaut Scholarship foundation seeks to promote the undergraduate careers of future STEM researchers. The scholarship offers \$10,000 and an invitation to an induction ceremony at the Astronaut Hall of Fame. Jain was also an Honorable Mention in the 2014 Goldwater Scholarship competition. His goal is to pursue an MD-PhD program. He also received a summer research fellowship and Huron Valley Section Outstanding Student Leadership Award.

UROP student Rebecca Bartke, who worked with Prof. Nils Walter's group, explains her project at the annual UROP symposium.



### Undergraduates in Research

Participation in undergraduate research is a long-standing tradition in the Department. These experiences are often transformative in shaping future careers.

There are with several avenues for getting involved:

- **Summer Research Experience:** A generous gift from an anonymous donor with matching funds from other donors has allowed the Department to double the number of students who can be supported for a research experience during the summer. This year, 31 students participated with department support.
- **Research Experience for Undergraduates:** A National Science Foundation-funded site since 1989, Chemistry hosted 18 students from around the country in the summer of 2014.
- **Research Match:** This program pairs chemistry majors and research faculty. It is a great learning experience that helps to further develop their problem-solving skills, laboratory techniques, and communication skills. Students earn academic credit.
- **UROP (Undergraduate Research Opportunity Program):** The department sponsored more than 20 students last year in this university-wide program that engages first year students in research.

### Fall 2014 Entering Students Begin Studies

This fall, Chemistry welcomed 43 new students to our graduate program. Coming from 33<sup>different</sup> institutions, the students will spend their first a year rotating through several laboratories before matching their interests with a particular research group. The graduate students settled into Ann Arbor with a week-long orientation that included brief introductions to research opportunities presented by each department research group, as well as extensive sessions on ethics and academic integrity. Other topics covered in depth included preparation for being a Graduate Student Instructor and laboratory safety.

### Graduate Students Awards

At this year's graduate award ceremony, more than eighty students were recognized with department, Rackham Graduate School and other awards, including eight students who received National Science Foundation Graduate Research Fellowships, a major achievement for one program. The complete list of awards and the award recipients is available on the Chemistry website: [www.lsa.umich.edu/chemistry/graduate/adwards](http://www.lsa.umich.edu/chemistry/graduate/adwards)

### M|CORE Offers A Preview of the Michigan Experience



First-year student Rosyln Kent

*Chemistry is expanding ways to let potential students, particularly those underrepresented in chemical sciences, see what graduate studies at Michigan has to offer. Now called Michigan Chemistry Opportunity Research Education (M|CORE), last year the program attracted Rosyln Kent, who participated from Xavier University in New Orleans, and is now a first year graduate student. We talked with her about her impressions of the preview weekend.*

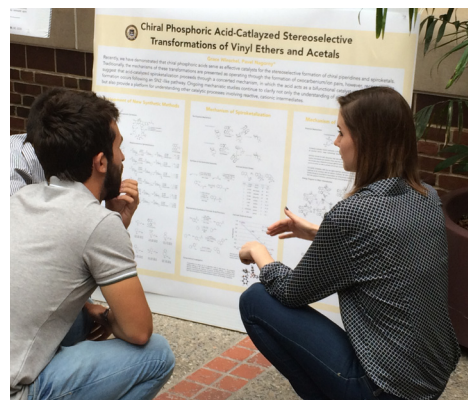
### Vaughan Symposium Showcases Graduate Student Research

More than 240 people attended the Vaughan Symposium on July 30, 2014. Designed and run by Michigan Chemistry graduate students, the symposium is a venue for sharing research taking place within the department. An annual tradition since 2003, the symposium helps foster collaborations, inspire new avenues of research, and nurture a growing sense of community within the Department. This year's symposium was chaired by Kimberley Daley of the Kubarych group.

The morning keynote speaker was Michael E. Mills, Dow Core R&D Fellow, Dow Chemical Company. He spoke on "Material Science Enabled New Product Development." The afternoon address, "From CO<sub>2</sub> Hydrogenation by Solar Produced H<sub>2</sub> to Photochemical Water Oxidation," was delivered by Etsuko Fujita, Chemistry Department, Brookhaven National Laboratory, Upton, NY.

Between the major addresses, six graduate students presented 25-minute talks:

Analytical: Wendi Hale, "Improved LC/FT-ICR MS for Interrogation of Natural Product Biosynthetic Enzymes, Au In Action, Au"



Graduate student Grace Winschel explains her poster at the 2014 Vaughan Symposium.

Materials: Casey Dougherty, "Increasing Fluorophore:Dendrimer Ratio Quenches Fluorescence Emission, Increases Cellular Uptake and Shows Different Intracellular Behavior in Fluorescence Lifetime"

Inorganic: Emily Nelson, "Enhanced Oxidative Stability of Magnesium Electrolytes through Modification of Lewis Acid/Base Pairs"

Physical: Bing Fu, Distance-Dependent Plasmon-Induced Fluorescence Enhancement of Single Molecules on a Gold Nanoparticle Substrate"

Chem Bio: Sriram Vaidyanathan, "Tracking the Transport of Intact DNA in Gene Delivery using FRET Labeled Beacons"

Organic: Zachary Miller, "Recent Advances in Regioselective Allene Hydrosilylation"

Three student posters sessions were held throughout the day. Awards were made for best posters and presentations. The Dow Chemical Foundation provides support for the travel awards. See the list of winners on the Chemistry website at: [www.lsa.umich.edu/graduate/vaughan](http://www.lsa.umich.edu/graduate/vaughan).

The symposium is named in honor of Victor C. Vaughan (1851-1921), one of the first students to graduate from UM with a PhD in Chemistry (1876). Subsequently, he earned an MD (1878), and went on to a distinguished career in medicine, including serving as Medical School dean (1891-1921) and president of the AMA (1914-15).

Mark your calendar for next year's symposium on August 7, 2015. It will be followed by an informal dinner for students, postdoctoral fellows, and alumni. See more on the back cover of this newsletter.



## Recent PhDs Awarded

Student	Committee Chair
Heidi Alvey <i>Sequence Specificity of Transient Hoogsteen Base-Pairs in Canonical Duplex DNA and Z-DNA Formation</i>	Al-Hashimi
Nicholas Babij <i>Stereoselective Annulation Reactions for the Asymmetric Synthesis of Tricyclic Guanidine Natural Products and Related Polycyclic Alkaloids</i>	Wolfe
Rachel Barnard <i>Structural, Thermodynamic, and Educational Considerations in Self-Assembly</i>	Matzger
Andrea Bell-Vlasov <i>Fundamental and Applied Studies of Electrochemical Methods for the Detection of Polyanion and Polycation Species</i>	Meyerhoff
Elizabeth Brisbois <i>Novel Nitric Oxide (NO)-Releasing Polymers and their Biomedical Application</i>	Meyerhoff
Karoline Chiou <i>Exploration of the Diverse Functions of Cytochrome P450 Monooxygenases Towards the Development of Biocatalysts</i>	Fierke/Sherman/Carroll
Debasis Das <i>Mechanistic Studies on Aldehyde Decarbonylase from Cyanobacteria: A New Enzyme for Alkane Biosynthesis</i>	Marsh
Bei Ding <i>Studying Orientation and Conformation of <math>\alpha</math>-helical Peptides at Interfaces</i>	Chen
Mahmoud El Azzouny <i>Development and Application of Metabolomics Techniques to Improve Understanding of Glucose and Fatty Acid Metabolism in <math>\beta</math>-cells and their Role in Insulin Secretion</i>	Kennedy
Wencheng Ge <i>NMR-Based Metabolic Profiling: Methods and Application in Cancer Biomarker Discovery</i>	Ramamoorthy
Deidra Gerlach <i>Synthesis and Characterization of Functionalized [4Fe-4S] Cubane Clusters and Linkage to Metalloporphyrins as Catalytic Sites</i>	Lehnert
Junsi Gu <i>Low-temperature Electrodeposition of Crystalline Semiconductor Materials</i>	Maldonado
Beth Haas <i>Mapping, Tracking and Modeling the Movements of Single Membrane-Bound Transcription Activator Proteins in Live <i>Vibrio cholerae</i></i>	Biteen
Linjie Han <i>Developing Ion Mobility-Mass Spectrometry for Measurements of Solution-Relevant Protein Structures</i>	Ruotolo
Xiaoguang Hao <i>Synthesis and Defect Structure Analysis of Complex Oxides for Li-Ion Battery Electrodes</i>	Bartlett
Martyn Haynes <i>Mechanistic Understanding as a Driving Force for Developments in Nickel-Catalyzed Coupling Methods</i>	Montgomery

Student	Committee Chair
Neil Hershey <i>Quantitative Microdialysis using Stable-isotope Labeled Neurotransmitters Improves Efficiency and Accuracy of Neurochemical Measurements.</i>	Kennedy
Rui Huang <i>Structural Study of Interaction between the FMN Binding Domain of Cytochrome P450 Reductase and Its Redox Partners - Cytochrome P450/Cytochrome c by NMR and NMR Characterization of Monomeric and Oligomeric Conformations of Human Calcitonin and Its Interaction with EGCG</i>	Ramamoorthy
Chelsea Huff <i>Cascade Hydrogenation of Carbon Dioxide to Methanol</i>	Sanford
Akiko Kochi <i>Development of Small Molecules to Target and Modulate Multiple Factors in the Neuropathogenesis of Alzheimer's Disease</i>	Lim
Ramya Krishnan <i>Understanding Pre-mRNA Dynamics in Single Spliceosome Complexes</i>	Walter
Janghyun Lee <i>Targeting Dynamic Structures of RNA Using Experiment and Computation</i>	Al-Hashimi
Se Ryeon Lee <i>Improved Nickel-Catalyzed Catalyst-Transfer Polycondensation via Ligand Design</i>	McNeil
Yuwei Liu <i>Surface Studies on the Structure and Functionality of Bioactive Materials</i>	Chen
Ansis Maleckis <i>Reactivity Studies of Catalytically Relevant Palladium Model Complexes</i>	Sanford
Sabrina Peczonczyk <i>Heterogeneous Organic Reactions on Gallium-Rich Gallium Arsenide, Gallium Phosphide, and Gallium Nitride Surfaces</i>	Maldonado
Ming Qin <i>Development of Targeted Hydrogel Nanoparticles as Delivery Vehicles for Cancer Therapy and Imaging</i>	Kopelman
Ron Smith <i>Photonic and Magnetic Nano- and Micro-Particles for Biomedical Applications: Detection and Destruction of Bacterial and Cancer Cells</i>	Kopelman
Lauren Soblosky <i>Molecular Interactions between Various Model Cell Membranes and Membrane Active Peptides Studied by Sum Frequency Generation Vibrational Spectroscopy</i>	Chen
Laura Thoma <i>Activity and Mode of Action for Methacrylate Polymers as Antimicrobial Agents against <i>Staphylococcus aureus</i></i>	Kuroda
Thu Truong <i>Probing the Role of Sulfenylation in Redox Regulation of Protein Kinases</i>	Mapp/Carroll
Mallory van Dongen-Sohmer <i>PAMAM Dendrimer as Quantized Building Blocks for Biomedical Applications</i>	Banaszak Holl

## Fall 2013 • Winter 2014 • Summer 2014

Student	Committee Chair
Anna Wagner <i>Controlling Site-Selectivity in Palladium and Platinum-Catalyzed C-H Arylation Reactions And A Novel Method to Prepare Aryl Sulfides from Thioethers</i>	Sanford
Ning Wang <i>Negative Ion Electron Capture Dissociation (niECD): A Novel Tandem Mass Spectrometric Technique</i>	Hakansson
Wen Wen <i>Synthesis and Nanoengineering of Gallium Phosphide Nanostructures for Photoelectrochemical Solar Energy Conversion</i>	Maldonado
Shan Yang <i>Determination of Population-Weighted Dynamic Ensembles of RNA Using NMR Residual Dipolar Couplings</i>	Al-Hashimi
Si Yang <i>Study of Nitrite Sensors Based on Co(III)/Rh(III)-Ligand Complexes as Selective Ionophores</i>	Meyerhoff
Hyung Ki Yoon <i>Multifunctional Nanoplateforms for Biomedical Imaging and Photodynamic Therapy</i>	Kopelman
Joseph Yourey <i>Photoelectrochemical and Photocatalytic Water Oxidation using Metal Oxides</i>	Bartlett
Fangting Yu <i>De novo Designed Metallopeptides with a Type 2 Copper Center: A Structural and Functional Model for Copper Nitrite Reductase</i>	Pecoraro
Melissa Zastrow <i>De novo Designed Metalloenzymes: Structural Stabilization and Hydrolytic Catalysis in a Family of <math>\alpha</math>-helical Coiled Coils</i>	Pecoraro
Chi Zhang <i>The Development and Applications of Nonlinear Vibrational Spectroscopy for Material and Biological Studies</i>	Chen
Yueyang Zhong <i>Development of Ion Mobility-Mass Spectrometry as a High-throughput Approach for Structural Genomics</i>	Ruotolo

## Masters Awarded

Alicea,Jeremiah	Qayyum,Hira
Arnholt,Kaitlynn Rose	Sebren,Leanne
Arruda,Brenden	Smith,Broc
Arthur,Evan	Tang,Pui-In
Cates,Chelsea	Wo,Yaqi
Cauble,Meagan	Xie,Yue
Chen,Yu	Yourey,Joseph
Doan,Phi	Yu,Fangting
Ileka,Kevin M	Zhang,Qi
Jackson,Evan	
Kimsey,Isaac	
Lee,Hyuck Jin	
Li,Yao	
McClory,Phillip	
Metz,Jordan	

**Saleem A. Al-Ahmad** (PhD 1990, Coucouvanis, Postdoctoral, Ashe) is the Regional Sales Manager, Middle East Sales for Lubrizol in Dubai, United Arab Emirates. He and his family visited the Department in August.

**Irv Adler** (MS 1967, PhD 1970, Brockway) has been recognized by the American Chemical Society as a 50 year member. Irv retired recently as Vice President of Business Development for CRU, a British economic analysis and market research consultancy. Previously he had been an independent consultant and prior to that he had worked as a technical executive in manufacturing and quality assurance.

**Jessica Anna** (PhD 2011, Kubarych) is now an Assistant Professor in the Chemistry Department of the University of Pennsylvania. She had been a postdoctoral fellow at the University of Toronto.

**David Badger** (MS 1966, PhD 1969, Parry) has been honored as a 50 year member of the ACS. He retired from teaching chemistry at Geneva College in 2004. Following retirement he and his wife Judy were involved in an archaeological dig in Tel Zeitah, Israel for several years. He also works with the Sports Car Club of America (SCCA) as a scrutineer, who inspects the race cars before and after the races. The Badgers have three children and two daughters-in-law who all have chemistry degrees.

**Nicolas Ball** (PhD 2010, Sanford) is an Assistant Professor at Amherst College. He has just received an American Chemical Society Petroleum Research Fund grant.

**Ryan Baxter** (PhD 2010, Montgomery) has joined University of California-Merced as an Assistant Professor of Chemistry.

**John A. Campbell** (BS 1987, MD 1993 U. Minn.) is a neurosurgeon and Chief of Surgery at St. Bernards Medical Center in Jonesboro, AK. He writes that helping his children with their chemistry classes brings back memories of his days at Michigan.

**Scott Damask** (BS 1993) has become the Director, Worldwide Medicinal Chemistry Operations for Pfizer in Groton, CT.

**Keary Engle** (BA Chemistry & Economics 2007) finished his PhD in a combined program at Scripps Institute, La Jolla and Oxford University. He is presently a postdoctoral fellow at the California Institute of Technology, where he is working in the laboratory of Nobel Prize winning Professor Robert Grubbs.

**Sister M. Lucy Gantt** (MS 2002, PhD 2006, Fierke) is an Adjunct Professor of Chemistry at Franciscan University of Steubenville. She is a Sister of St. Francis of the Martyr St. George (FSGM). After completing two years postdoctoral studies at the University of Illinois, Urbana-Champaign, Sister M. Lucy entered the convent. In August of 2012 she made her first profession of vows.

**Bert D. Gaster** (BS 1946, DDS 1950 NYU) writes that he is still full-time and active at 87 years of age at the NYU College of Dentistry. He had a private practice in Postodontics on Park Avenue in New York City from 1951-2006. He was president of the American College of Postodontics in 1981.

**Deidra Gerlach** (PhD 2013, Lehnert) is a postdoctoral fellow at the University of Alabama.

## Lindbergh's Mother a UM Chemistry Alum, Taught High School in Detroit

**Evangeline Lodge Land Lindbergh**, the mother of the famous aviator Charles A. Lindbergh, graduated from the University of Michigan in 1899 with a B.S. degree in chemistry. She was the progeny of two prominent Detroit families. Her mother was a Lodge, from a family of physicians. Her father, Dr. Charles Henry Land, was a dentist and inventor. Evangeline married Charles August Lindbergh, a Minnesota lawyer and Michigan graduate (1983, Law) in 1901. He died in 1924.

Evangeline taught high school chemistry before marriage in Minnesota and subsequently at Cass Technical High School in Detroit until 1942. She died in 1954 of Parkinson's disease. Her gravestone can be seen in Bloomfield, MI.

The aviator son did not follow his parents' example and attend Michigan. He went to the University of Wisconsin but left without a degree in 1922 to pursue his interest to learn to fly, and came to fame as the first to fly solo across the Atlantic Ocean in 1927.

Our interest in this history was stimulated by reading *The Aviators* (National Geographic Books, 2013) by Winston Groom. We thank alumnus Ed Przybylowicz for bringing this book to our attention. The Bentley Historical Library at UM also searched their records. She was a member of Collegiate Sorosis sorority. A short article of the Lindberghs' attendance at UM with their pictures appeared in the Michigan Alumnus magazine in April 1965.  
—Emeritus Professor R.C. Kuczkowski

**Maurice Green** (BS 1949, PhD 1954 UW-Madison) is being recognized as a 50 year member of the American Chemical Society. Professor and Chair of the Institute of Molecular Virology at the Saint Louis University School of Medicine, Green maintains an active research program on the molecular biology of viruses and their use to probe the cell biology of cancer. Among other awards, he has been honored by a Lifetime Research Career Award from the National Institutes of Health, the Dyer Lectureship Award, National Institutes of Health (1972), The Howard Taylor Ricketts Award, University of Chicago (1976) and the Peter H Raven Lifetime Award, Saint Louis Academy of Science (2002).

**Xiaoguang Hao** (PhD 2014, Bartlett) is now a research associate at Nissan North America in Farmington Hills, MI.

**Morton Z. Hoffman** (PhD 1960, Bernstein), Professor Emeritus at Boston University, has been honored with the Distinguished Contribution to Chemistry Education Award from the Committee on Chemical Education of IUPAC.

**George W. Kabalka** (BS 1965, PhD 1970 Purdue) was honored for his 50 year membership in the ACS. George is a Distinguished Service Professor of Chemistry at the University of Tennessee. He has had an outstanding research career involving the discovery of organoboron pharmaceuticals and the synthesis and use of radio



labelled pharmaceuticals. He has published over 575 journal articles and made over 660 research presentations.

**Douglas M. Kalvin** (MS 1978, PhD 1985, UM Medicinal Chemistry, Woodard) retired from Abbott Laboratories in 2007. Since 2008, he has been an adjunct faculty member at the University of Wisconsin-Parkside, University of Illinois-Chicago, North Park University, Lake Forest College and Roosevelt University.

**Asako Kubota** (PhD 2012, Sanford) has moved from Dow Agrosiences to Cooley LLP where she is working in the patent law area.

**Se Ryeon Lee** (PhD 2014, McNeil) is currently working at PPG Industries as a research scientist. He is looking forward to visiting the UM Department of Chemistry as a recruiter this fall.

**Hanaim Malik** (PhD 2010, Montgomery) is a Research Investigator at Novartis Institute for Biomedical Research.

**Cheryl Moy** (PhD 2012, McNeil) has joined the faculty at the University of North Carolina, Chapel Hill as a Lecturer.

Shahid Murtuza (BS 1994) was recently promoted to Project Manager at Roland Berger Strategy Consultants. Based in Boston, he works on a variety of strategic issues for executive clients in chemicals, oil & gas and other industrial sectors. He recently completed the Hajj pilgrimage to Mecca with his wife Noma. Shahid and Noma reside in West Newton, MA with their three children.

**Gordon A. Parker** (BS 1955) was honored as a 50 year member of the American Chemical Society. He completed his PhD in chemistry at Wayne State University in 1966. He then joined the University of Toledo, retiring as Professor of Chemistry in 1992. Following this he joined the faculty of the UM Dearborn Natural Sciences Department, retiring again in 2006.

**Edwin Przybylowicz** (BS 1953; PhD 1956 MIT) and **Roberta (Bobbi) Richardson Przybylowicz** (BS 1954) celebrated their 60<sup>th</sup> wedding anniversary in June with a reunion of the family and friends near their Finger Lakes, NY summer homestead. Since retiring from Eastman Kodak some 22 years ago, Ed has been busy in numerous advisory roles. He still is called upon by the National Academy (Washington DC) as a member of the Report Review Committee to provide fair and impartial reviews of several Academy reports a year before publication. Closer to home, he serves as a Board member of the Seneca Lakes Pure Waters Association. Bobbi serves as a docent for the Rochester Science and Museum Center and the George Eastman International Museum of Photography. They continue with their music pursuits. Bobbi plays her clarinet in the Webster Village Band and in the Penn Yan Band in the summer. Ed plays his accordion with two partners at various gigs at senior living places across the Rochester, NY area.

**Douglas J. Raber** (PhD 1968, Lawton) and his wife Linda have published their second book, *The Sapphire Legacy*, which features a cache of weapons-grade uranium which has been smuggled into the USA. It is available from Amazon.com. Douglas has been recognized as a 50 year member of the American Chemical Society.

**Melissa Reynolds** (PhD 2003, Meyerhoff) has been promoted to Associate Professor with tenure in the Department of Chemistry and the School of Biomedical Engineering at Colorado State Uni-

versity. She has received a National Science Foundation Career Grant and has been selected as Educator of the Year by the Colorado Biosciences Association.

**Robert W. Scheidt** (MS 1966, PhD 1968, Rasmussen), Warren Professor of Chemistry and Biochemistry at the University of Notre Dame, has been honored as a 50 year member of the ACS. He has retired from active teaching but continues to work on research projects at the Advanced Photon Source at Argonne National Laboratory. He is currently a Visiting Professor and Senior International Scientist at the Chinese Academy of Science in Beijing.

**Ronald A. Smaldone** (BS 2003, PhD 2008 U. Illinois) is an Assistant Professor at the University of Texas, Dallas where he is conducting research in Organic and Materials Chemistry. He received his PhD in Chemistry from the University of Illinois, Urbana-Champaign and was then a post-doctoral in the Stoddart laboratory at Northwestern University 2008-2012.

**Kara Stowers** (PhD 2012, Sanford) joined the chemistry faculty at Brigham Young University this fall. She was featured in an article about new faculty in C&E News on September 8, 2014.

**David Teegarden** (PhD 1972, Stiles) was honored as a 50 year member of the American Chemical Society. He writes that the first 17 years of his career involved teaching general and organic chemistry, first at the University of Wisconsin, Platteville and then at Saint John Fisher College in Rochester, NY. He then took an industrial sabbatical at Xerox where he learned polymer chemistry under the mentorship of Dr. **Tom Smith** (PhD 1973, Overberger). This led him to the Eastman Kodak Co. where he worked in research on polymer synthesis for almost 25 years. He retired in 2010. Since then he has devoted a portion of his time to leading workshops on the importance of polymers for high school teachers. He has also taken up playing the double bass in a group, called the New Horizons, in the Rochester area.

**Jamie Wiersema** (BS 1986) visited the Department on October 9. He delivered a lecture entitled, "Six Sigma at Cytec."

**William D. Wright** (MS 1966, PhD 1969, Longone) was recently honored as a 50 year member of the American Chemical Society (ACS). Last year he retired from the Chemical Abstracts Service, a division of ACS, after more than 43 years of service. A month later he was rehired by CAS as a part-time Senior Analyst, a position he still holds. His main interest has always been peptide nomenclature: proposing improvements in the rules, documenting those rules, and applying them in name input and editing.

**David F. Yancey** (BS 2009) completed his PhD in Chemistry at the University of Texas, Austin and is now working at the Dow Chemical Company in Midland, MI.

**Joseph E. Yourney** (PhD 2014, Bartlett) is now a Research Scientist at the DuPont Company in Wilmington, DE.

**Zhengrong Zhou** (PhD 2006, Meyerhoff) directs the Medtronic research site in Shanghai.

### Andre S. Dreiding

Andre S. Dreiding (PhD 1947 Bachmann) passed away on December 24, 2013 at the age of 94. Professor Dreiding was born in Zurich and received a BS and MS at Columbia University. He briefly taught at the UM following Bachmann's death in 1951. He also served as an assistant professor of chemistry at Wayne University (now Wayne State University). He returned to Switzerland in 1954 where he joined the chemistry department of the University of Zurich as a professor. In 1958 he invented the molecular stereo-models which are known to all older organic chemists as "The Dreiding Models."

Dreiding conducted research in a number of key areas of organic chemistry, including stereochemistry, synthesis of natural products, biosynthetic pathways and reaction mechanisms. He founded the Buergerstock Conferences on Stereochemistry in 1965. His awards include the Werner Prize of the Swiss Chemical Society and the Ruzicka Prize from the Swiss Federal Institute of Technology (ETH) in Zurich in 1987.

His first wife Rose died in 1953 and his second wife Norma died in 2007. He is survived by his daughter Karin, son Eric, and two grandchildren.

### Stefan S. Fajans

Stefan S. Fajans (BS 1938, MD 1942) died on June 22, 2014 at the age of 96. Dr. Fajans was born in Munich. He came to Ann Arbor in 1936 when his father Kasimir became professor of Chemistry at UM. After receiving his MD degree from the UM in 1942, he was an intern in New York and then spent nearly three years during WW II in the US Army Medical Corp. Most notably he was a member of the 41st Evacuation Hospital which landed on Omaha Beach on D-day plus 3.

Returning to Ann Arbor in 1946 he joined the UM Hospital where he worked until shortly before his death. Dr. Fajans' career as a physician, educator and scientist was truly outstanding. He was the first to describe a subtype of Type 2 diabetes, MODY, maturity-onset diabetes of the young. He ultimately became Chief of the Division of Endocrinology and Metabolism and was the founding Director of the Michigan Diabetes Research and Training Center. He served as President of the American Diabetes Association and Vice President of the Endocrine Society. He was a member of the Institute of Medicine of the National Academy of Sciences. He received the Banting Memorial Award of the American Diabetes Association in 1972 and 1978. At the UM he received the Henry Russell Award and delivered the Henry Russell Lecture which is the highest honor that the UM bestows on a faculty member.

Stefan enjoyed concerts at the Hill Auditorium. He was an avid downhill skier which he did into his 80's. He regularly attended the Kasimir Fajans Lectures in the Department of Chemistry and the awardees greatly enjoyed meeting him and listening to his insightful comments.

His wife Ruth died in 2012. He is survived by sons Peter and John and three grandchildren.

### Marian E. Harris

Marian E. Harris (BA 1941, Psychology) passed away on Dec 9, 2013 at the age of 94.. Marian provided a generous bequest to the James E. Harris endowment fund in her estate. She had contributed over the years to this fund created in 1949 in memory of her father. He received a BA (1908), MS (1909) and PhD (1911) from Michigan. From 1912-1917 he was an instructor in the chemistry department. Dr. Harris was employed by Bell Laboratories, New Jersey from 1917-1943. The James E. Harris fund has supported many research students for summer research over the years. They are listed on the Chemistry department website under Undergraduate Awards.

### Edward C. Olson

Edward C. Olson (BS 1949, MS 1950, PhD 1955, Elving) died on April 30, 2014 in Fort Myers, FL at the age of 88. A native Michigan-der Dr. Olson originally enrolled in the UM in 1943, but military service in WW II interrupted his education. On return he received his BS and MS in Chemistry and ultimately his PhD in analytical chemistry under the supervision of Professor Philip Elving.

Olson then joined the Upjohn Company in Kalamazoo where he had an impressive career in research. He managed a group of about 50 PhD's. On retirement in 1988 he was Director of Physical and Analytical Chemical Research. In 1999 he was honored as a 50 year member of the ACS.

Olson and his wife, Joan (AB LSA 1948), were generous benefactors of the Department of Chemistry. They left a bequest which establishes the Edward C. and Joan M. Olson Endowed Scholarship in Chemistry.

Joan M. Olson predeceased her husband in 2013.

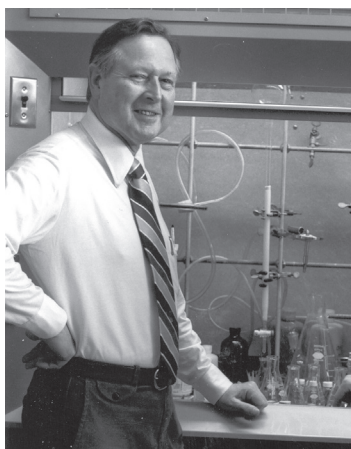
### Sheldon Shore

Sheldon G. Shore (MS 1953, PhD 1957 Parry) died on April 4, 2014 at the age of 83. He was born in Chicago and earned a BS in chemistry at the University of Illinois, Urbana-Champaign. After finishing his PhD work at UM with Bob Parry he joined the chemistry faculty at Ohio State University where he spent the rest of his career. Sheldon was promoted to Professor in 1966 and ultimately held the Charles H. Kimberly Chair of Chemistry and was a Distinguished Professor of Mathematics and Physical Sciences.

Shore was best known for his pioneering work on boron hydrides. His group completed the first rational syntheses of the B<sub>4</sub>-B<sub>10</sub> hydrides. He also contributed to the area of metal-cluster carbonyls and lanthanide transition metal complexes. Shore contributed several hundred scientific publications and held 14 patents. His awards included the ACS Cleveland Section's Morley Medal (1989), the ACS Columbus Section Award (1990), and the ACS Award in Inorganic Chemistry (2007). He was elected to the Bavarian Academy of Sciences and Humanities.

He is survived by his brother Melvin, three nephews and two nieces.





### **Peter A.S. Smith**

Peter A. S. Smith (PhD 1944, Keller, Professor Emeritus, Faculty Member 1945-1990) died on November 29, 2014 at the age of 94. Born in Erskine Hill (London), Professor Smith emigrated to the United States three years later. After receiving his B.S. degree in chemistry from the University of California at Berkeley in 1941, he came to the University of Michigan, where he worked with Professor Werner Bachmann on the

penicillin project of the war-time Office of Scientific Research & Development and received his Ph.D. degree in 1944. Professor Smith continued with the OSRD work until 1945 when, at the end of the war, he became an instructor in the chemistry department at the University of Michigan. He was promoted to assistant professor in 1948, associate professor in 1953, and professor in 1959.

Professor Smith and his research group were involved in the synthetic, mechanistic, and investigative chemistry of organic nitrogen compounds, especially organic azides and the ways that these materials can be used in the synthesis of heterocyclic compounds. His research to relate this knowledge to features common to mechanistic organic chemistry, to medicinal chemistry, pesticide chemistry, explosives and propellants, and structures of importance to environmental concerns. A dedicated teacher, advisor, and investigator of the chemistry of organic nitrogen containing compounds, Professor Smith served as book review editor for the *Journal of the American Chemical Society* 1971-1990 and chair of the commission on nomenclature for the International Union of Pure and Applied Chemistry 1988-1991. He was the author of the two-volume work, *Open-Chain Organic Nitrogen Compounds*, published in 1965-66. In addition to his interests in chemistry Peter Smith was a highly respected philatelist. In 1999 he published, *Egypt: Stamps and Postal History, a Philatelic History* for which he was awarded the prestigious Crawford Medal in 2000 by the Royal Philatelic Society [London].

Throughout his career, Professor Smith has served as a valued colleague, untiring and talented teacher, understanding associate, dedicated chemical researcher and scientist, and a respected and sincere friend and associate to all scientists and the University community. Peter Smith retired from active status and became Professor Emeritus of Chemistry in 1991. On November 16, 1991 a Symposium on Nitrogen and Heterocyclic Chemistry was held in the Department in his honor, and the Peter A. S. Smith Graduate Fellowship was established. Peter often attended the award ceremonies held annually in the Department.

Professor Smith is survived by his wife of more than 60 years, Mary, their children, Kent and Leslie, three grandchildren and a great-grandchild.

*If you would like to make a donation in his memory, please specify the Peter A.S. Smith Fellowship – 796312.*

### **Frank S. Warzeski**

Frank S. Warzeski (BS 1967) died in 2012 at the age of 67. He had retired from a lifelong career at Eastman Kodak Company. His hobby was photographic restoration. Survivors include his wife Roxanne, daughters Jaclyn Malone and Kelly Christensen.

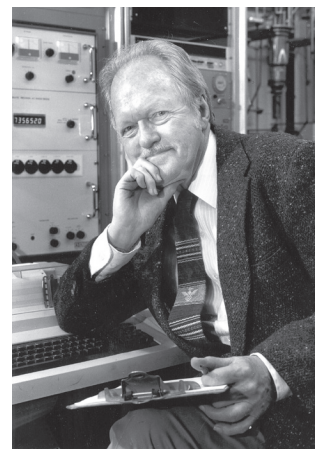
### **Edgar F. Westrum, Jr.**

Edgar F. Westrum, Jr. (Professor Emeritus Chemistry Faculty Member 1946-1989) died on May 7, 2014 in Ann Arbor at the age of 95. Professor Westrum was born in Albert Lea, MN. He received his BS in chemistry Summa Cum Laude from the University of Minnesota in 1940 and a PhD in chemistry from UC, Berkeley in 1944. He then moved to the University of Chicago to work on isolating plutonium for the Manhattan Project under Glen Seaborg.

Westrum joined the UM Chemistry Department in 1946 as an assistant professor. He retired in 1989 but continued to work in the department as Professor Emeritus until well into the 21st century. His research was largely in the field of low temperature thermodynamics and he was an expert at measuring heat capacities. He published over 600 scientific papers and two books.

Professor Westrum took a leading role in international scientific organizations – IUPAC (International Union of Pure and Applied Chemistry) and particularly its Committee on Data (CODATA). He was the Secretary General of CODATA for nine years. In 1960 he was the co-founder of the *Bulletin of Chemical Thermodynamics* and was its editor from 1966-77. In 1969 he and Professor Max McGashan launched the prestigious *Journal of Chemical Thermodynamics* and he was its coeditor for eight years.

His wife Florence died in 2012. He is survived by sons, Ron, Scott, and Mike, his daughter Kris, six grandchildren and five great-grandchildren.



### **Masanobu Yamauchi**

Masanobu Yamauchi (PhD 1961 Parry) died at his home in Ann Arbor on April 19, 2014 at the age of 83. Prior to attending the UM he received his BS at the University of Hawaii in 1953. Professor Yamauchi taught chemistry at Eastern Michigan University for over 30 years. He was an avid gardener and a dedicated runner, competing in the marathon well into his 60's. He is survived by his wife Natsue, daughters, Carol Heimbach and Lillian Toll and three grandchildren.

Contributions received from July 1, 2013- June 30, 2014

We are grateful for the generous support from alumni and friends over the last year.

## Chemistry Strategic Fund

Karen M. Adams	Thomas J. Giordano	Steven H. Peterson
J. Dolf Bass	Michael D. Gordon	Irene C. Piscopo
BASF Corporation	David J. Hart	James M. Reh
Timothy G. Bee	David P. Hesson	Steven C. Rifkin
Jason A. Berner	Mary Ellen Heyde	Charles A. Roth
Shyam Bhakta	Kathy J. Hillig	John C. Rosemergy
Andrea K. Biddle	Laurence G. Hoard	Joanne M. Rupprecht
Monica J. Blain	Walter M. Holloway	Harold F. Sanford
Neal B. Blatt	James J. Huntzicker	Parbury P. Schmidt
Scott G. Bushman	Instrumentation Laboratory	Joel L. Schmiegel
John A. Campbell	William Insull	Suzanne E. Schulz
Qinlin Chang	Norman P. Jensen	Richard M. Scribner
Thomas A. Caughey	Julie S. Johnsen	Roseanne J. Sensen- McEachern
Eli Lilly & Company Foundation	Steven R. Jordan	Stephen H. Shane
Zhan Chen	Eric T. Johnson	Elvera B. Shappirio
Lenore B. Damrauer	James M. Julian	Kristi D. Snell
Colleen M. DeKay	Douglas M. Kalvin	Gregg S. Spitler
Brian R. Dixon	Kao Revocable Trust	Michael K. Stern
Dow Corning Corporation	Phyllis W. Karseboom	James B. Tchobanoff
Dow Chemical Company Foundation	Karen A. Kehbein	Tonia Z. Thirtle
Richard R. Doyle	Harold L. Kohn	John K. Tomlinson
Roxanne M. Drnevich	William D. Korte	Richard F. Tomko
David V. Duchane	Paul M. Kovach	Robert C. Tripp
Diane W. Dugan	Kevin J. Kubarych	Chad K. Uptigrove
David W. Ebdon	Dominick A. Labianca	Joesph M. Vanderkelen
Kenneth L. Egger	Robert A. Landowne	John C. Whitmer
Helen E. Fan	Ginny S. Lin	Veronica H. Wiley
Larry E. Fink	Michael A. Mazzuchi	Dorothy T. Wu
Shirley S. Fraley	Shirley A. McLean	Douglas A. Whittington
Peter S. Friedman	Dawn A. Merritt	John E. Wright
Scott P. Frederick	Veronica A. Miller	Kenneth K. Wyckoff
William L. Gebo	Monsanto Fund	Robert J. Zamora
Steven R. Goates	Shahid Murtuza	Dennis P. Zavesky
Joel M. Goldberg	William F. Oppat	Paul F. Zittel
Elliott Greenberg	P & G Fund	
	Gordon A. Parker	
	James E. Penner-Hahn	

## Masato Koreeda Research Fund

Established upon his retirement, this endowment fund honors Professor Koreeda's dedication to Chemistry and its students. It provides supplies and salaries for student researchers, expanding vitally important research experiences, especially for undergraduates.

Amgen Foundation*	Katrin C. Hong	Lewis D. Pennington
Arthur J. Ashe	Jeffrey D. Hsi	Pfizer Foundation*
Mark M. Banaszak Holl	Bernard Hulin	Gloria E. Salavarría
Linda M. Balogh	Arthur A. Kaselemas	Melanie S. Sanford
Bart Bartlett	Masato Koreeda	Elaine G. Shafrin
Bristol-Myers Squibb Foundation, Inc*.	Henry Kuang	Nathaniel Szymczak
Robert J. Collison	Robert L. Kuczkowski	Gary L. Smith
Yuhpyng Chen	Anna Mapp	Suzanne Tainter
Colleen M. DeKay	Adam J. Matzger	John P. Wolfe
Carol A. Fierke	E. Neil G. Marsh	Wu Yang
Lawrence G. Hamann	Anne J. McNeil	Jinhai Yang
Rebecca D. Henry	John Montgomery	Liming Zhang
	Paresh D. Patel	*matching funds

## Robert Kuczkowski Endowed Faculty Research Fund

Robert L. Kuczkowski

## Robert & Carolyn Buzzard Graduate Chemistry Student Leadership

Robert A. and Carolyn Buzzard

## Chemistry Alumni Fund

Irving M. Adler	Steven A. Boskovich
Diane H. Burley	Rutgers Chow
Sue E. Delos	Erich J. Gess
Kathryn L. Fok	Henry W. Kao
George B. Lowrie	Michael A. Mazzuchi
Dawn A. Merritt	John V. Scibelli
Zeta Pharmaceuticals	

## Chemistry Department Fund

Susan E. Forest	Thomas W. Gougeon
Joanne M. Rupprecht	Joan D. VanPelt
Merck Company Foundation	

## Chair's Discretionary Fund

Myrtle S. McLain	Edwin P. Przybylowicz
Howard H. Un	P&G Company
Sigma-Aldrich	

## Chemistry Graduate Fellowships

Timothy F. Merkel	Marilyn L. Jacob Trust
-------------------	------------------------

## Chemistry Special Scholarships

Ruth A. Gustafson	Paul E. Krieger
Jeanne M. Lagowski	

## James & Madalene Davis Graduate Fellowship

James K. Davis

## Seyhan N. Ege Junior Faculty Award

Alice S. Cohen	Marjorie L. Carter
----------------	--------------------

## Library Fund/Kent P. Lanini Memorial

Stephen L. Gaudio	Richard J. Bard
Janet C. Haartz	

## Robert W. Parry Fellowship

Louis F. Centofanti	Antone L. Lott
Robert T. & Bonnie P. Paine	Natsue Yamauchi

## Wayne A. and Carol H. Pletcher Fellowship Fund

Wayne A. and Carol H. Pletcher

## Richard D. Sacks Memorial Student Travel

Eric T. Johnson	Michael D. Morris
-----------------	-------------------

## Peter A.S. Smith Fellowship

Peter A. Smith	Stewart E. Gloyer
Robert O. Kan	Roy D. Pointer

## Summer Chemistry Scholars Fund

Anonymous	Sheila S. McBride
Jack Sweet	David L. Zellmer

## Milton Tamres Teaching Award

Marjorie L. Carter

## Robert C. Taylor Fund

Virginia A. Dilkes	Thomas M. Rosseel
Martha Wintermeyer	

## Undergraduate Research in Chemistry

Seyhan N. Ege	Mary Ellen Sheridan
---------------	---------------------



## Recent Bequests provide support for Chemistry staff, students

The Department of Chemistry is the grateful recipient of two substantial bequests.

**Edward C. and Joan M. Olson Endowed Scholarship** has been established by a bequest from the Olsons [See page 12].

**Francene W. McMullen** bequeathed \$20,000 in memory of her son, William Hyde McMullen, who was employed by the Department in the 1980s. Her gift will be used to enhance the working life of the staff through improvements to a staff lounge and other recognitions. Mrs. McMullen was 101 when she died Dec. 16, 2013. She was a member of the University of Michigan Class of 1934.

## How you can help

Every gift is important and makes a difference in the Department's ability to provide for students and faculty. We especially need your support for these priorities.

### CSIE-UM Future Faculty Program 732330

Your gift will support seminars, workshops, and other programming related to teaching and learning, as well as travel to professional events for participants in the Chemical Sciences at the Interface of Education|UM program.

### Kuczkowski Endowed Faculty Research Fund 796725

Established by Emeritus Professor Robert Kuczkowski and faculty and friends, this award recognizes and supports an outstanding assistant or associate professor in Chemistry.

### Summer Chemistry Scholars Fund 318850

Matching funds for a summer undergraduate fellowship pledge, which directly supports UM Chemistry and Biochemistry majors taking part in summer research opportunities.

### Chemistry Strategic Fund 308206

Seed funding for new faculty research and innovative research projects, curriculum development, research lab maintenance and upgrades, and purchase or repair of major instruments for the research and teaching labs.

### Give Online

Use the link on the Chemistry website [www.lsa.umich.edu/chem](http://www.lsa.umich.edu/chem)

### Or mail your check to:

Department of Chemistry  
930 University Ave.  
Ann Arbor, MI 48109-1055

Please be sure to make your check payable to the University of Michigan.

## We'd like to hear from you!

Direct address corrections to UM Alumni Office website at:  
<http://alumni.umich.edu/>

Please return this form to the department, or email the information to [chem.alum@umich.edu](mailto:chem.alum@umich.edu).

Include news of your current activities or suggestions for the next *Newsletter*.

Name \_\_\_\_\_

Email \_\_\_\_\_

University of Michigan Degree (s) \_\_\_\_\_ Year \_\_\_\_\_

Advisor \_\_\_\_\_

Other University \_\_\_\_\_

Degree \_\_\_\_\_ Year \_\_\_\_\_ Advisor \_\_\_\_\_

Residence Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Firm/Institution \_\_\_\_\_

Position \_\_\_\_\_

Business Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Business Phone \_\_\_\_\_

### NEWS ABOUT YOURSELF:

(Unless you request otherwise, we will feel free to mention this in future *Newsletters*)



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

## Be a victor. . .

The UM Department of Chemistry has a storied history of landmark research and innovation. We face challenges of intense competition for the best students and faculty and shrinking state support. The Victors Campaign helps us preserve excellence.

Learn more about priorities for this campaign, including the

- Catalysis Center
- Undergraduate Lounge
- Innovation Fund
- and more...

Go to:  
[www.lsa.umich.edu/chem/donoropportunities/victors](http://www.lsa.umich.edu/chem/donoropportunities/victors)



**VICTORS FOR  
MICHIGAN**

## Save the date!

### Alumni Dinner & Vaughan Symposium • August 7, 2015 •

The Chemistry Professional Development Organization (CPDO) will be hosting a dinner for alumni to connect with current graduate students and postdoctoral fellows.

Plan to be in Ann Arbor on: **Friday, August 7, 2015**

The dinner will take place at the conclusion of the 13th Annual Vaughan Symposium. Hosted by the Chemistry Department and organized by current graduate students, the symposium brings together approximately 300 researchers, and includes more than 100 poster presentations, six oral presentations, and two keynote addresses.

We invite you to attend the symposium—a wonderful opportunity to learn about current research in the department, and then join us for dinner.

The dinner will be a relaxed, informal gathering for graduate students and alumni. We hope to learn from alumni how their education in chemistry has guided their career paths and experiences.

Watch for more information on the event in an upcoming email. You can update your contact information on the UM Alumni Office website at: <http://alumni.umich.edu/>

If you would like to be on a mailing list for notices of these events, send your contact information to [chem-events@umich.edu](mailto:chem-events@umich.edu).

#### About the CPDO

- Learn more about CPDO goals and current projects at <http://cpdo.chem.lsa.umich.edu>