

# Chemistry News



Innovative programming throughout the curriculum —  
undergraduate labs to professional development



**Spring Break in Barrow, Alaska!** *UM undergraduates Alicia Kevelin and Claire Mattson worked closely with Nate May, future faculty graduate student instructor and Pratt Lab member (as well as a local Ukpeaġvik Iñupiat Corporation-Science guide to keep a lookout for polar bears) to collect snow samples for analysis in an introductory lab this fall. Photo courtesy of Pratt Lab*

## Analyzing Snow to Learn Lab Skills, Data Analysis

Trading in their lab coats for expedition quality parkas, UM first year students Alicia Kevelin and Claire Mattson set off on snowmobiles across the frozen tundra and sea ice around Barrow, Alaska, last March. It was a most unusual spring break in the service of an introductory chemistry laboratory course.

In the Fall 2015 semester, Kevelin and Mattson were students in Kerri Pratt's "Authentic Research Connection" option of the introductory lab, Chem 125/26. Pratt is an assistant professor in the Department of Chemistry participating in an education innovation to develop an exploratory laboratory courses—akin to how science is actually done rather than "cookbook" exercises.

An environmental analytical chemist, Pratt's own research explores the chemical interactions between atmospheric trace gases, particles, clouds, snow and the frozen sea ices to understand processes associated with air quality and climate change. She hoped to convey to these novice chemists the excitement of teasing apart the unique chemistry that exists in the Arctic snowpack.

Through the weeks of the class, students did exercises that gave them the expected training in chemistry methods and approaches. For example, students were exposed to general chemistry topics such as solutions and dilutions through lab sessions where they prepared calibration standards

*continued on page 6*



**Case Study:** *Dow scientist Jessica Klinkenberg answers questions for UM Chemistry graduate students trying to "solve" a problem faced by industrial chemists. The event was part of CALC|UM, a department program to explore non-academic career options.*

## Can Students Think Like Industry Chemists?

**How well can a team of graduate students immersed in university labs come up with a solution to an industrial problem?** That question arises in light of a national concern that graduate programs do not provide sufficient preparation for careers after graduate school. Indeed, the transition from an academic research setting to an industrial setting can be challenging. Rarely are students exposed to considerations that are important in industry, such as scaling up for commercial production.

As part of the Department of Chemistry's career preparation program CALC|UM (Chemistry Aligned with Life and Career), an event last summer tried a novel approach to exposing graduate students to industry perspectives. Four Dow scientists came to the Ann Arbor campus to present a process chemistry problem that shut down a Dow plant. Then, without revealing how Dow actually solved the problem, the Dow scientists invited the students to form teams to propose viable solutions to the real-world issue. Successful proposals had to consider industrial constraints including cost, infrastructure, resources, and safety.

Five interdisciplinary teams were formed consisting of graduate students from Chemistry, Chemical Engineering, Macromolecular Science and Engineering, and Applied Physics. Over several weeks, the students developed solutions to propose. Then the Dow scientists returned to campus for a second session where the students presented their ideas. At the

*continued on page 6*

## M Welcome from the Chair

Alumni and Friends:

The end of the year is a fine time to take stock of our accomplishments and make plans for the year ahead. For 2016, that means recounting outstanding, innovative educational programs and exciting research that continue to garner interest and accolades from the University, our professional societies, and prestigious organizations.

Following in the footsteps of early luminaries Moses Gomberg and Werner Bachmann, one of our professors has been elected to the National Academy of Sciences. That honor goes to Melanie Sanford. She has also been named a Distinguished University Professor, the most prestigious professorship the University confers on its faculty.

Other accolades have been earned by several of newer faculty at early points in their careers. See our 'Faculty News' for more on these awards.

This is also a year to celebrate the venerable Raoul Kopelman who has been an active researcher on the faculty for 50 years. He is the Richard Smalley Distinguished University Professor of Chemistry, Physics, Applied Physics, Biophysics, Biomedical Engineering and Chemical Biology. That list of departments says much about his career as he has applied chemistry in a range of applications, most recently nanochemistry for biomedical applications.

For 2017, we are looking ahead to the University of Michigan's bicentennial. The Department of Chemistry is not much younger than the University. Many of you may have attended our 150th anniversary festivities in 2007. Next year there will be a series of symposiums, exhibits, fairs, and special events. You may wish to participate in those.

We welcome the involvement of our alumni. You can provide mentoring for our current students through CALC|UM and CSIE|UM (programs designed to support professional development of graduate students for careers in industry and academics, respectively). We have had unanimous and positive agreement, from the faculty and students alike, around attending to our students' overall career development for industry, academia, and other options. Partnering with our alumni has been a key to the success of these efforts.

Please share with us what you are doing by sending in an alumni update.

As always, we are deeply grateful for your generous financial support for the Department. If you are considering a legacy for the Department, the Bicentennial Matching Opportunity initiative offers a significant way to augment your gift.

If you do find yourself in the Ann Arbor area, I hope you will take the opportunity to stop by the Department.

### Robert Kennedy

*Chair, Chemistry Department*

*Hobart Willard Distinguished University Professor*

*Professor of Chemistry*

*Professor of Pharmacology*



## M New Faculty



### Ryan C. Bailey,

*Robert Gregg Professor of Chemistry*

Ryan Bailey joins University of Michigan from the University of Illinois where he was a professor of chemistry. His work is centered in bioanalytical chemistry and chemical biology. By combining traditional chemical and biological insight with cutting-edge concepts from materials science, physics, and engineering, his group brings an interdisciplinary approach to developing new tools to tackle longstanding problems in the biomolecular sciences—technologies that will enable fundamental biological discovery, and in some applications, better patient care.

“Our group is developing several powerful analysis tools that will be applicable in clinical settings and beyond. Our goal is to facilitate personalized diagnosis and individualized treatment by providing a more detailed picture of the biomolecular signatures of disease from a single patient. On account of their simplicity, scalability, and molecular generality, these tools also have broad applicability to many aspects of clinical and pharmaceutical research as well as fundamental biological studies.”

Professor Bailey received his undergraduate degree in chemistry from Eastern Illinois University in 1999, and his Ph.D. in 2004 from Northwestern University. Following a joint postdoctoral fellowship at the California Institute of Technology and the Institute for Systems Biology, he was on the faculty at Illinois from 2006-2016.

### Department of Chemistry Newsletter

Chair: Robert Kennedy  
Editors: Arthur J. Ashe, III  
Suzanne Tainter  
Alumni News: Arthur J. Ashe, III

Web Address:  
[www.lsa.umich.edu/chem](http://www.lsa.umich.edu/chem)  
Email: [chem.alum@umich.edu](mailto:chem.alum@umich.edu)



**Aaron Frank**, *Assistant Professor*

Aaron Frank's research group seeks to develop and deploy integrative modeling tools to elucidate the structure and dynamics of important biological molecules to determine the relationship between structure and dynamics and biological function. They are primarily interested in how ribonucleic acids — either by themselves or in concert with other molecules — achieve specific cellular functions.

Professor Frank is originally from Grenada, a small island in the Caribbean. After moving to the US in 2001, he earned his BA in chemistry from Brooklyn College in 2006, where he carried out research in the groups of Professors Charlene Forest, Shaneen Singh, and Alexander Greer. He then moved to Michigan to attend graduate school at the University of Michigan and then, with his Ph.D advisor Professor Ioan Andricioaei, moved to UC Irvine in 2008. He received his Ph.D in chemistry in 2011.

He then spent two years at Nymirum Inc. — a small biotech company in Ann Arbor founded by a close collaborator and former UM Chemistry faculty member, Hashimi Al-Hashimi.

He returned to the UM as a Presidential Postdoctoral Fellow where he was mentored by Professor Charles L. Brooks, III. He is now an Assistant Professor in the Chemistry Department and the Biophysics Program.



**Kristin Koutmou**, *Assistant Professor*

The Koutmou lab is at the forefront of understanding how disruptions in translation and translation regulation can impact cancer and disease.

The ribosome is responsible for synthesizing proteins and its function is crucial for cellular health. Research projects in the Koutmou lab seek to uncover what happens when the ribosome encounters a problematic mRNA sequence or when the ribosome itself is dysfunctional.

Her work combines the power of mechanistic enzymology, cell-based studies, and genome-wide techniques to investigate the molecular level mechanisms of events that occur when translation is disrupted.

“Our work is poised to have major impact on the field by identifying and characterizing mechanisms that disrupt translation and contribute to or cause human disease,” she says.

Professor Koutmou joins the University of Michigan after a postdoctoral fellowship in Professor Rachel Green's lab at the Johns Hopkins School of Medicine.

She earned her Ph.D. in Chemistry at the University of Michigan in Carol Fierke's lab. Dr. Koutmou was the recipient of the Ruth L. Kirschstein NRSA Post-Doctoral Award, NIH, NIH Cellular Biotechnology Training Grant, and Robert W. Parry Scholarship for Summer Research at the University of Michigan.



**Ginger Shultz**, *Assistant Professor*

Ginger Shultz conducts educational research aimed at understanding the teaching and learning of college level chemistry. This research is highly interdisciplinary; it requires a strong foundation in chemistry and employs both qualitative and quantitative research methods from education. She is investigating student learning in problem-based organic chemistry laboratory courses, how graduate students instructors develop teaching knowledge, and writing-based strategies for learning in STEM.

Her interest in education began when she was an undergraduate at the Evergreen State College, where the progressive curriculum shaped her early views on learning. She went on to earn a Ph.D. in polymer chemistry at the University of Oregon, where she also taught hands-on science to elementary school children through an NSF GK-12 fellowship.

After graduate school, she transitioned to education-focused research through a teaching postdoc in Chemistry at the University of Michigan. In 2013, she was named a UM Presidential Postdoctoral Fellow and began pursuing educational research full-time. This fall she became an Assistant Professor in the Department.

*Brian Coppola**Kristina Hakansson**Raoul Kopelman**Anne McNeil*

**Julie Biteen** has won the Journal of Physical Chemistry Lecture-ship Award which honors the contributions of investigators who have made major impacts in the field of physical chemistry. She has also received the Biophysical Society Margaret Oakley Dayhoff Award, which is given to a woman who has achieved prominence in the early stages of a career in biophysical research.

**S. M. Blinder** and Professor Guido Fano of the University of Bologna coauthored a monograph: “Twenty-first Century Quantum Mechanics: Hilbert Space to Quantum Computers” (Springer, 2016).

**Charles Brooks** has been elected for a one year term as president-elect of the Protein Society. He will later serve a two year term as president and one year as past-president.

**Brian Coppola** has been selected as the 2016 Michigan Distinguished Professor of the Year. This prestigious award from the Michigan Association of State Universities recognizes outstanding contributions to undergraduate teaching.

**Carol Fierke** was awarded the Gordon Hammes ACS Biochemistry Lectureship (<http://www.divbiochem.org/awards/recipient>).

**Kristina Hakansson** is the 2016 recipient of the Biemann Medal from the American Society for Mass Spectrometry. The Biemann Medal is awarded to individuals early in their careers in recognition of significant achievements in basic or applied mass spectrometry. Professor Hakansson is the PI on an awarded high end, shared instrumentation grant from the Office of Research Infrastructure Programs at NIH. Learn more at: (<http://www.asms.org/about/asms-awards/biemann-medal>)

**Raoul Kopelman** has been a University of Michigan faculty member for 50 years! He has published more than 650 papers and holds 42 U.S. patents. In his career he has moved across several fields, from solid state physics to biomedical engineering. He pioneered research in nanophotonics, nanochemistry and nanobiotechnology. His present research is geared towards nanomedicine, covering novel diagnostic and therapeutic techniques for cancer and heart disease.

**Robert T. Kennedy** will receive the 2017 ACS Award in Chromatography.

**Nicolai Lehnert** received a John Dewey award from LSA. These awardees are selected by the College EC from those promoted to full professor in recognition of outstanding commitments to un-

dergraduate education. He started the D-Rise program that brings several students from Cass Tech High School in Detroit to the Ann Arbor campus for research experience in Department labs.

**Anne McNeil** was honored with a Faculty Recognition award by the University of Michigan. The award honors outstanding mid-career faculty.

**Alison Narayan** has been selected by C & E News as one of their 2016 “Talented Twelve.” For the second year C & E News has highlighted twelve very talented scientists 42 years old or younger who are predicted to have very bright professional futures.

**Vincent Pecoraro** received the 2016 ACS Award for Distinguished Service in the Advancement of Inorganic Chemistry at the San Diego National Meeting of the ACS last March.

**Kerri Pratt** was awarded a 2016 National Academy of Science Gulf Research Program Early Career Fellowship. (See more about her research an innovative teaching on page 1.) She was also named the Seyhan N. Ege Assistant Professor of Chemistry.

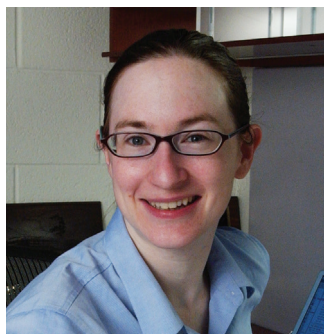
**Ayyalusany (Rams) Ramamoorthy** is a recipient of a 2016 Distinguished Faculty Achievement Award from the Rackham School of Graduate Studies. He successfully organized, “Recent Advances in Biomolecular NMR Spectroscopy,” symposium at UM (co-chaired with Professor David Weliky from MSU) and the “Biological Solid State NMR,” symposium at the PACIFICHEM-ACS meeting held in Hawaii.

**Melanie Sanford** is now the Moses Gomberg Distinguished University Professor of Chemistry. She is also an Arthur F. Thurnau Professor. She was recently selected as one of the 2016 American Chemical Society Fellows. This spring, she was also elected to the American Academy of Arts and Sciences and to the National Academy of Sciences.

**Corinna Schindler** is one of named 18 of the nation’s most innovative early-career scientists and engineers named by the David and Lucile Packard Foundation as a recipient of the 2016 Packard Fellowships for Science and Engineering. She will receive a grant of \$875,000 over five years to pursue her research. Her work addresses one of the foremost challenges facing our generation — the invention of sustainable alternatives to precious metal catalysts that are commonly used in the industrial processes that provide new technologies, medicines, and materials. The objective of Schindler’s research program is the discovery of new, sustainable synthetic methods relying on earth-abundant and environmentally benign metal catalysts.



Kerri Pratt



Melanie Sanford



Corinna Schindler



Paul Zimmerman

**Corey Stephenson** was selected as the winner of the 2015 Pfizer Green Chemistry Award.

**Nathaniel Szymczak** received a 2016 Camille Dreyfus Teacher Scholar Award. The award includes an grant to support his research on new approaches to develop catalysts for chemical conversions relevant to energy delivery, storage, and recycling. The Camille Dreyfus Teacher-Scholar Awards Program supports the research and teaching careers of talented young faculty in the chemical sciences. A short video of his work is available on the UM Chemistry website.

**Paul Zimmerman** has been selected as a 2015 Alfred P. Sloan Research Fellow. He has recently received the ACS COMP Open-eye Outstanding Junior Faculty Award. This award is given annually to a small number of junior scientists to allow them to present their work at an ACS meeting. The NSF has awarded him a CAREER award: CDS&E: Predictive Discovery of Complex Reaction Mechanisms.

## Staff News

**Angie Cox**, undergraduate student services coordinator, has won an College of Literature, Science, and the Arts Award for Excellence in Advising.

**Jan Malaikal** has joined the Chemistry Department as the Chief Administrator. She previously was the administrator of the Astronomy Department.

**Cornelius Wright**, Student Services Manager, has been awarded a Distinguished Diversity Leader Award for his dedicated effort to meaningful tasks in the Department to ensure successful recruitment and retention of students who bring diversity to our program. He works to welcome students from groups underrepresented in Chemistry graduate programs and careers, and as a result, the Department's historical record of fewer than 1 underrepresented student per year joining our program has been surpassed each year for the last five years. Beyond recruiting, Wright has done an exceptional job of tracking the progress of our students from underrepresented groups and in addressing their needs and concerns while in the program.

## Promotions

**Kevin Kubarych**, **Nicolai Lehnert**, and **Anne McNeil** have been promoted from associate professor to full professor of chemistry.

## Retirements

**Anthony H. Francis**, Arthur F. Thurnau Professor and professor of chemistry, has retired effective December 31, 2015. He joined the faculty in 1975. Francis' research focused on energy transport and electronic relaxation processes in semi-conducting solids with layered crystal structures that have technological applications in battery electrodes, and thermoelectronic and electrochromic devices. Francis held key leadership positions including LSA associate dean for research, computing and facilities; LSA associate dean for research and graduate studies; associate vice president for research; LSA associate dean for budget. His efforts have improved the administration of research activities and expanded the university's research enterprise.

**Gary Glick**, Werner E. Bachmann Collegiate Professor of Chemistry, retires effective December 31, 2016. He joined the faculty in 1990. Glick founded the UM Chemical Biology program, an independent graduate program that involves faculty from several different departments and units. His research focused on metabolic control in the immune system and the development of new drugs for the treatment of autoimmune diseases and cancer. He is the author of over 100 peer-reviewed papers and the inventor on 27 issued U.S. patents. He has been active in efforts to move research insights from the lab into use in medical practice through the founding of several companies, including Lycera Corporation in 2006 and IFM Therapeutics in 2015.

## CSIE|UM Future Faculty Program Wins Provost's Teaching Innovation Prize

*Chemical Sciences at the Interface of Education at the University of Michigan* or CSIE|UM program offers chemistry students who are interested in academic careers—undergraduate through post-doctoral associates—an opportunity to work on projects involving instructional development, implementation, and assessment. This year the program was recognized for innovation in student learning. Throughout the year, CSIE|UM offers seminars and other events. See the CSIE|UM website: [sites.lsa.umich.edu/csie-um](http://sites.lsa.umich.edu/csie-um).



USUK student Amy Smith, (l) and UM student Mike Payne (c), work on the inorganic chemistry challenge under the watchful gaze of an evaluator.

## UM Students Compete in China Chemistry Tournament

Students from the University of Michigan and University of Sheffield, UK (USUK), participated in China's National Undergraduate Chemistry Laboratory Tournament. Held in July at Nanjing University, the tournament the event drew student teams from 43 campuses all over China, and, in a first, hosted the two teams of foreign students. The UM and USUK students had an appropriately eyeopening experience. As UM students Mike Payne and Qiuhan Li explain, "The educational emphasis in China simply seems to be different. Not better, not worse, just different."

More than 200 faculty members attended a concurrent conference to share ideas about laboratory teaching. UM Chemistry Professor Brian P. Coppola has long been collaborating with Nanjing University and Shanghai Jiao Tong University on intensive summer course taught in English. This summer six UM students participated.

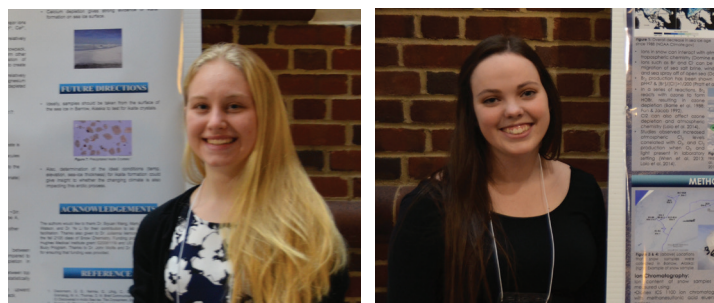
Longer articles about the UM-China partnerships are available on the UM Chemistry website.

### Snow Chemistry cont. from page 1

for ion chromatography. To learn redox reaction and absorbance spectroscopy, they synthesized and quantified  $\text{Cl}_2$  used to calibrate the gas phase instruments. Rather than each lab session standing alone, the series of techniques built on each other, resulting in a wealth of data for analysis that the students turned into manuscripts and scientific posters. In lieu of the final exam, students gave poster presentations just as scientists typically do at professional meetings. Pratt rounded up faculty, grad students, and postdocs to judge the poster session. "The presentations were so well done that the judges were amazed that these were novice chemistry students. Some judges even thought they were graduate students!" says Pratt.

In the Arctic this spring, Kevelin and Mattson collected the samples and hauled them back to Ann Arbor in four thick walled coolers. The Fall 2016 students are now analyzing those samples. According to Kevelin, "In all, we collected just under 100 snow samples! ...the students have a boatload of knowledge to gain from these sample analyses." The samples came from the edge of the Elson Lagoon, actual sea ice, and tundra. "Students will clearly be able to see the changing snow chemistry and factors that influence it."

Kevelin, in particular, was excited to analyze the samples using ion chromatography. "I have seen countless chloride, bromide, and sodium concentrations, numerous pH readings, and too many ion



Alicia Kevelin (l) and Claire Mattson (r) with their final posters.

ratios to count, but I have never gotten to be on the other side—to reap the benefits of my own hard labor, essentially going from start to finish, connecting all the dots.

"This is the closest I have ever gotten to making a real impact, and the feeling is much more exhilarating than I could have ever imagined...As I am finally getting to make my mark on the world, this trip has sure made its mark on me."

The trip was made possible by funding from the Howard Hughes Medical Institute, UM Department of Chemistry, UM Program in the Environment, Program In International & Comparative Studies (via Arctic Internships to Kevelin and Mattson), and National Science Foundation.

### Preparing Our Students for Careers from page 1

conclusion of the student proposals, the Dow group presented the solution that was ultimately implemented at their plant.

To their delight, the students discovered that their proposed solutions were directions that had actually been considered and, in some cases, actively pursued by Dow.

One student team included an analytical chemist, biochemist, chemical engineer, and organic chemist. "Because of this interdisciplinary environment, we generated some off-kilter and out-of-the-box ideas that actually turned out promising," explains says Derick White, the organic chemist on the team and one of the student organizers of CALC|UM. "I was very surprised when Dow unveiled the solutions that they pursued because all the teams were right on track."

For graduate students, completing their thesis research is just one component to pursuing successful careers in industrial settings. "I thought the Dow case study provided a unique opportunity to test

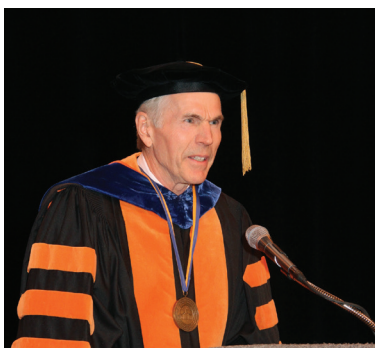
the waters on the skills that I've been building in my education," White adds. "Overall, it was a great experience and networking opportunity with Dow and colleagues alike."

"The event gave me a clearer idea of what it would be like to be a process chemist, and of the unique and complex problems encountered when doing reactions on a massive scale," says Yvonne DePorre, also a UM organic chemistry graduate student. A minor issue for a reaction in the lab could be a huge issue for an industrial process, so I can see why it's so important to work in a multidisciplinary group."

More details about CSIE|UM and the introduction of the CALC|UM program have been published in *Change: The Magazine of Higher Learning* (2016, DOI: 10.1080/00091383.2016.1163206).

CSIE|UM website: [sites.lsa.umich.edu/csie-um/](http://sites.lsa.umich.edu/csie-um/)

CALC|UM website: [sites.lsa.umich.edu/calc-um/](http://sites.lsa.umich.edu/calc-um/)



Richard Cook



Madeline Herman



## Undergraduate Award Ceremony Recognizes Summer Research Support & Others

Twenty-six students who received support for summer research in 2016 were honored at the annual undergraduate award ceremony. Funding for these awards comes from generous donors to the Summer Undergraduate Research Fund, and the James E. Harris, the Walter Yates, Margaret and Herman Sokol, Albert Euclid Hinsdale, and William Smeaton Memorial endowment funds. A complete list of students and other undergraduate awards made at the ceremony is available on our website.

## LSA Scholarships to Chemistry Students

### Carlene Friedley Memorial Scholarship

This scholarship was established in memory of Alyce Carlene Friedley by her husband, Wilbur C. Bigelow. She was a University of Michigan graduate with two Chemistry degrees: B.S. (1947) and M.S. degree (1948). She was also a Lecturer in Chemistry at Michigan in the early 1950s.

**2015-16:** Kara Price,

**2016-17:** Allison Surma, junior, biochemistry

### Edward C. and Joan M. Olson Scholarship

Makayla Brunt, senior, biochemistry

### Gomberg Scholarships:

Kevin Gorman, junior, chemistry

Brycen Adams, junior, chemistry

Robert Moeller, sophomore, chemistry

### Helen Schwarz Schaefer Scholarship

Dina Habibovic, first-year, chemistry intended major

### 2016 Honor Program's Jack Meiland Scholarship

The College of LSA Honors Program's Jack Meiland Scholarship memorializes the legacy of former director Jack Meiland, and in particular recognizes interdisciplinary excellence in two or more areas of the liberal arts. Recipients are among the very best third-year students in the Program who exemplify excellence in academics, research, and co-curricular achievement. This year's awardee is Chemistry major Michael Payne.

## 2016 Goldwater Scholarship Winner

Chemistry major James Lawniczak earned the Barry Goldwater Scholarship, a highly competitive national program that provides support for highly qualified STEM students who plan to pursue research careers.

## Chemistry Celebrates Graduates at Commencement Ceremony

Some 180 Chemistry undergraduates celebrated their University of Michigan graduation at the Department's Commencement Ceremony at Ann Arbor's Michigan Theater on April 28.

The student speaker, Madeline Herman, recounted her early love of chemistry starting in the kitchen. She gave her study group credit for helping her develop confidence as a female scientist in the face of being ignored or put down, and the lifelong friends she has developed as a result. She also praised the faculty for caring about their students' education.

The commencement address was presented by Richard J. Cook, a 1969 University of Michigan graduate with a B.S. in Chemistry. After Michigan, he earned a PhD at Princeton. For many years he was professor and later provost of Kalamazoo College, and then led Allegheny College. He is now President Emeritus of Allegheny College and Chairman of the Board of Second Nature, Inc. Second Nature is the umbrella organization of the American College and University Presidents' Climate Commitment, dedicated to significantly reducing the carbon footprint for a sustainable ecosystem and society. He is also a Managing Partner of Lahti Search Consultants.

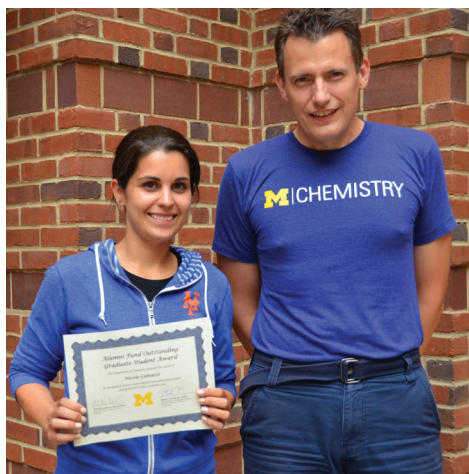
According to Cook, his undergraduate research with Professor Mark Green set the trajectory of his personal and professional life. He and his wife have now established the Richard J. Cook Undergraduate Research Endowment which will be used to provide research fellowships for Chemistry undergraduates.

Cook charmed the commencement audience with his accounts of the ways that chemistry and the University of Michigan have changed since his time on campus. In those tumultuous times it meant walking past anti-war demonstrations on the Diag to get to the building or an arsonist torched the stockroom. Slide rules or simple calculators were his tools — the computer cost \$1.3 million and took up a whole room, yet only had 64 kb of memory.

He challenged the graduates to "Be bold. Dare. Be empathic. Do good work for the good of others. The world needs you."

From December 2015 through Summer 2016 terms, a total of 230 students graduated with majors from our Department. The distribution was: Biochemistry: 61; Biomolecular Science: 143; Chemical Science: 3; Chemistry: 21; Interdisciplinary Chemical Science: 2.

The first two graduates of our Accelerated Degree program also earned master's degrees, combining their bachelors work with an additional year of courses.



Nicole Camasso, (l) Sanford Lab, was the Alumni Fund Outstanding Graduate Student Award winner. Nicolai Lehnert (r) is the faculty graduate chair.

### Graduate Student Awards

This summer, the Department of Chemistry recognized award-winning students with a ceremony and ice cream social. Six students received prestigious National Science Foundation fellowships. The complete list of awards and the award recipients is available on the Chemistry website. Support for some of these awards is outlined on our gifts page.

### PhDs Awarded

#### Fall 2015

Student	Committee Chair
Carter, Kelsey King <i>Streamlined Gelator Discovery through the Analysis of Intermolecular Interactions in the Solid State.</i>	McNeil
Carter, Tyler Joseph <i>Metal Mediated Reduction of Borazines for the Regeneration of Boron-Nitrogen Hydrogen Storage Materials</i>	Szymczak
Donehue, Jessica <i>Plasmon-Enhanced Fluorescent Protein Emission: A New Paradigm for Improved Single-Molecule Bio-Imaging</i>	Biteen
McMurtrey, Kate Butler <i>Development and Mechanistic Studies of Palladium-Catalyzed Ligand-Directed C-H Bond Functionalization Reactions</i>	Sanford
Nguyen, John Duy <i>The Development and Investigation of Catalytic Photochemical Radical Reactions Mediated by Visible Light</i>	Stephenson

Talapatra, Surma Geva  
*Study of Reactive and Non-Reactive Chemical Processes in Condensed Phase*

#### Winter 2016

Bornschein, Russell Ruotolo  
*Development of Charge Manipulation Nanoelectrospray Ion Mobility-Mass Spectrometry Techniques for Multiprotein Complex Analysis*

Furgal, Joseph Goodson, Richard Laine  
*Synthesis and structure-photophysical property relationships of T8, T10, T12 and oligomeric organic functionalized silsesquioxanes*

Guo, Ping Matzger  
*Water Interaction with Microporous Coordination Polymers: Energy Efficient Dehumidification, Antimatter Probing and Polymer Coatings*

Hendrickson, Heidi Lynn Phillips Geva  
*Utilizing Electronic Structure Approaches to Understand Charge Transfer and Transport in Molecular Building Blocks for Organic Optoelectronic Applications*

Kahlscheuer, Matthew Walter  
*Characterization of pre-mRNA Dynamics and Structure throughout Spliceosome Assembly and Catalysis*

Kim, Soojeong Penner-Hahn  
*Electrochemical and Structural Analysis of Li-ion battery Materials by In-situ X-ray Absorption Spectroscopy*

Klepser, Benjamin Bartlett  
*Photosensitization of Molecular Water Oxidation Catalysts Using Semiconductors*

Miller, Zachary Montgomery  
*New Strategies for Stereo- and Regiocontrol in Allene Hydrosilylation*

Nelson, Emily Bartlett  
*Understanding Magnesium-ion Electrochemistry through Modification of Lewis Acid/Base Pairs*

Pfund, Laura Matzger  
*Accelerating Solid Form Discovery for Pharmaceuticals*

Roman Melendez, Gabriel David Marsh  
*Studies on the radical enzymes glutamate mutase and viperin*

Sun, Shuwen Kennedy  
*High Throughput Screening for Enzyme Modulators Using Segmented Flow Coupled to Electropray Ionization-Mass Spectrometry*

Walk, Jordan Montgomery  
*Sugar Silanes: Versatile Reagents for Stereocontrolled Glycosylation via Intramolecular Aglycone Delivery*

Wright, Lindsay Kay Zellers  
*Single- and Multi-Transducer Arrays Employing Nanoparticle Interface Layers as Vapor Detectors for a Microfabricated Gas Chromatograph*

#### Summer 2016

Arruda, Brenden Sension  
*Ultrafast Photochemistry of the Cyclohexadiene Chromophore: Model Systems for the Biological Synthesis of Vitamin D*

Beck, Michael Lim  
*Development of Small Molecules as Chemical Tools for Investigating the Role of Metal-Protein Interactions in Neurodegenerative Diseases*

Borovika, Alina Montgomery/Sanford  
*Advances in Brønsted acid catalysis: reactions of oxocarbenium ions*

Bruno, Paul Mapp  
*Developing Proteomimetic Inhibitors of Large Surface Area, Low Affinity Protein-Protein Interaction*

Bryan, Zachary McNeil  
*Developing New Catalysts and Methods for Catalyst-transfer Polycondensations (CTP)*

Chow, Chun Yin Pecoraro  
*Modulating the Single-Molecule Magnet, Magnetocaloric and Luminescent Behavior in Metallaacrowns*

Cichowicz, Nathan Russell Nagorny  
*Development of Tandem Chemical Processes for the Synthesis of Bioactive Natural Products*

Cipolla, Cynthia Marie Kennedy  
*Analytical Techniques for Evaluating Function in Islets of Langerhans*

Crawford, Andrew McCarten Penner-Hahn  
*Development of an X-Ray Flow Cytometry Instrument, the Associated Methods of Analysis, and MBlank XRF Fitting Software.*

Dougherty, Casey Ann Banaszak Holl  
*The Photophysical and Biological Implications of the Fluorophore:Polymer Ratio*

Dutta, Ananya Matzger  
*Multicomponent Approaches to The Synthesis of Microporous Coordination Polymers*

Everett, Renata Kathleen Wolfe  
*Development of New Reactions Employing Boron-Enolate Wittig Rearrangements*





Goh, Garrett Brooks  
*Development & Application of Constant pH Molecular Dynamics (CPHMDMSAD) for Investigating pH-mediated Transient Conformational States and Their Effects on Nucleic Acid & Protein Activity*

Hale, Wendi Hakansson  
*Quantitative Bottom-Up and Top-Down LC/FT-ICR MS for Multisite Phosphoproteins and Natural Product Biosynthetic Pathways*

Hankett, Jeanne Chen  
*Spectroscopic Studies on the Molecular Structural Changes of Plastics and Plasticizers at Model Environmental Interfaces*

Hopkins, Brett Wolfe  
*Enantioselective Synthesis of Heterocycles via Palladium Catalyzed Alkene Difunctionalization Reactions*

Jackson, Evan Montgomery  
*Advances in Regiocontrol and Bench Stability in Nickel Catalyzed Reductive Couplings of Aldehydes and Alkynes*

Larsen, Brian James Nagorny  
*Total Synthesis and Biological Evaluation of Anti-Cancer Lactimidomycin and Diterpene-Based Products and Analogs*

Liao, Yi Biteen  
*Single-molecule localization, dynamics and interactions of DNA replication and repair proteins revealed by live-cell super-resolution microscopy*

Lotz, Monica Diane Sanford  
*Mechanistic Insights with Homogeneous Pd and Pt Complexes for the Oxidative Coupling of Methane*

Phadke, Sameer Dilip Soellner  
*Chemical Modulation of Phospho-Signaling Pathways Involved in Cancer*

Plegaria, Jefferson S. Pecoraro  
*De Novo Design of Copper Metallopeptides Capable of Electron Transfer: From design to function*

Pyper, Kayla Bartlett  
*Metal Oxide Semiconductor Materials for Photo-oxidation of Water and Organic Amine Groups*

Winschel, Grace Alexandera Nagorny  
*Chiral Phosphoric Acid-Catalyzed Stereoselective Transformations of Vinyl Ethers and Acetals*

Zhou, Ying Kennedy  
*Improving capillary LC-MS method for trace level peptide/protein detection and its application in in vivo neuropeptide monitoring*

**Carolyn (Owen) Anderson** (BS 1998) is an Associate Professor at Calvin College. She visited the department in May and delivered an insightful lecture about faculty careers at undergraduate colleges. Carolyn obtained her PhD at U. C., Irvine where she worked with Professor Larry Overman. She was awarded the Calvin College Student-Faculty Research Award in May 2016. She is a member of the Arnold and Mabel Beckman Scholar Program Executive Committee 2015-2019.

**Jessica Anna** (PhD 2011, Kubarych), an Assistant Professor at the University of Pennsylvania, has won a prestigious Department of Energy Early Career Award.

**John E. Bercaw** (PhD 1971, Brintzinger) of the California Institute of Technology will receive the 2017 Gabor A. Somorjai Award for Creative Research in Catalysis from the ACS.

**Laura Berry** (MS 1981) has just retired from a long career as an engineer, then investment manager, then share-holder activist. She is married to Bernard Hulin (PhD 1984).

**Fitzgerald B. Bramwell** (PhD 1970, Gendell) has been honored as a 50 year member of the American Chemical Society. He notes that although he has tried to retire six times, he has not succeeded. He currently directs and owns Empire Science Resources, LLC.

**Jeffrey Brender** (postdoctoral 2011-15, Ramamoorthy) has joined NIH, Bethesda as a Research Scientist.

**Zachary Bryan** (PhD 2015, McNeil) has recently moved to Henkel AG & co. in Rocky Hill, CT. He works in the general adhesives division.

**Zachary Allen Buchan** (PhD 2011, Montgomery) attended the Karle Symposium in Ann Arbor in July 2016. He has been at Dow AgroSciences in Indianapolis for five years.

**Saumen Chakraborty** (PhD 2011, Pecoraro) has started as an Assistant Professor of Chemistry at the University of Mississippi.

**Brandon A. Chan** (BS 2009) received his PhD from Louisiana State University this year. He will attend the MSU College of Law to pursue a career as an attorney in patent law. He is planning to live in Ann Arbor.

**Paul S. Changellian** (BS 1978) was a co-awardee of the 2016 ACS Award for Team Innovation. He is the Director of Biology at Confluence Life Sciences.

**Bin Chen** (PhD 2005, Mapp) has left BMS for an exciting international venture, Wu Xi App Tec.

**Richard J. Cook** (BS 1969) was the keynote speaker at the 2016 Chemistry Commencement Ceremony held on April 28 at the Michigan Theater, Ann Arbor.

**Nick Deprez** (PhD 2009, Sanford) has just moved to a job in process chemistry at Merck.

**Alex Dickinson** (PhD 2015, Brooks) is an Assistant Professor in the Department of Biochemistry and Molecular Biology at Michigan State University.

**Casey Ann Dougherty** (MS 2012, PhD 2015 Banaszak Holl) has become an Assistant Professor at Ionia College.

**Susan Forest** (PhD 1996, Kuczowski). After a postdoctoral stint with Professor John D. Simon at the University of California, San Diego and then at Duke University (1996-99), Susan joined Procter and Gamble Company in Cincinnati, OH as an Analytical Chemist. She continues to work at P&G as Associate Director of the Global Biotechnology Organization. Susan enjoys Cincinnati sports, gardening and spending time with her husband, family, and friends.

## Alumni News continued

**Howard S. Friedman** (Postdoctoral 1975-77, Ashe) has retired after 20 years of service as the Global TSCA Program Manager for the Hewlett-Packard Company in Corvallis, OR.

**Tom Giordano** (PhD Rasmussen, 1974) is keeping busy in retirement with tutoring at the Denver School of Science and Technology, and facilitating history and science classes for Seniors, as well as being active in the local Rotary club.

**Garrett Goh** (PhD 2015, Brooks) is a Linus Pauling Postdoctoral Scholar at the Pacific Northwest National Laboratory, Richland, WA.

**Susan Harvill Hixson** (BS 1965) was honored as a 50-year member of the American Chemical Society. After 20 years as a Program Director in the Division of Undergraduate Education, she retired from the National Science Foundation. Prior to joining the NSF, she spent 20 years on the faculty of Mount Holyoke College. Her research emphasis was on photoaffinity labeling of enzymes. She earned her PhD in biochemistry at the University of Wisconsin and spent three years carrying out postdoctoral research.

**James Houglund** (Postdoctoral 2005-2010, Fierke) has been promoted to Associate Professor with tenure in the Department of Chemistry of Syracuse University.

**Chelsea Huff** (PhD 2009, Sanford) has moved to a job in process chemistry at GlaxoSmithKline.

**Bernard Hulin** (PhD 1984, Koreeda) has retired from two decades of doing discovery research from Pfizer. He has taken an encore career teaching chemistry at Wilbur Cross High School in New Haven, CT (a large comprehensive urban high school). He is married to Laura Berry (MS 1981).

**Kami L. Hull** (PhD 2009, Sanford), an Assistant Professor of Chemistry at the University of Illinois, Urbana-Champaign, has been awarded an A. P. Sloan Fellowship and a NSF CAREER award.

**Mercouri Kanatzidis** (PhD 1984; Postdoctoral 1984-5, Coucouvanis), Charles E. and Emma H. Morrison Chair Professor of Chemistry at Northwestern University, has received the 2016 ACS Award in Inorganic Chemistry. He is also the co-awardee with Professor Gregory Stephanopoulos of MIT of the 2016 Eric and Sheila Sampson Prime Minister's Prize. This \$1 million prize was awarded in Israel in November. It honors the recipients for "Innovation in Alternative Fuels."

**Harold L. Kohn** (BS 1966) was honored as a 50-year member of the American Chemical Society. He retired in June 2015 as a Kenan Distinguished Professor at the University of North Carolina with appointments in the Division of Chemical Biology and Medicinal Chemistry in University of North Carolina School of Pharmacy and Department of Chemistry.

**John King** (PhD 2013, Kubarych) has just started his independent career as a Research Group Leader at the Institute of Basic Science in Ulsan, Korea.

**Alan Kiste** (PhD 2009, Coppola) and Brian Coppola were invited speakers at the dedication of the new integrated undergraduate laboratory complex at Tianijm University (May 26, 2016). Dr. Kiste is an Assistant Professor at CalPoly College of Science and Engineering,

**Calvin Messing** (PhD 1970, Smith) has been honored as a 50 year member of the American Chemical Society.

**Sharon Neufeldt** (PhD 2013, Sanford) has joined the Department of Chemistry and Biochemistry of Montana State University as an Assistant Professor.

**Robert T. Paine** (PhD 1970, Parry) has been honored as a 50 year member of the American Chemical Society. Bob retired from teaching at the University of New Mexico two years ago and from his research program last fall. He has been finishing up writing papers since. He hopes to visit Ann Arbor this fall.

**Samuel Pazicni** (Postdoctoral 2006-9, Coppola, Penner-Hahn) has earned tenure at the Department of Chemistry at the University of New Hampshire, Durham.

**William C. Pommerantz** (Postdoctoral 2008-12, Mapp) is an Assistant Professor of Chemistry at the University of Minnesota. He was named a Cottrell Scholar by the Research Corporation for Science Advancement (2016).

**Theresa M. Reineke** (PhD 2000, Yaghi) is the Lloyd H. Reyerson Professor of Chemistry at the University of Minnesota. She has received the 2017 Carl S. Marvel Creative Polymer Chemistry Award from the ACS Division of Polymer Chemistry, which recognizes the accomplishments of scientists under 45 years of age.

**Erhard W. Rothe** (BS 1952, PhD 1959, Bernstein) retired in 2015 after 46 years as Professor of Chemical Engineering at Wayne State University and is now a Professor Emeritus. Most of his research has been in the chemical physics areas of molecular beam studies of collisions and laser-molecule interactions.

**Martha Bennett (Wells) Stiles** (BS 1954) has relocated from Lexington, KY to Columbia, MO. She notes that her new home is quite rural. Her latest adventure novel for middle grades readers, "Sailing to Freedom," has become a paperback book published by Square Fish, a MacMillian imprint.

**Gesine Veits** (postdoctoral 2014-2016, McNeil) started a new position with C4 Therapeutics in Cambridge, MA.

**David R. Walt** (BS 1974) of Tufts University will receive the 2017 Kathryn C. Hach Award for Entrepreneurial Success from the American Chemical Society.

**Terry J. Watt** (Postdoctoral 2008-10, Fierke) has been promoted to Associate Professor with tenure in the Department of Chemistry at Xavier University of Louisiana.

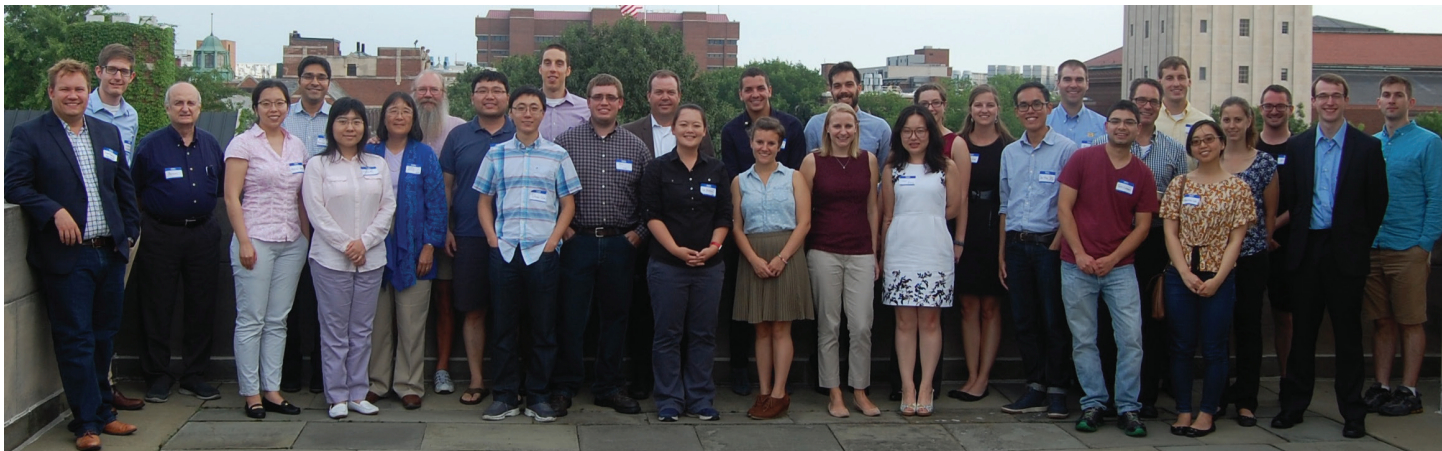
**Ian Wasser** (BS 1995), a PhD chemist, has joined Canton Colburn as a patent attorney in their Troy, MI office.

**Kazutoshi Yamamoto** (PhD 2011, Postdoctoral 2011-15, Ramamoorthy) joined the National Institutes of Health in Bethesda, MD as a Research Scientist in 2015.

**Rongchun Zhang** (postdoctoral 2013-16, Ramamoorthy) has become an Assistant Professor at Nankai University.

# Re-kindling Old Friendships, Making New Ones Alums & Students Enjoy Networking Dinner

By Peter Goldberg, 2015-16 chair of CPDO, PhD candidate in the McNeil group



From as far as Greece and as close as Ann Arbor, alumni from academia and industry gathered on campus in late July for the second annual alumni networking workshop and dinner organized by the Chemistry Professional Development Organization (CPDO). This student and postdoctoral group connects current inhabitants of UM labs with department alumni in a range of careers. The event was comprised of industry and academic panels, a speed networking event, and a catered dinner.

Alumni returned to visit old friends and mingle with the current class. They discussed career opportunities, and offered advice to current students on how to obtain their career objectives.

The day began with alumni led panels, where graduate students mined alumni for secrets about how to get the first job offer, navigate a successful career, and learn about potential employment opportunities. After their turn in the spotlight, the alumni turned the tables for a speed interviewing event. Students had a limited time to pitch their best attributes, and brand themselves for the types of positions that the alumni's company offers. Alumni represented a range of companies and schools, including Dow Agrosciences, BASF, PPG, P&G, Michigan State University, and University of New Hampshire.

The interviewing event was held in multiple rounds, where students visited different alumni in groups to give their pitch, hear the pitches of others, and then receive immediate feedback. Alumni provided general feedback and recommendations to the entire group of participants about interviews and job talks.

After the formal portion of the program was complete, the group enjoyed dinner and drinks with a panoramic view of central campus from the Rackham Building rooftop. Social hour flowed into dinner, and the casual discussions pinballed from Pokémon Go to the benefits of video interviewing to raccoons acting as uninvited house guests (but somehow they can be better at keeping things tidy than the actual occupants).

CPDO is grateful for the participation of all alumni, and was impressed by the students that challenged themselves in the speed interviewing event. As an organization, we benefit tremendously by many types of alumni interaction throughout the year, and wanted



*Top: Group photo on the Rackham Terrace Below: Scott Osborne, the first Alumni Service Award winner, talks with grad students.*

to demonstrate this appreciation to our alumni. CPDO's first ever *Alumni Service Award* was conferred upon Scott Osborne from Proctor & Gamble. Scott's involvement with UM chemistry students over the past year has been substantial — presenting on interviewing, providing one-on-one resume reviews, giving an introduction to technologies at P&G, leading a Serial Innovators workshop, and more. All of this is in addition to Scott's participation in the alumni panel and speed interviewing events that afternoon.

Organizations like CPDO thrive through the engagement of alumni like Scott that enable us to host exciting events throughout the year. We were very happy to have so many alumni participate in the annual alumni networking event, and look forward to seeing everyone again 2017!

**Visit the CPDO website:**

**<http://cpdo.chem.lsa.umich.edu/home>**

**Contact us at: [chempdo2009@umich.edu](mailto:chempdo2009@umich.edu)**

**Sign up for notices of next year's event  
scheduled for late July, 2017.**

**John W. Cahn** (BS 1949) died on March 14, 2016 of leukemia at the age of 88 in Seattle. Dr. Cahn was born to a Jewish family in 1928 in Cologne. In 1933 the family fled first to Holland and finally settled in New York in 1939. Dr. Cahn became a US citizen in 1945 and served in the army of occupation in Japan. After discharge he attended the UM earning a BS in Chemistry in 1949. He obtained a PhD in Physical Chemistry at UC, Berkeley in 1952. He then became an Instructor in metallurgy at the University of Chicago (1952-4). He was a scientist at GE Co. research laboratories in Schenectady, NY from 1952-1964. He taught at MIT 1964-1978 and then joined the National Bureau of Standards (now NIST) in 1977, where he was a Senior Fellow in the Material Science and Engineering Laboratory. From 1984 on he was an Affiliated Professor of Physics at the University of Washington.

Dr. Cahn rapidly became one of the leading theoreticians in metallurgy and material science. He is best known for Allen-Cahn and Cahn-Hilliard equations. His developments in theory and models of materials give scientists tools to understand the interaction of molecules in new materials.

He was a member of both the National Academy of Science and the National Academy of Engineering. He received the Kyoto Prize, the Bowler Prize, the National Medal of Science, the Michelson-Morley Award, A Guggenheim Fellowship and many others.

Dr. Cahn is survived by his wife Anne, three children, and their families.

**Dean W. Cooke** (Chemistry Faculty Member, 1959-1966) died on August 10, 2011 at the age of 80 in Stillwater, OK. He was born in Uniontown, PA and earned his BS in 1955 and his PhD in 1959 from the Ohio State University. He moved to UM in 1959 where he taught inorganic chemistry. Dr. Cooke then joined the faculty of Western Michigan University in Kalamazoo and retired in 1996 as Professor of Chemistry. His research interests were in coordination chemistry.

**John (Ivan) Legg** (MS 1963; PhD 1965, Cooke) died on August 4, 2015 at the age of 77 in Vancouver, WA. Ivan was born in Brooklyn, NY but grew up on South America where his father served as pastor in interdenominational churches. He earned his BA in chemistry at Oberlin College in 1960 before he moved to UM where he obtained his PhD, studying inorganic chemistry with Dean Cooke.

After a postdoctoral year at the University of Pittsburgh, Ivan joined the faculty of Washington State University, Pullman, in 1967. He was ultimately Professor of Chemistry and Chairman of the Chemistry Department, 1978-87. In 1987, he became Dean of the College of Science and Mathematics at Auburn University. He then moved to the University of Memphis as Provost in 1992. Finally he became Executive Vice President and Provost at Northern Illinois University, DeKalb in 2001 and retired in 2006.

Ivan was an active member of the Council for Chemical Research (CCR). He received the Malcomb E. Pritt Award from the CCR in 1994. Professor Legg's research interests were in the area of bioinorganic chemistry.

Professor Legg is survived by long term companion and caregiver, Carol Heller; former wife Carolynne Merrell; daughter Kirstin, son Chris, and three grandchildren.

**Wai Kee Li** (PhD 1968, Blinder) died at his home in Hong Kong of a brain tumor on January 27, 2016. Dr. Li earned his BS degree from the University of Illinois in 1964 prior to attending the UM, where he did research in theoretical chemistry under the direction of Professor S. Blinder.

After leaving the UM, Dr. Li became a faculty member at the Chinese University of Hong Kong. He rose through the academic ranks, ultimately becoming Professor of Chemistry (the Chairman of the Department) from 1999-2006. Dr. Li then became Emeritus Professor of Chemistry.

Professor Li's research interests included semi-empirical and ab initio M.O. studies on the structure, energetics and reactions of novel species.

**Elizabeth "Betty" (Chase) Overberger** (widow of Professor Charles G. Overberger) died on June 22, 2016 at the age of 92 in Ann Arbor. Betty worked for many years for the American Chemical Society in Washington, DC prior to her marriage to Charles. A memorial service was held on June 24 at Glacier Hills Senior Living Community. She is survived by four step-children, a niece, and nephew. For more information see the online obituary from the Ann Arbor News at: <https://go.gl/PYjRxa>.

**Mary C. (Walsh) Smith** (widow of Professor Peter A. S. Smith) died on May 17, 2016 at the age of 87 in Ann Arbor. She earned a PhD in Botany from UM and worked as a research scientist as well as a teacher of Microbiology at UM. A memorial party was held in honor of the lives of Mary and Peter Smith on August 23, 2016 at Cedars of Dexter Clubhouse. Mary is survived by her children Kent Smith, Leslie (Smith) Nyckel, three grandchildren and one great-granddaughter. For more information see the online obituary from the Ann Arbor News at: <https://goo.gl/1zm47R>.

**Donald H. Stedman** (Faculty Member UM, 1972-1983) died on April 16, 2016 of lung cancer at the age of 73 in Portland, OR. Don received is BA in 1964 from Cambridge U. (Downing College) and his MSc (1965) and PhD (1967) from the University of East Anglia. After a postdoctoral fellowship at Kansas State University (1967-69), he joined the Research Labs of the Ford Motor Company as a research scientist. In 1972 he became a faculty member at UM, with joint appointments in the Departments of Atmospheric and Oceanographic Sciences and in Chemistry. In 1983, he accepted the Brainerd Philipson Chair of Environmental Science at the University of Denver, from which he retired in 2008, remaining a Research Professor until the time of his death.

The University of Denver honored him with appointments as University Lecturer and as John Evans Professor, their highest award. Recently he was selected for the Haagen-Smit award, given annually by the California Air Resources Board. It recognizes career accomplishments in the area of air quality monitoring and improvement.

Don Stedman was a major figure in the field of pollution and atmospheric research. He contributed over 250 publications and held 35 patents. With long term collaborator Gary Bishop and students he developed the FEAT (fuel efficiency automobile testing) system. This highly automated system can test up to 10,000 vehicles per day and surpasses traditional methods of identifying polluting automobiles under actual on-road driving conditions.

Dr. Stedman is survived by his wife Hazel, and sons Kenneth, Roy, and Ian.

**Vivian K. Walworth** (BS 1942) died on March 29, 2016 at the age of 94 in Concord, MA. A native of Detroit, Vivian Kann graduated from Cass Technical High School in 1938. She received her BS in Chemistry from the University of Michigan in 1942. In 1941, she married fellow student Wilbur Walworth following his graduation from the UM School of Engineering. The couple moved to Cambridge, MA in 1943 where Wilbur was employed by the Submarine Signal Co. as a field engineer for ship board radar. Vivian joined Polaroid's Vectograph Research Department and worked in 3D imaging for support of aerial reconnaissance.

Vivian was a member of the Polaroid Research Division from 1944 to 1985, when she retired as Senior Research Manager for Photosensitive Materials. Her work included research and development of polarizers, 3D imaging processors, photosensitive materials, and photomicrography. She held 28 patents in these fields. For several years she worked closely with Dr. Edwin Land, who invented instant photography. She was instrumental in having his office and laboratory in Cambridge designated as a National Historical Landmark by the American Chemical Society.

Following WWII, the Walworths balanced parenting with their professional careers. They raised five children and were involved in community activities in Concord, MA where they moved in 1952.

She was predeceased by her husband, Wilbur. She is survived by daughters, Janis and Irene; sons, Alan, Roger, and James; and four grandchildren.



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### Victors Campaign

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.

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*These endowments funds provide ongoing support for our students—giving them the experience they need for their careers in the chemical sciences whether in industry, academia, or government.*

#### Masato Koreeda Research Fund

Established in 2013 on his retirement to honor Professor Koreeda's dedication to Chemistry and his students, the fund supports student researchers, expanding vitally important research experiences, especially for undergraduates.

#### Richard J. Cook Undergraduate Research Fellowship

Richard J. Cook and his wife, Teresa Lahti, have established the Richard J. Cook Undergraduate Research Fellowship. This fund supports an undergraduate in a research lab for a year. Cook graduated from the University of Michigan in 1969 with honors with a B.S. in Chemistry. His undergraduate research experience, he reports, set him on his career path. Cook earned a PhD in Chemistry from Princeton University in 1973 and then joined the faculty at Kalamazoo College. He became well known for environmental work. From 1996-2008, he served as President of Allegheny College and is now a principal of Lahti Search Consultants.

#### Hillig Graduate Student Endowed Fellowship

Two generations of Hilligs have earned PhDs in the Department of Chemistry, and that family history is being honored by an endowment from Dr. Kathy Dien Hillig and Dr. Kurt W. Hillig, II. This fund will provide merit-based support for students enrolled in the Department of Chemistry who are pursuing graduate degrees with an emphasis on Analytical or Physical Chemistry.

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

Wayne A. and Carol H. Pletcher have endowed a fund that supports graduate students. This gift will be augmented by the Bicentennial Matching Opportunity Initiative. Wayne Pletcher earned his M.S. and PhD. (1970) in Chemistry at the University of Michigan and was a postdoc at UM. He was formerly the director of Corporate Technical and Business Planning at 3M and president and CEO of Minnesota Technology, Inc. Carol Pletcher, who earned a PhD in Biochemistry from the University of Minnesota, is a former vice president at Cargill and president of Pletcher Incorporated.

*Contact Chemistry chair Robert Kennedy, if you would like to explore giving opportunities. [chem-chair@umich.edu](mailto:chem-chair@umich.edu) phone: 734-647-2125*

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**Every gift is important** and makes a difference in the Department's ability to provide for students and faculty. Here are a few opportunities to direct your gift.

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## We'd like to hear from you!

Please return this form to the department, Department of Chemistry  
930 University Ave., Ann Arbor, MI 48109-1055  
Or use the online form on our website,  
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 \_\_\_\_\_

Phone \_\_\_\_\_

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*)

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