

Letter from the Chair

The last year has brought a number of exciting developments in the Chemistry department. In this newsletter we are pleased to introduce our newest departmental hire, Brent R. Martin, whose work at the interface of chemical biology and analytical chemistry sheds light on the identification of novel disease targets. Additionally we are proud to profile the research of Prof. Melanie S. Sanford for which she was awarded a 2011 MacArthur Foundation Fellowship, the “genius” award, among numerous other recent honors.

The positive trajectory of the department has been recognized in our continually improving rank in the US News and World Report rankings (currently at 16) and our QS World University Ranking in Chemistry of 25 (16 in the US only). Our level of research funding has also been rapidly rising and we rank in the top 20 in terms of schools with the most federal support for chemical research and development.

The Chemistry Department is committed to providing the best educational experience for the University of Michigan undergraduate and graduate students, including the opportunity for undergraduate students to experience the thrill of scientific research. To further this aim, two longtime, generous donors to the department have pledged \$200,000 in financial support for summer research funding for undergraduate students in the Department of Chemistry. To help demonstrate their tremendous commitment to Michigan Chemistry, they are challenging fellow alumni, donors, and former faculty to contribute an additional \$200,000 to the same program by June

30, 2016. I encourage you all to join these donors in supporting undergraduate research opportunities by designating a gift to support “Undergraduate Research” on the enclosed reply envelope.

The summer research fellowship program matches undergraduate chemistry and biochemistry majors with Michigan faculty on campus every summer, providing what is often the formative experience in a research lab. Stipends of approximately \$3,500 are awarded to talented students for 10 weeks of research, and demand for fellowships far exceeds our ability to fund them. Currently, we identify more than 30 outstanding students from a large applicant pool who would benefit from this program. To date we have been able to identify summer support for approximately 15 students using a mix of discretionary funds and research grants. As federal agency support for this important educational mission wanes, it is especially important to generate additional resources for this critical program and I hope you will consider making a contribution to this or one of our other areas of need.

Both educational and research missions of the Chemistry Department are growing and thriving, despite budget challenges. The Chemistry Department and I are grateful for your contributions and support of our endeavors to teach the future generation of scientists and leaders. The loyal donors to the Department’s various gift funds, scholarships and endowments are enumerated elsewhere in this newsletter. On behalf of the students and faculty who benefit from this support, I thank you sincerely. I hope that you will come and

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2011

The Regents of the University of Michigan:
 Julia Donovan Darlow, Laurence B. Deitch, Denise Ilitch, Olivia
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 Martin Taylor, Katherine E. White, Mary Sue Coleman, ex officio.
 Mary Sue Coleman, president.

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

visit the Department anytime that you are in town. I look forward to meeting alumni/alumnae visitors.

Best wishes,
Carol Ann Fierke, Chair
Jerome and Isabella Karle Professor of Chemistry and Professor of Biological Chemistry

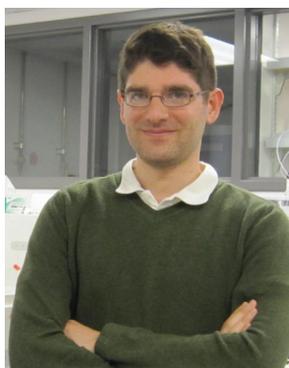
Spotlight: Profiles of New Faculty

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

Brent R. Martin

Assistant Professor
PhD: UC San Diego
PostDoc: Scripps Research Institute
Bioanalytical Chemistry

Our group aims to explore the function and physiological role of novel enzymes and lipids involved in the development of neurological diseases and cancer. To achieve these goals, we propose to bridge chemical, analytical, and biological approaches to identify novel disease targets and develop new approaches for therapeutic intervention. Our expertise in cell and molecular biology,



chemical probes, mass spectrometry, and imaging technologies presents a unique opportunity for broad training in chemical biology. This multidisciplinary approach will rely on technological innovation focused on unexplored biochemical pathways and their links to human disease.

Cysteine residues in proteins have pKa values close to neutral and are often in their reactive thiolate form in cells, making them nucleophilic and targets of distinct post-translational modifications. One such modification, termed protein S-palmitoylation, describes the thioester linkage of palmitic acid and cysteine in proteins, and is required for membrane association and spatial regulation of diverse cellular pathways involved in cell growth and signaling. In many cases, palmitoylation is thought to be dynamically regulated, although the mech-

anisms that control this lipid modification remain poorly characterized. In order to understand the processes regulating dynamic palmitoylation, we have developed a quantitative chemo-proteomic platform using cutting edge mass spectrometry applied to global comparative analysis of palmitoylated proteins, and used this platform to interrogate the population of palmitoylated proteins regulated by both palmitoyl transferases and thioesterases implicated in cancer and neurological diseases. Additionally, using competitive activity-based high throughput screening, we identified a new class of mechanism-based in vivo-active, potent, and highly selective inhibitors to enzymes proposed to regulate protein palmitoylation. In combination with novel activity-based probes, we identified a unique subset of enzymatically regulated, dynamically palmitoylated proteins in cells.

Understanding the functional role of dynamic post-translational modifications in disease will be explored through the application of new inhibitors and genetic models to test the importance of potential therapeutic targets in vitro and in vivo. Additionally, these methodologies will be used to globally assign substrates to unannotated enzymes, as well as the introduction of new fluorescence microscopy approaches for visualizing the spatial and temporal control of membrane compartmentalization. Furthermore, through the development of an expanded suite of chemical probes, we will explore the enzymology, regulation, interactions, and function of novel enzymes involved in the biosynthesis and degradation of unique lipids altered in specific disease states.

Department of Chemistry Newsletter

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Faculty News

Hashim Al-Hashimi was featured in the October 2010 issue of *Popular Science* magazine as one of the "Brilliant Ten." Each year the magazine picks the ten most innovative young US-based scientists and features them in a special issue. Hashim was cited for his pioneering work recording "nano-movies" of RNA and DNA showing how these vital biomolecules wiggle and move.

Arthur Ashe, Michael Morris and **John Wiseman** were honored this year

as 50-year members of the American Chemical Society.

Julie Biteen received the PicoQuant Young Investigator Award. She was recognized at the 2011 SPIE Photonics West Conference for applying single molecule and super-resolution imaging to live bacterial cells. Julie is part of a UM team of researchers who have been granted an NSF Materials Research Science and Engineering Center for Photonic and Multiscale Nanomaterials.

Charles Brooks, the Warner-Lambert/Parke Davis Professor of Chemistry, has

been included on the Thomson Reuters Science Watch List, "Top 100 Chemists, 2000-2010." Charles' work focuses on understanding the forces that determine the structure of proteins, peptides, nucleic acids and complexes containing these important biomolecules. He has also been recognized for his pioneering work in computational biophysics with a Computerworld Smithsonian Award.

Zhan Chen is part of a research team, including **Charles Brooks** and **Neil Marsh**, which has received a Multidisciplinary University Research Initiative from the Army Research Office. They will study biological molecules at interfaces at different humidity levels. Together with **Neil Marsh**, Zhan received a grant from the Defense Threat Reduction Agency to investigate structure-function relationships of chemically immobilized enzymes.

Brian Coppola is one of three finalists for the 2012 Robert Foster Cherry Award for Great Teaching. The award is conferred biennially by Baylor University and carries a monetary award of \$250,000 as well as another \$25,000 for his host department. The winner will be announced in the spring 2012. Brian has also been awarded the UM Provost's 2011 Teaching Innovation Prize. The purpose of this award is to honor faculty who have developed innovative approaches to teaching that incorporate creative pedagogies.

Carol Fierke received a Rackham Distinguished Graduate Mentoring Award recognizing her outstanding contributions directing graduate students. She will also receive the 2012 Repligen Award in Chemistry of Biological Processes. This award is sponsored by the ACS Division of Biological Chemistry. It recognizes her contributions to our understanding of how protein and nucleic acid catalysts achieve high efficiency with rigorous control of reaction specificity.

Raoul Kopelman received a prize at the UM "Celebrate Invention" for submitting six inventions to UM Tech Transfer.

Kevin Kubarych received a Camille Dreyfus Teacher Scholar Award.

Nicolai Lehnert received a 3M Non-tenured Faculty Grant.

Anna Mapp is receiving an Arthur C. Cope Scholar Award given by the ACS to recognize her outstanding achievements in

organic chemistry. Anna has been elected a Fellow of the American Association for the Advancement of Science (AAAS). She was cited for her fundamental studies leading to strategies for the development of small molecule transcriptional regulators.

Adam Matzger was elected a fellow of AAAS. Adam was honored for advancing the science and technology of crystallization in areas including polymorphism, two-dimensional assembly and porous solids.

Anne McNeil received a 2011 Alfred P. Sloan Research Fellowship. Sloan fellowships have been awarded since 1955 and are given to early career scientists in recognition of achievement and potential to make substantial contributions to their fields. She has also received a LSA Excellence in Teaching Award. Ann is also a recipient of the 2010 Presidential Early Career Award for Scientists and Engineers (PECASE). This award is the highest honor bestowed by the United States government on science and engineering professionals in the early stages of their independent research careers. Awardees are selected for their pursuit of innovative research at the frontiers of science and technology and their commitment to community service as demonstrated through scientific leadership, public education or community outreach.

John Montgomery was elected a fellow of the AAAS. He was honored for fundamental studies in catalytic reductive coupling involving metallacyclic intermediates which allow the construction of complex organic molecules.

Mark M. Meyerhoff received a Rackham Distinguished Faculty Achievement Award for 2011.

Michael D. Morris and Pavel Matousek have edited a volume, "Emerging Raman Applications and Techniques in Biomedical and Pharmaceutical Fields," Springer, Berlin, 2010.

Ayyalusamy (Rams) Ramamoorthy organized a PACIFICHEM symposium in Hawaii on, "Advances in Solid State NMR of Biological Molecules." Recent article by Rams, "Inhibition of Amyloid Peptide Fibrillation by Inorganic Nanoparticles," [*Angew. Chem. Int.*, **2011**, *50*, 1-7] was featured on the cover of that journal and highlighted in C&EN.

Brandon Ruotolo won the American Society for Mass Spectrometry Research Award. The objective of the award is to promote academic research by young scientists in mass spectrometry. He has also received the Ralph E. Powe Junior Faculty Enhancement Award sponsored by the Oak Ridge Associated Universities.

Melanie Sanford was recently awarded a MacArthur Fellowship. She was one of just 22 new fellows in all fields named by the John D. and Catherine T. MacArthur Foundation on September 22, 2011. Each MacArthur Fellow receives \$500,000 "no strings attached" support for the next five years. The so called "genius awards" are designed to give the recipients freedom to explore new areas. Melanie also became an Arthur F. Thurnau Professor this past year. She was named an AAAS Fellow for distinguished contributions to the fields of organic, organometallic and inorganic chemistry, particularly the development and mechanistic studies of transition metal catalyzed reactions. Finally she has received the Royal Society of Chemistry (RSC) Fluorine Prize for 2011.

Roseanne Sension has been appointed to a three year term on the LSA Executive Committee.

Edwin Vedejs, Moses Gomberg Collegiate Professor of Chemistry, retired from active status on June 1, 2011 and was appointed Professor Emeritus of Chemistry. Professor Vedejs completed his BS at the UM in 1962 and his PhD at the University of Wisconsin in 1966. He then spent a post doctoral year at Harvard with E.J. Corey. He was a faculty member of the University of Wisconsin 1967-1999 and joined the faculty at UM in 1999.

Ed is one of the leaders in the field of synthetic and mechanistic organic chemistry. He is particularly known for developing synthetic approaches to cytotoxic nitrogen-containing natural products and mechanistic elucidation of the Wittig reaction. He has performed many services to the Organic Chemistry Community. He served as an Associate Editor of the *Journal of the American Chemical Society* (1994-1999) and was chair of the Organic Division of the American Chemical Society (2003).

His honors include: Alexander von Humboldt Senior Scientist Award (1984), the Pharmacia & Upjohn Teaching Award (1996), Paul Walden Medal (1997), the

H.C. Brown Award for Creative Research in Synthetic Methods (ACS) (2003), the Grand Medal of the Latvian Academy of Sciences (2005), the Order of the Three Stars (2006) and ACS Fellow (2011).

He supervised more than 80 PhD students, numerous post-doctorals and undergraduates. As Professor Emeritus he intends to continue with his research work.

Nils Walter was the Buchanan Lecturer at Bowling Green State University. He serves as the director of the Single Molecule Analysis in Real-Time (SMART) Center which has just opened.

Faculty Profiles

Melanie Sanford

Melanie Sanford was born in New Bedford, MA and grew up in Providence, RI. She received BS and MS degrees in chemistry from Yale University in 1996. While there she worked with Professor Robert Crabtree studying CF bond activation reactions. She then pursued graduate studies at Caltech working with Bob Grubbs. During her time in Pasadena she conducted detailed mechanistic studies of 1st and 2nd generation Ru olefin metathesis catalysts. In 2001, Melanie moved to Princeton University where she was an NIH post-doctoral fellow working with Jay Groves studying the organometallic chemistry of metalloporphyrins.

Melanie started her independent career at Michigan in 2003. She quickly built up a group of outstanding students to study problems at the interface of organic and inorganic chemistry. The Sanford group has made contributions to numerous areas. For example, they have developed new catalysts and catalytic procedures for directly transforming traditionally inert C-H bonds into new functional groups. These reactions have the potential for widespread applications in the late-stage modification of biologically active molecules. As a result, this work has garnered tremendous interest from the synthetic organic community and from the pharmaceutical and agrochemical industries.

The Sanford group has also made fundamental contributions to understanding the chemistry of high oxidation state palladium complexes. Such compounds were once considered inaccessible under ambient conditions due to high kinetic barriers

Back row: J. Brannon Gary, Monica Lotz, Amanda Hickman, Joy Racowski, Melanie Sanford, Sharon Neufeldt, Shinhee Lee, Asako Kubota, D. Marion Emmert Front row: Kevin Fortner, Rebecca Loy, Amanda Cook, Anna Wagner, Chelsea Huff, Kate Butler, Kara Stowers, Yingda Ye, Ansis Maleckis



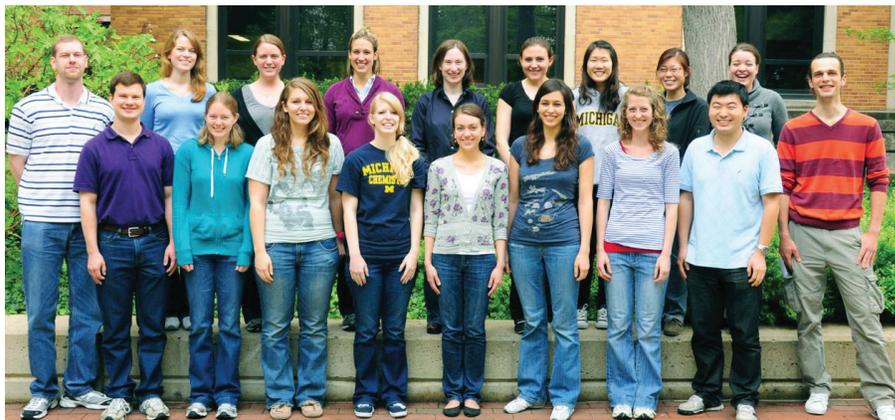
for forming them and also due to their susceptibility to rapid decomposition. Work in the Sanford group has shown that, with careful design of supporting ligands, such complexes can be synthesized and studied in detail. Furthermore, they appear to play a heretofore unappreciated role in a variety of catalytic transformations. In many cases, they react with complementary selectivity compared to more conventional palladium(II) or palladium(0) species (so called “low-valent palladium”). The Sanford group (and many other research groups around the world) are now exploiting the unique chemistry of Pd(IV) in CH functionalization and alkene functionalization reactions.

More recently the Sanford group has started to move into other areas of catalysis and energy research. For example, a new project focuses on developing tandem sequences of catalysts for the reduction of CO₂. Preliminary studies show that the combination of three catalysts can enable selective low temperature hydrogenation

of CO₂ to methanol. Another relatively new project (collaboration with colleagues in Chemical Engineering) involves designing new V and Cr complexes for applications in redox flow batteries.

Over the past few years, Melanie has won a number of awards. Some highlights include a MacArthur Foundation Fellowship, the ACS Award in Pure Chemistry, and the National Fresenius Award. Her Pure Chemistry Award symposium at the Anaheim ACS meeting was chaired by former student Dr. Lopa Desai, who is currently pursuing a very successful research career at Bristol Myers Squibb. Melanie has also received several awards for undergraduate teaching, including the John Dewey Award for undergraduate education and the LSA award for excellence in teaching. She was also recently named Arthur F. Thurnau Professor of Chemistry at the University of Michigan.

Graduates from the Sanford group have recently moved on to a variety of different postdocs as well as to industrial careers (for example, at Bristol Myers Squibb, Abbott Laboratories, Dupont Agrochemicals, Nalco, and Honeywell). Furthermore, several former graduate students and post-docs have started faculty positions at schools including St. Olaf College, Worcester Polytechnic University (WPI), and Wartburg College.



Graduate Program News

Graduate Degrees - Masters & Ph.D

August 2010, December 2010, May 2011 & August 2011

Doctorates

Seokhoon Ahn Adam J. Matzger
Two-Dimensional Crystallization from Multicomponent Solutions

Jessica Anna Kevin Kubarych
Exploring Condensed Phase Equilibrium Dynamics via Ultrafast Two-Dimensional Infrared Spectroscopy

Christopher Avery Zhan Chen
Studies of Molecular Mechanisms of Synthetic Antimicrobial Compounds Using Sum Frequency Generation Vibrational Spectroscopy

Carlos Baiz Kevin Kubarych
Investigating Ultrafast Condensed-Phase Chemical Dynamics with Coherent Multidimensional Spectroscopy

Nicholas Ball Melanie Sanford
Synthetic and Mechanistic Investigations of Palladium Trifluorides and Fluorides Towards Aryl CuCF₃ and CuF Bond Formation

Ryan Baxter John Montgomery
Method Development and Mechanistic Investigation of Nickel-Catalyzed Reductive Coupling Processes

Anette Casiano-Negroni Hashim Al-Hashimi & Carol A. Fierke
Investigating the Conformational Dynamics of RNA Induced by Metal Cations and Aminoglycosides Using NMR

Saumen Chakraborty Vincent L. Pecoraro
Designed Metalloproteins: From Structurally Characterized Scaffolds to Helical Bundles

Claire Chisolm Robert Kennedy
Development and Characterization of Microscale Samplers Coupled to HPLC for Near Real-Time Reaction Monitoring

Anna Clark Robert Kennedy
Near Real-Time Microfluidic Monitoring of Cellular Secretions Using Fluorescent Enzyme Assays

Amy Danowitz Anna K. Mapp
I. Synthesizing and Identifying Small Molecule Probes for Targeting Transcriptional Co-factors
II. Design and Implementation of a Peer-Led Practical Research Ethics Module for Teaching Graduate Research Ethics

Elizabeth Dethoff Hashim Al-Hashimi
Structural and Dynamic Basis for Assembly of the HIV-1 TAR-Tat Ribonucleoprotein Complex

Kathryn Dooley Michael D. Morris
Raman Spectroscopic Studies of Bone Biomechanical Function and Development in Animal Models

Kevin Hagedorn Stephen Maldonado
Experimental Studies and Numerical Simulation on Light-Harvesting Devices

Andrew Higgs Melanie Sanford
Nickel-Mediated Carbon-Heteroatom Bond Formation and Efforts Towards High-Oxidation State Nickel Complexes

Tamiika Hurst Carol A. Fierke
Development of a Novel Protein Sensor for the Intracellular Imaging of Zinc

Erica Lanni Anne McNeil
Mechanistic Studies of Nickel-Catalyzed Chain-Growth Polymerizations: Additive and Ligand Effects

Matthew Leathen John P. Wolfe
Development of Reactions for the Stereoselective Synthesis of Heterocycles and Benzylic Amines, and Exploration of Bisoxazolidines as Small Molecule Transcriptional Activation Domains

Georgia Lemen John P. Wolfe
Extension of Carboamination Methodology to the Synthesis of Isoxazolidines and 2,5-trans-pyrrolidines

Vilmali Lopez-Mejias Adam J. Matzger
Applications and Mechanistic Studies of Polymorph Selection by Polymer Heteronuclei

Thomas Lyons Melanie Sanford
Pd(II/IV)-Catalyzed Cyclopropanation Reactions and Site Selectivity in Pd-Catalyzed Oxidative Couplings

Duy Ngoc Mai John P. Wolfe
Synthesis of Heterocycles via Enantioselective Palladium-Catalyzed Reactions

Hasnain Malik John Montgomery
Strategies for Regio- and Enantiocontrol in Nickel-Catalyzed Reductive Couplings of Aldehydes and Alkynes

Robert McCanne Kevin Kubarych
Applications of 2DIR on Solvation Dynamics and Reaction Chemistry

Ravi Prakash Reddy Nanga A. Ramamoorthy
Structural Investigation of Helical Intermediates in the Misfolding Pathway of Amyloid Peptides Associated with Type II Diabetes and HIV

Joshua Neukom John P. Wolfe
Method Development for the Palladium-Catalyzed Synthesis of Nitrogen Heterocycles and Mechanistic Analysis of Migratory Alkene Insertion into Pd-N Bonds

Michael Orozco Roseanne J. Sension
Temperature-Dependent Studies of Chemical Reaction Dynamics

Dustin Patterson E. Neil Marsh
Symmetry Assembled Supramolecular Protein Cages: Investigating a Strategy for Constructing New Biomaterials

Amy Payeur Robert Kennedy & Richard Sacks
Novel Applications of Comprehensive Two-Dimensional Gas Chromatography Time-of-Flight Mass Spectrometry

Maura Perry Robert Kennedy
Fast Capillary Electrophoresis for the Study of Dopamine in the Central Nervous System

Robert-Andre Rarig Edwin Vedejs
Advances in Hydroboration: Metal-Free Oxygen-Directed Hydroboration and Asymmetric Hydroboration with N-Tosyl-(R,R)-2,6-Diisopropyl-1,4-Borazinane

Matthew Remy Melanie Sanford
Group 10 Methyl Transfer Reactions toward Catalyst Development for Oxidative Oligomerization of Methane

Jennifer Schnobrich Adam J. Matzger
Linker Design Principles and Implementation in High Performance Microporous Coordination Polymers

Grant Sormunen John Montgomery
Nickel-Catalyzed Reductive Couplings of Aldehydes and Alkynes: Controlling Stereochemistry and Regioselectivity using N-Heterocyclic Carbene Ligands

Francisco Vazquez Eitan Geva
Calculation of time correlation functions and rate constants in liquid solutions

Bo Wang Kristina Hakansson
Multiplex mass spectrometric approaches for protein cross-linking analysis and protein functional studies

Meng Wang Robert Kennedy
In Vivo Neurochemical Monitoring with High Temporal and Spatial Resolution using Segmented Flow Microfluidics

Kazutoshi Yamamoto A. Ramamoorthy
Atomic-Level Dynamical, Structural and Functional Investigation of a Membrane Protein Complex through Nuclear Magnetic Resonance Spectroscopy

Qinyi Yan Mark E. Meyerhoff
Implantable Amperometric Glucose/Lactate Sensors with Nitric Oxide Release/Generation Coatings for Enhanced Biocompatibility and Needle-Type Glucose Sensor for Tear Glucose Measurements

Wen Zhou Kristina Hakansson
Gas-phase Ion-electron and Ion-photon Reactions for Structural Characterization of Protein Glycosylation

Masters

Lindsay Amos
Andrea Bell
Russell Bornschein
Elizabeth Brisbois
Wenyi Cai
Alana Canfield
Chun Chow
Jessica Donehue
Di Gao
Beth Haas
Linjie Han
Xiaoguang Hao
Vishalakshi Krishnan
Susie Krzmarzick

Ravi Prakash Reddy Nanga
Bo Peng
Ross Putman
Gabriel Roman
Emily Salans
Nichole Schmidt
Shuwen Sun
Christopher Taylor
Laura Thoma
Mallory van Dongen-Sohmer
Ning Wang
Alexander Wolf
Yingda Ye
Yueyang Zhong
Ying Zhou

The Victor C. Vaughan Symposium

The Vaughan Symposium (<http://umich.edu/~vaughan/>) was held in the Chemistry Department on July 28, 2011. The symposium is named in honor of Victor C. Vaughan (1851-1921) who was one of the first students to graduate from the University with a PhD in Chemistry (1876). Dr. Vaughan subsequently earned an MD from Michigan in 1878 and went on to a distinguished career in medicine. He served as Dean of the Medical School 1891-1921 and president of the AMA (1914-5).

The Vaughan Symposium was designed by and is run by Michigan Chemistry Graduate Students. It serves as a venue in which to share exciting research taking place within the Department of Chemistry. Originally named Pecrum, the first symposium was held in 2003. Through participants presenting their work to the Department as a whole, students foster collaborations, inspire new avenues of research, and nurture a growing sense of community within the Department. The symposium has become an annual tradition within the Department of Chemistry.

This year's symposium was chaired by Elaina Zverina. It started and finished with two excellent plenary lectures by Dr. Scott Young of Dow Chemical Company and Professor Edward Solomon of Stanford University. In between there were six 25 minute talks by graduate students. Student posters were presented in morning and afternoon sessions. All registrants received a free lunch and a symposium t-shirt.

The organizing committee selected an oral presentation by Sharon Neufeldt (Advisor: Sanford) to receive the outstanding oral presentation award. The award consists of an \$800 travel award to attend a scientific meeting. There were two other awards for oral presentations and 27 for excellent posters. The awardees are listed in this newsletter. These awards of \$400 each are to be used to attend a scientific meeting. We are grateful to the Dow Chemical Foundation for their generous support of these awards.



Kasimir Fajans Dissertation Award

On November 1, 2011 Dr. Kami Hull received the Kasimir Fajans Award for the most outstanding chemistry dissertation for the years 2008-2009. Dr. Hull, who is currently a postdoctoral fellow at Stanford University, where she works with Professor Barry Trost,

delivered a lecture on, "Palladium-Catalyzed Oxidative Cross-Coupling Reactions and Progress Towards the Total Synthesis of (-)-Lasonolide A." Dr. Stefan Fajans [Kasimir Fajans' son] and her mentor Professor Melanie Sanford attended the Departmental reception prior to the lecture. Her name has been placed on a bronze plaque on permanent display in the main conference room of the Chemistry Building.



Melanie Sanford and Kami Hull

Graduate Awards

Departmental Awards

Florence Fenwick Outstanding Graduate Student Instructor Award

Presented to Chemistry graduate students who taught undergraduate courses in Chemistry during the 2010-2011 academic year. Recipients are selected for their contribution to innovation in the lab or classroom on the basis of teaching evaluations and a written recommendation by a faculty member. These awards are provided from the Florence Fenwick Memorial Fund.

- Joseph Yourey (Bartlett)

Alumni Fund Outstanding Graduate Student Research Award

Selection for this award is based on the research advisor recommendation letter, publications, posters & presentations made at meetings, uniqueness and nature of research during the 2010-2011 academic year. This award is provided from the Chemistry Alumni Fund.

- Jameson Bothe (Al-Hashimi)

American Chemical Society Outstanding Graduate Student Award for Research and Teaching

This award is given by the Huron Valley Section of the American Chemical Society. It is intended to recognize achievement in teaching and research during the 2010-2011 academic year.

- Alex Johnson-Buck (Walter)

Milton Tamres Outstanding Teaching Award

The late Milton Tamres, established this award to recognize outstanding cumulative teaching service. Mrs. Françoise Tamres continues to maintain the support for this award in her husband's honor.

- Deidra Gerlach (Lehnert)

Robert & Carolyn Buzzard Graduate Chemistry Student Leadership Award

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

- Amy Danowitz (Mapp)

George Ashworth Analytical Chemistry Fellowship

The George Ashworth Endowment provides for a fellowship to be given to a graduate student to continue research in analytical chemistry. The award provides for a summer half-term stipend.

- Rui Huang (Ramamoorthy)

Robert W. Parry Fellowship

The Robert W. Parry Award is made possible through the generous donations of alumni, friends, industrial donors and the students of Professor Parry. It is awarded to a graduate student who has shown excellence in research in inorganic chemistry. This award provides for a summer half-term stipend.

Joseph Yourey (Bartlett)

Peter A.S. Smith Fellowship

The Peter A.S. Smith Fellowship was endowed in 1995. The fellowship is awarded to a graduate student who is doing research in synthetic organic or inorganic chemistry. This award provides

for a summer half-term stipend.

- Junsi Gu (Maldonado)

Margaret & Herman Sokol Graduate Summer Research Fellowship

Margaret Sokol, who passed away just a few years ago, along with her late husband, Herman, who graduated from U-M in 1940, established this fellowship for graduate students in chemistry in 1983. This award is given to a student who has shown excellence in research and provides for a summer half-term stipend. Mrs. Sokol through her estate, has honored the Chemistry Department with a very generous endowment.

- John King (Kubarych)

NSF Graduate Fellowships

This is an extremely competitive national competition, and is an testament to the outstanding accomplishments of these students!

- Heidi Phillips (Dunietz/Geva)
- Anna Wagner (Sanford)
- Kelsey King (McNeil)
- Se Ryeon Lee (McNeil)
- Alaina DeToma (Lim)
- Cameron Moore (1st year, rotating in Szymczak)

The following students received an Honorable Mention in the NSF Graduate Fellowship competition, which is also a great achievement.

- Sabrina Peczonczyk (Maldonado)
- Jessica Donehue (Goodson)
- Tyler Carter (1st year, rotating in Szymczak)

Vaughan Symposium

Dow Travel Award for best oral presentation:

- Sharon Neufeldt

Travel awards for oral presentations:

- Joseph Jankolovits
- Jameson Bothe

Travel awards for poster presentations by cluster:

Analytical

- Junsi Gu
- Billy Clifford-Nunn
- Jeanne Hankett
- Will Conlin

Chemical Biology

- Sameer Phadke
- Xin Liu
- Benjamin Buer
- Sethu Pitchaiya
- Heidi Pedini
- Ramya Krishnan

Inorganic

- Brannon Gray
- Chelsea Huff
- Fangting Yu
- Cameron Moore
- Thaddeus Boron III

Materials

- Rayeon Lee
- Kira Landen-Berger
- Jing Chen
- Joseph Yourey

Organic

- Dani Schultz
- Anna Wagner
- Monica Lotz
- Doug Hansen

Physical

- Bei Ding
- Beth Haas
- Heidi Phillips
- John King

Undergraduate Program News

Undergraduate Degrees

August 2010, December 2010, May 2011 & August 2011

Bachelor of Science.

Biochemistry

Gelareh Abulwerdi
Michael Adams
Sunil Agarwal
James Aldridge, III
Benjamin Baldus-Strauss
Katie Baughman
Rachel Beaupre
Stephanie Boyle
Samantha Bruni
Eric Chen
Loretta Choe
Rebecca Chota
Devan Cote
Wasan Daimi
Yue Ding
Maxwell Dixon
Kevin Fay
Julie Francisco
Samantha Glass
Christopher Grondin
Melissa Hoffman
Michael Holland
Christopher Holt
Marcella Kaddoura
Michael Kheir

Junghyun Kim
Jessica Lai
Elizabeth Lasalle
Lauren Leader
Clara Lee
Linda Lee
Sora Lee
Paul Lin
Susan Liu
Ramsay Macdonald
Dorota Marchel
Miguel Martinez-Herrera
John Mazzara
Brittney Miller
Jeffrey Morgan
Khalil Mroue
Christine Norton
Sameer Oak
Caitlin O'Gara
Alex Paul
Joshua Payne
Emily Riley
Margaret Rodgers
Nathaniel Root
Samer Salamekh
Andrew Samann
Kamya Sankar

Alexander Sapick
Nicholas Sattelberg
Erica Saunders
Helen Shi
Elizabeth Shy
Bennett Smith
Jesse Song
Melissa Spalding
Christina Suh
Albert Tang
Kimberly Taphouse
Robert Teixeira
Benjamin Throesch
John Wallington
Chen Wang
Rebecca Weber
Seong Kyu Yang
Juno Yoo

Bachelor of Science. Chemistry Concentration

Adam Runkle
Mosiah Smith

Bachelor of Science in Chemistry

John Balch

Chloe Bass
Vivek Behera ‡
Sarah Breed
Azhar Carim
Thomas Chae
Andrew Cipa
Patrick Collins
Reza Djavadian
Angelique Sao-Mai Do
Rachel Franzblau
Anthony Grillo ‡
Kaitlyn Hagan
Alexander Hyla
Timothy Jin
Nickolas Linkous
Jessica Lopez
Stephen Martin
Brittany Mitchell
Kyle Nedic
Mansur Pathan
Andrew Robison
Tyler Rohrs
Brandon Rosen
Shu Situ
Sean Tompkins
Mary Tran
Aamir Uddin
Matthew Wall
Britt Wedenoja
Katryn Williams
Brittany Worley
Susan Yang
Yefim Zaltsman ‡

‡ dual concentration in Biochemistry and Chemistry

Undergraduate Awards

Alpha Chi Sigma Outstanding First Year Student Award

This award is designated by the Alpha Beta Chapter of the Alpha Chi Sigma Chemistry fraternity to a student in first-year chemistry who has demonstrated an interest in chemistry, shown outstanding academic potential as judged by instructors, and has demonstrated leadership with fellow students.

- Sepideh Ashrafzadeh

Alumni First Year Achievement Awards

The Department of Chemistry honors students in the first-year chemistry program who have demonstrated exceptional performance in their laboratory and lecture work. The award is based on the recommendations of instructors, graduate student instructors and undergraduate advisors.

- John Hsieh • Seth Klapman • Oliver Lam
- Dale Lee • Humaira Nawar • Kailene Schabes

Alumni Outstanding Awards

The undergraduate awards committee established three awards in 1991. These awards recognize academic excellence and leadership potential of second year, third year, and senior chemistry and biochemistry concentrators.

- Second Year — Henry Kuang
- Third Year — Robert Lentz
- Senior — Susan Yang

American Chemical Society Analytical Chemistry Award

The undergraduate advisors have established this award to recognize an outstanding junior chemistry major.

- Joseph Reed

American Institute of Chemists Award

The American Institute of Chemists Awards are given by the recommendation of the awards committee based on a student's excellent record of ability, character, and academic achievement. We consider the American Institute of Chemists Award to be the top recognition for our graduating seniors.

- Biochemistry: Brandon Rosen
- Chemistry: Anthony Grillo

CRC Outstanding Achievement Award

Each year, around the country, Departments of Chemistry are asked to recognize a student taking introductory chemistry who has demonstrated exceptional performance in laboratory and lecture work. The CRC Award has a long-standing recognition as the top honor for an early-career student.

- Xiao Wang

Seyhan N. Ege—WISE Award

Seyhan N. Ege was one of the founders of the University of Michigan's Women in Science and Engineering (WISE) Program. Each year, the Program recognizes outstanding achievement by

an undergraduate woman or student of color, signifying the participation of traditionally underrepresented groups in the chemical sciences.

- Melissa Hoffman

Honors College Vanko Award

In August of 1966 Roger B. Vanko, a junior in the University of Michigan Honors College, was killed under tragic circumstances while touring Europe with friends. He was not only an outstanding student, but also an unusually well-rounded individual. He was an active member of Chi Psi Fraternity, and among other interests he played in a band on campus. He loved his work and threw himself with equal enthusiasm into whatever he did. In Roger's honor and memory, his parents, teachers, and friends established a memorial award to encourage outstanding young men and women in the field of chemistry or biochemistry. The award is given through the Honors Program to a student in the Honors College who is concentrating in chemistry or biochemistry and possesses the characteristics appropriate to being associated with Roger's name.

- Azhar Carim

Huron Valley Section Outstanding Student Leadership Award

An important mission of the American Chemical Society is to promote an understanding of chemistry and its place in society. The action and initiative of individuals are critical to this: to provide leadership, organization, and positive representation for science and citizenship. Each year, the Huron Valley Section is pleased to recognize outstanding achievement in professional citizenship demonstrated by an undergraduate student.

- Brittany Worley

Merck Index Award to Outstanding Seniors

The Merck Pharmaceutical Company provides the University of Michigan Chemistry Department with awards each year in the form of The Merck Index, to be given to outstanding graduating chemistry and biochemistry concentrators. All of these students have demonstrated high standards of performance and exhibit promise of future high achievement.

- Bennet Smith

Summer Research Awards

Each year, thanks both to endowment funds and the generous donations of private and industrial sponsors, we are able to support a large number of students for summer undergraduate research.



*Undergraduate awardees at the Spring Awards Banquet
Humaira Nawer, Kailene Schabes, Xiao Wang, Sepideh Ashrafzadeh, Seth Klapman, John Hsieh, Masato Koreeda*

Based on recommendations by the faculty, as well as their academic records, the selection committee recommended the following students for summer 2010 research support.

Seyhan Ege Undergraduate Research Fellowship Award

- Elizabeth Keenan • Joshua Symes • Pengrui Wang

James E. Harris Scholarship Award

- Kimberly Haupt • Austin McHenry • Christina Nieh
• Nicole Stegmeier • Holly Williams • Sheng Zheng

Novartis Undergraduate Research Fellowship Award

- Melissa Gildenberg • Weiwei Wu

PPG Undergraduate Award

- Benjamin Levin • Rohit Vyas

William G. Smeaton Memorial Award

- Sean Collins • Aaron Goodman • Tanvi Ratani

Margaret and Herman Sokol Endowment Award

- Arnold Huang • Brice Jurban • Joshua Kurtz • Kevin O'Neill

Undergraduate Programs

International Summer Undergraduate Research Exchange with China

In 2007, the University of Michigan Chemistry Department created the first truly bilateral undergraduate research exchange program, in the sciences, between China and the United States. Starting then with a pilot project, with seven total students, the program has grown, in 2010,



The traditional rock picture, painted by the summer students from China

to include 50 students per year (25 in each direction). Using partial funding from the National Science Foundation, many of the US-to-China positions within the existing UM program are completely open to students from around the US. US students are placed in research groups in the chemical and biological sciences at Peking and Tsinghua Universities, in Beijing, arguably the two premier research institutions in China. Additional funding has come from the universities, from their faculty and donors, and from Pfizer Global R&D. While productive research in both countries is certainly the most tangible outcome, an equally significant result is the increased sense of global and international confidence experienced by these students, who have fully integrated these experiences as a natural part of their undergraduate education. Above all, the program is concerned with providing all of its students with a quality education and a vision of a world with far fewer boundaries and limitations than any previous generation. Information about the program can be found at <http://www.umich.edu/~michchem/UMPKU/>

Gifts

Contributions from private and corporate donors received from July 1, 2010 – June 30, 2011.

Asterisk indicates matching gift.

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Jeffrey D. Hsi
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Steven R. Goates and Juliana Boerio-Goates
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In memory, Prof. Martin Stiles
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Marilyn L. Jacob
In memory, Dr. Clare Johnston
Mark D. Johnston
In memory, Louis Leopold '41
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Chemistry, Pres Challenge for Grad Support

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In memory, Theodore 'Ted' Jacob
Marilyn L. Jacob

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Novartis

Undergraduate Research in Chemistry

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Annabel Adams Muentzer Estate

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Lecture and Symposium Funds

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Organic Reactions, Inc.
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Other Support

Dow Chemical Company Fdn
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Named Faculty Fellowship Funds

Our 2010 Newsletter featured an appeal for contributions to the Robert C. Taylor Fund, an endowment for graduate student support in the Department of Chemistry at the University. We are pleased to report that many friends and former students of Bob have generously contributed to the fund. The Robert C. Taylor fund has now passed the minimum value (\$10,000) established by the University for an endowment fund and has become permanent. If you would still like to contribute to the Robert C. Taylor Fund, it is not too late. We welcome additional contributions

Alumni News

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

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

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

Irving Adler (PhD, 1970, Lawrence Brockway) writes that after 23 years in the wire and cable business, he has been working for five years as VP for Business Development for a British Consultancy that specializes in metals, mining and fertilizers. A fellow alumna from that era **Virginia Dilkes** (PhD, 1972, Robert Taylor), remains in touch with him and other graduates who entered in August 1965.

Chris Avery (PhD, 2010, Zhan Chen) has been awarded an ACS 2011-2012 Congressional Fellowship which began in September. He was most recently a graduate fellow in the National Academy of Sci-

ences' Christine Mirzayan Science and Technology Graduate Fellowship Program.

Azhur Carim (BS, 2010), who did a senior project with Stephen Maldonado, is now a graduate student at Caltech.

David Ebdon, Norman Jensen, Linda (Kanner) Phillips, Marianna Kotona Strumpel, and Karl Weihman (All BS, 1961) recently attended their 50 reunion at Homecoming in Ann Arbor. It was a great pleasure to see them and to take them on a tour of the Chemistry Building.



David Ebdon, Norman Jensen, Marianna Kotona Strumpel, Linda (Kanner) Phillips

It seems appropriate to also mention several other endowed fellowship funds honoring former UM Chemistry faculty members. The Robert W. Parry Fellowship is used to fund summer fellowships for graduate students in inorganic and organometallic chemistry. Awards have been made regularly. The Robert W. Parry Fellowship was featured in our 2007 newsletter.

The Peter A. S. Smith Fellowship has been used to provide summer fellowships to graduate students in organic and inorganic chemistry. It was established shortly after Peter's retirement in 1991. Professor Smith regularly attends the award ceremony usually held in June. If you would like to contribute to any of these endowed funds, please use the inserted envelope.

Amelia Fuller (PhD, 2006, Anna Mapp), who is currently a Clare Booth Luce Assistant Professor at Santa Clara University, CA, has been awarded an NSF Career Grant. The grant is for her work on expanding structural complexity and functional repertoire of sequence-specific polyamide oligomers.

Lindsey Gottler (PhD, 2008, Neil Marsh) has been promoted to Lead Scientist in Protein Biochemistry at Proteos, Inc. Lindsey and her husband Jim Hiestand and their two daughters Gracie (5 years) and Emma (7 months) live in Kalamazoo, MI

Kevin Hagedorn (PhD, 2010, Stephen Maldonado) is now a research scientist at IMRA America.

Charles B. Harris (BS, 1963), a Professor of Chemistry at U.

California at Berkeley, has been received the 2011 Ahmed Zewail Award in Ultrafast Science and Technology sponsored by the ACS.

David J. Hart (BS, 1972), a Professor of Chemistry at Ohio State University, has written a new book, "Organic Synthesis via Examination of Selected Natural Products," which has been published by World Scientific Publishing Company.

William J. Kruper (PhD, 1982, John Groves) will receive the 2012 ACS Award for Affordable Green Chemistry sponsored by the Dow Chemical Company and endowed by Rohm and Haas.

Douglas M. Kalvin (MS, 1978, PhD, 1985 R. Woodard) retired from Abbott Laboratories in 2007. Since then he has been a part time consultant and an Adjunct Chemistry Teaching Instructor at the University of Illinois, Chicago, the University of Wisconsin, Parkside and North Park University.

Dipannita Kalyani (PhD, 2008, Melanie Sanford) will be starting as Assistant Professor of Chemistry at St. Olaf College, MN in Fall of 2011.

William D. Korte (MS, 1962) subsequently obtained his PhD in 1966 studying with Leo Sommer at University of California, Davis. He has retired from California State University, Chico but is still doing research in organic synthesis at that university.

Robert D. Larsen (PhD, 1976, Joseph Marino) has been named as a 2010 ACS Fellow.

Steven G. Link (PhD, 1977, Richard Lawton) retired from Eastman Kodak Co. in 2008 after 31 years in R&D. He is now enjoying a new career as a ballroom dance instructor in Rochester, NY. He teaches four classes per week and performs showcases with his students and teacher. He is affiliated with MoDancing Studio of Rochester.

Xianolin Lu (Postdoctoral 2007-2010, Zhan Chen) is an Associate Professor at Zhejiang University of Science and Technology in China. He continues to do sum frequency generation spectroscopic studies on polymer surfaces and interfaces. He recently received a research grant from the Chinese National Science Foundation.

Thomas Lyons (PhD, 2011, Melanie Sanford) has received a NSF American Competitiveness in Chemistry Postdoctoral Fellowship to work with Professor Maurice Brookhart at UNC, Chapel Hill.

Andrew Millward (PhD, 2002, Omar Yaghi) writes that after a year at a start-up alternative energy company, my wife and our six children have moved to Midland, MI where I am a Solar Silane Process Engineer at Dow Corning.

Arthur McClland (PhD, 2009, Applied Physics, Zhan Chen) is a staff scientist at the Center for Nanoscale Systems (CNS) at Harvard.

Ursula Mazur (PhD, 1979, Robert Kuczkowski) is a Professor of Chemistry at Washington State University. She has been named a 2011 ACS Fellow.

James A. Moore (Postdoctoral, 1968, Charles Overberger) is a Professor of Chemistry at the Rensselaer Polytechnic Institute, Troy, NY. He has been named a 2011 ACS Fellow.

Khoi Nguyen (PhD, 2009, Zhan Chen) is now working in the Applied Chemistry Department of the Vietnam National University in Ho Chi Minh City. He is doing research in nano-science and nano-technology.

Yoshio Okamoto (Postdoctoral, 1970-1972, Charles Overberger), Emeritus Professor at Nagoya University, was awarded the first Charles G. Overberger Excellence in Research Prize at the Annual Symposium of Macromolecular Science and Engineering held at Rackham Hall of Graduate Studies on October 27, 2011. Professor Okamoto was honored for his seminal work on using chiral polymers for efficient enantiomer separation. The symposium was attended by a number of former Overberger students and postdoctorals including: **Kartar Arora** (PhD, 1984), **James A. Moore** (Postdoctoral, 1968), **Thomas J. Pacansky** (PhD, 1972) and **Thomas W. Smith** (PhD, 1973).

Lisa Prevette (Postdoctoral 2008-2010, Mark Banaszak Holl) is on the faculty at the University of St. Thomas in St. Paul, MN.

David Rueda (Postdoctoral, 2001-5, Nils Walter) has been promoted to Associate Professor of Chemistry with tenure at Wayne State University.

Joseph C. Salamone (Postdoctoral, 1967-9, Charles Overberger), the chief scientific officer of Rochal Industries LLP, San Antonio, TX, was elected to the National Academy of Engineering in 2011. He was honored for his advances in ophthalmological devices and wound healing therapies

and for distinguished academic and professional service. He was also selected as an ACS fellow in 2010.

Larry Sanford (MS, 1975) has spent 31 years as assistant manager of the Ann Arbor Drinking Water System. He is also on the planning committee for the annual Pedal Across Lower Michigan.

Roey Shaviv (PhD, 1988, Edgar Westrum) visited the Department recently. He is now a senior integration technologist at Novellus Systems, Inc. He serves as chair of the technical advisory board of the Semiconductor Research Council (SRC).

Leo Sharkey (BS, 1986) is a general manager for Siemens Hazardous Waste Ion Exchange and Ground Water. He completed a half Ironman Triathlon in September 2010.

Sheldon G. Shore (PhD, 1957, Robert Parry), the Charles H. Kimberly Professor of Chemistry at Ohio State University, has been named as a 2011 ACS Fellow.

Barry B. Snider (BS, 1970) is a Professor of Chemistry at Brandeis University, Waltham, MA. He has been selected as a 2011 ACS Fellow.

Anne Vazquez (PhD, 2010, Zhan Chen) is a tenure track Assistant Professor of Chemistry at North Park University, Chicago.

Joseph Wallace (Postdoctoral, 2007-2010, Mark Banaszak Holl) is a biomedical engineering professor at Indiana University Purdue University in Indianapolis.

Charles (Scott) Weinert (BS, 1995) has been promoted to Associate Professor of Chemistry with tenure at Oklahoma State University. His research involves the organometallic chemistry of germanium and related main group elements.

Carl E. Wulfman (BS, 1953), PhD, 1957, University of London and Professor of Physics Emeritus at the University of the Pacific, Stockton, CA, has published a book entitled, "Dynamical Symmetry." The volume was published by World Scientific in January.

Shugji Ye (Postdoctoral, 2006-2009, Zhan Chen) is an Associate Professor at the University of Science and Technology of China. He continues to do sum frequency generation spectroscopic studies on various biological and material systems. He recently received a research grant from the Chinese National Science Foundation.

In Memoriam

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

Henry Nelson Beck (PhD, 1954, Leigh Anderson) died in Woodland, CA on August 6, 2010 at the age of 83. Dr. Beck was born in Troy, OH and was a veteran of the Korean War. He received his Ph. D. with Leigh Anderson in 1954 and worked his entire life for the Dow Chemical Company in Midland, MI, Pittsburgh, PA and lastly in Walnut Creek, CA. He was a recognized expert in the fields of polymer crystallization, polymer solubility, and macromolecular phase equilibria. Dr. Beck held 37 U.S. patents and was the author of nine journal articles and one book chapter. He is survived by his son Peter, daughter Teresa and two grandchildren, who all live in northern California. Dr. Beck left a generous bequest to the Chemistry Department.

Michael P. Cava (MS, 1948, PhD, 1951, Werner Bachmann) died on September 29, 2011 in Brookline, MA at the age of 84. Professor Cava was an eminent member of our profession. He published more than 500 scientific papers and was the coauthor of a popular organic chemistry textbook.

Professor Cava was born in Brooklyn, NY. He received his B.S. in chemistry from Harvard University before coming to Michigan to study with Werner Bachmann. After graduation Cava spent two years as a postdoctoral fellow with R. B. Woodward at Harvard, where he contributed to the total synthesis of strychnine.

His independent scientific career began at Ohio State University where he became a full professor in 1965. He then moved to Wayne State University and in 1969 joined the faculty of the University of Pennsylvania. In 1985 he became the Ramsay Professor of Chemistry at the University of Alabama from which he retired in 2004.

Professor Cava's research was wide-ranging. It included the study of stable cyclobutadiene derivatives, biologically significant compounds and compounds interesting to materials science. He is particularly known for his significant work on organo-sulfur, -selenium and -tellurium compounds.

Cava's first wife Ester died in 1995. He is survived by his second wife, Armelle, his son John and one granddaughter.

Sam H. Dreisbach (MS, 1951) died in Ann Arbor on August 31, 2011 at the age of 86. Born in Detroit, he served in the US Navy for four years during World War II. He earned a BS in Chemical Engineering from Michigan prior to his MS in Chemistry. He spent most of his career at Federal-Mogul Corporation, retiring in the late 1980's.

Dreisbach was preceded in death by his wife Arlene. He is survived by daughter Brooke Hookham, two sons, Brad and Mark, four grandchildren and a great-grandson.

Clare C. Johnson (BS, 1948, MS, 1954) died on November 23, 2009 at the age of 82. He was born in Rockford, MI. Subsequent to his degrees in our department, he obtained a PhD in Biochemistry from the University in 1961.

Dr. Johnson began his career at the Edsel B. Ford Institute for Medical Research in Detroit. From 1967 until 1976 he worked at I.I.T. Research Institute in Chicago, where he supervised the clinical chemistry and hematology laboratory for the Artificial Heart Test & Evaluation Facility. Subsequently he worked at Eberline Instrument in West Chicago, IL. From 1982 until 1992 Johnson was the chief chemist for Pontiac Michigan's waste water treatment facility. He was named Employee of the Year for the city of Pontiac in 1991.

Dr. Johnson is survived by his wife of 44 years, Priscilla Jean and his son Mark.

Philip I. Pavlik (PhD 1967, Sy Blinder) died in Marquette, MI on August 16, 2009 at the age of 69. He was born in Chicago. After receiving his Ph.D. from Michigan he was hired by Northern Michigan University and was a Professor of Chemistry there until he retired in 1998. He was a pioneer in the use of computers in chemical education, physical chemistry and quantum mechanics. He is survived by his wife Mary Kay Belmore, two sons Dr. Philip Pavlik, Jr. of Pittsburgh, PA and Andrew Pavlik of Minneapolis, MN and his mother Marcella Pavlik of Elmhurst, IL.

Mary Kay Schmidt (Gleicher) (MS 1961) died in July 2011. She had served as the coordinator of the freshman chemistry laboratory in our department from 1961 to 1966. She married Gerald Jay Gleicher

(PhD, 1963, Michael Martin) who became a Professor at Oregon State University. Mary Kay was a senior instructor in Chemistry at Oregon State University in Corvallis. She is survived by her husband Professor Gerald Gleicher.

Martin Stiles died on January 16, 2011 in Lexington, KY at the age of 83. Stiles received his BS from Ohio State University in 1950 and his PhD from Harvard in 1954, where he studied with Paul D. Bartlett. In 1955



he came to the University of Michigan where he served as Professor of Chemistry until 1978. He spent a sabbatical leave at the University of Munich, where he was a Guggenheim Fellow.

Martin Stiles was an influential member of our profession. He served as assistant editor of the ACS's *Journal of Organic Chemistry*. From 1969 until 1975 he was the Editor-in-Chief of the *Journal of the American Chemical Society*. He was also a consultant to National Institutes of Health, Dow Chemical Company and General Electric. His research dealt largely with reactive intermediates. He was one of the discoverers of the intermediate benzyne. Stiles published numerous papers in professional journals and lectured widely in the US and in Europe.

After leaving the University Martin Stiles became an Adjunct Professor of Chemistry at the University of Kentucky. However, his major activity became the breeding of thoroughbred horses. He and his wife Martha were the owners of Stockwell Farm near Paris, KY. The Stiles bred several stakes winners, including Buckys Solution, Canada's champion 2-year-old filly in 1991. They also bred the full brothers House of Erin, Castle Green and Hard Green. The last two were English group winners.

Martin Stiles is survived by his wife Martha Bennett (Wells) Stiles (BS, 1954) and a sister Carol White. He was predeceased by his son John Martin. He asked that memorial contributions be made to the University of Michigan, Department of Chemistry, c/o LSA Development Office, 500 South State Street, Suite 5000, Ann Arbor, MI 48109.

Faculty

Hashim M. Al-Hashimi, Robert L. Kuczkowski Professor of Chemistry; Professor, Biophysics. *Chemical Biology*.

Philip Andrews, Professor of Biological Chemistry, Chemistry, Comp Med & Biology, Medical School and Director MLSC-Core Tech Alliance Proteomics Center. *Bioanalytical Chemistry*

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

Bart M. Bartlett, Assistant Professor of Chemistry. *Inorganic, Materials Chemistry*.

Julie S. Biteen, Assistant Professor of Chemistry. *Physical and Biophysical Chemistry*

Charles L. Brooks III, Warner-Lambert/Parke-Davis Professor of Chemistry and Biophysics, *Physical Chemistry/Biophysical Chemistry/Theoretical and Computational Chemistry and Biophysics*.

Heather A. Carlson, Associate Professor of Medicinal Chemistry; Associate Professor, Chemistry, *Computational Chemistry, Drug Design, Theoretical Biophysics*

Mary Anne Carroll, Professor of Atmospheric, Oceanic and Space Sciences; Professor, Chemistry. *Atmospheric Chemistry*.

Zhan Chen, Professor of Chemistry; Professor, Macromolecular Science & Engineering. *Biomaterial and Polymer Surface, Biocompatibility*.

Mary Sue Coleman, UM President and Professor of Chemistry

Brian P. Coppola, Arthur F. Thurnau Professor of Chemistry; Associate Chair for Undergraduate Chemistry. *Organic Chemistry, Science Learning and Instructional Methods*.

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Carol A. Fierke, Chair. Jerome and Isabella Karle Collegiate Professor of Chemistry; Professor, Biological Chemistry. *Chemical Biology, Bioinorganic Chemistry*.

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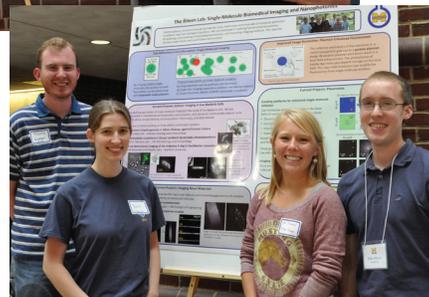
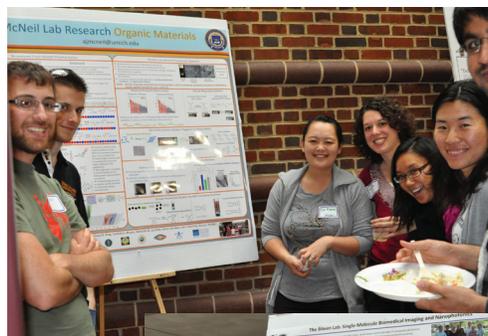
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Graduate awards ice cream social



*Peter A. S. Smith and Carol Fierke
at the graduate awards social*



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