

# THE PERIODIC TABLOID

from Wayne State's Department of Chemistry

WINTER 2019



Photo by Mary Iverson

## NOBCChE chapter awarded at national conference

Written by Samuel Mutinda and Bett Kumuta

The Wayne State chapter of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) is happy to announce that several of its members received the Advancing Science Conference grant and have been selected to attend the upcoming NOBCChE National Conference, where they will present research and network with NOBCChE members from institutions across the country.

The Wayne State chapter of NOBCChE was started in 2017, and quite a bit has been accomplished since its inception. The organization has been involved in the professional advancement of minority and underrepresented students through lectureships, conferences,

outreach programs, internships, and demonstrations. It also hosted "flagship" seminars, in which prominent professionals of color who have made great contributions in their fields share their research and professional experiences with our members. Some of the scientists hosted include Ted Goodson, Maissa Gaya, Sabrina Collins, and Luisa Whittaker-Brooks. These visits are conducted with a view toward mentoring members and include research presentations by members.

This year, the organization is inviting more prominent scientists to its lectureship series and will have more opportunities for members to mentor minority students living in Detroit and to participate in science demonstrations.

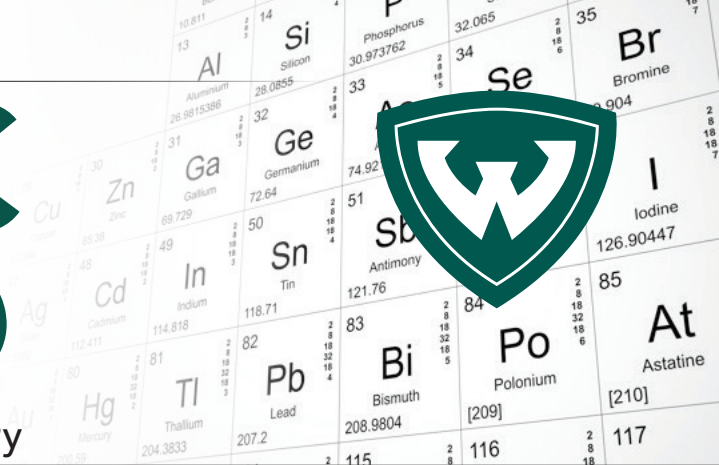
## Inventory program reduces cost, waste

Written by Matthew J. Allen

This year, the chemistry department implemented a new, university-wide chemical inventory program called Chimera. The department played a large role in selecting this software and is the first to roll it out department-wide. We are grateful for the efforts of Barb Munk, Jenn Stockdill, Federico Rabuffetti, Liz Ries, Greg Kish, and Jackie Baldyga, who screened multiple programs and worked with Wayne State's offices of Environmental Health and Safety (OEHS), Risk Management, and the Vice President for Research throughout the selection process.

Chimera tracks chemical inventory and maintains Safety Data Sheet information (SDS) for each chemical in the building. Once a chemical is entered, the company links the SDS to it, keeping the department in compliance with safety regulations. Each lab has a scanner to track chemical disposal and keep the inventory up to date. Furthermore, OEHS has access to the department's inventory, eliminating a requirement for annual lab inventories and paper SDS compilations. The department has bar-coded and inventoried more than 40,000 chemicals.

The new system will save money, reduce waste, increase compliance with safety regulations, and reduce the time burden for complying with regulations.





## LETTER FROM THE CHAIR

Dear friends and alumni,

A lot has happened over the past year, and this newsletter provides a few highlights. I encourage you to follow us on social media for more information on the current happenings of the department. We also have a Wayne State Chemistry Alumni and Friends Facebook group, so please join and spread the word.

The following highlights provide a small sampling of what happened in the department this year: **Young-Hoon Ahn** was promoted to associate professor. **Melissa Rochon (Barton)** was promoted to academic services officer IV. **Federico Rabuffetti** became a Cottrell Scholar. **Andrew Feig** became an inaugural member of the WSU Academy of Teachers and was named a fellow of the American Chemical Society. **Jenn Stockdill** received a College of Liberal Arts and Sciences mentoring award. **Melissa Rochon, Jeremy Kodanko, Tom Linz, and Cláudio Verani** were recognized by Wayne State for their efforts to enhance student learning through program assessment. **David Crich** received the Roy L. Whistler International Award in Carbohydrate Chemistry from the International Carbohydrate Organization. **Cláudio Verani** became a member of the advisory board for *Dalton Transactions*. **Chuck Winter** was named a Charles H. Gershenson Distinguished Faculty Fellow. **Stas Groysman** received a Career Development Chair Award. **Melissa Rochon** and **Erin Bachert** received College of Liberal Arts and Sciences innovative and outstanding advisor awards. **Tamara Hendrickson** was named an ELATE fellow. **Jackie Baldyga** earned her master's.

Our students are also thriving. The **WSU Chem Club** received a Commendable Chapter Award from the American Chemical Society. Additionally, **Harrison Roy** and **Sahil Rafai** (both from the Rodgers Lab) received best presentation awards at ANACHEM, and **Darrell Marshall** (Trimpin Lab) received a postdoctoral research fellowship from the National Science Foundation. **Barb Munk** left the department to move to Arizona, and her love of teaching and safety are missed. **Emil Lozanov** retired, and his solutions and demos will be missed. Additionally, **Jim**

**Rigby and Lou Romano** retired and received emeritus status. We are grateful for their decades of commitment and contributions to the department.

My sincere gratitude goes to our returning alumni **Vahid Majidi** (Ph.D. 1987, now at Savannah River National Laboratory), **Kerri LeVanseler** (Ph.D. 1992, now at NSF International), **Johnna Birbeck** (Ph.D. 2013, now at the Lumigen Instrument Center), **Paulina Karwowska-Desaulniers** (Ph.D. 2007, now at Lassonde School of Engineering), **Sibrina Collins** (B.A. 1994, now at Lawrence Technological University), **Rose Ryntz** (B.S. 1979, now at International Automotive Components), **Joseph Roberts** (B.S. 2009, now at Avila University), **Susan Rokosz** (B.S. 1980, now at Ford Motor Company), **Larry Roy** (B.S. 1980, now at Advocate Children's Hospital), and **Michael McGillivray** (Ph.D. 2006, now at Shimadzu) for taking their time to return to campus to network with students and share their post-WSU experiences.

The remainder of this newsletter contains stories about our new faculty members **Ed Chekmenev, Charlie Fehl, Zhenfei Liu, and Hien Nguyen**; our new staff member **Kim Miller**; our recently departed colleagues **Martin McClain** and **Mary Jane Heeg**; the new Applied Materials Center of Excellence; our new chemical barcoding system; our new mission statement; receptions at National ACS Meetings; updates from our student organizations; and updates from alumni.

For alumni, please stay in touch. Send updates with your outstanding achievements and new jobs so that we can include them in future newsletters. We've made it easy to share your stories with us. We love to hear from you. Next time you are in the Detroit area, please stop by to see the building and meet with friends, colleagues, and mentors.

Sincerely,

Matthew J. Allen  
Professor and Chair

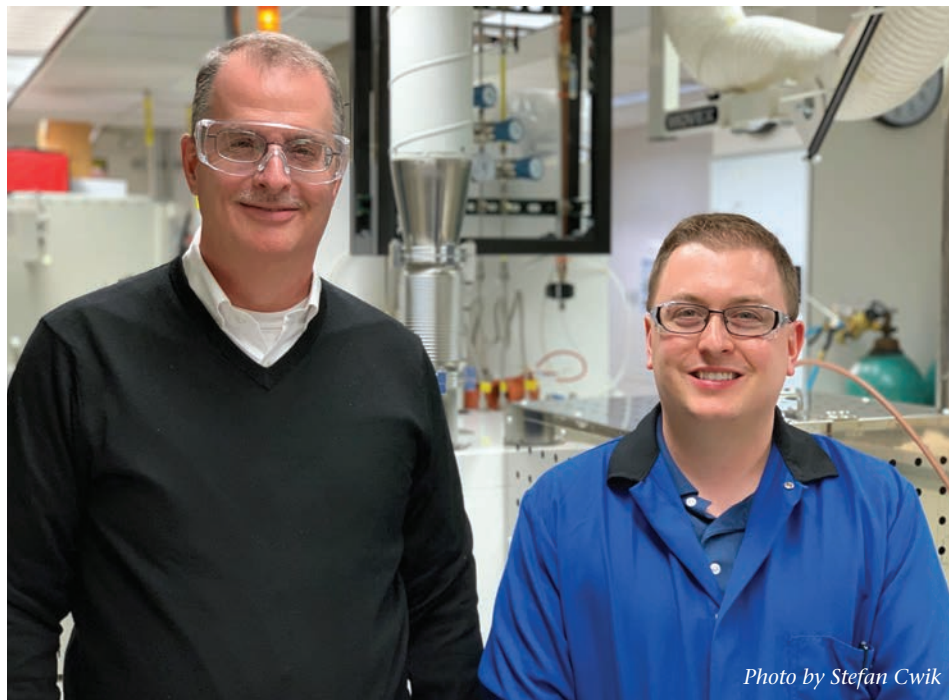


# Wayne State University collaborates with Applied Materials on advanced semiconductor research

*Written by Charles Winter and Thomas Knisley*

In October 2017, Applied Materials Inc. signed a research agreement with Wayne State University to develop new thin film deposition processes needed for the development of next-generation semiconductor devices. Applied Materials is the leader in materials engineering solutions used to produce virtually every new chip and advanced display in the world.

As part of this agreement, Applied Materials established a Center of Excellence in Chemistry Laboratory within the Department of Chemistry. This laboratory has been equipped with state-of-the-art deposition equipment and instrumentation for thin film analysis so that researchers can explore the growth of thin film processes. Extremely thin films deposited using a controlled, precise process are required for an increasing number of chip-making applications as chip structures reach the atomic scale. Technologies incubated from this joint collaboration have the potential to enable next-generation microelectronic devices that are smaller, faster, and more power efficient to address the requirements of emerging applications such as augmented reality, artificial



*Chuck Winter (left) and Tom Knisley (right) in the Center of Excellence in Chemistry Laboratory*

intelligence, the Internet of Things, and autonomous vehicles.

Chemistry faculty member Chuck Winter will lead the joint research with Applied Materials. Dr. Winter is an expert at developing new chemical precursors and thin film processes. Chemistry alumnus

Thomas Knisley, Ph.D., will lead the efforts from Applied Materials. Dr. Knisley is a graduate of the Winter Laboratory and has worked at Applied Materials since 2014.



## What are you up to? We want to know!

We're eager to hear about your successes in the years since you've graduated from Wayne State University. Please visit [chem.wayne.edu](http://chem.wayne.edu) to update your alumni profile. If you would like an update to appear in the next edition of this newsletter, please contact us at [info@chem.wayne.edu](mailto:info@chem.wayne.edu). We can't wait to see what you've been up to!

# ACS

## Chemistry for Life

American Chemical Society

*Written by Paul Marshall and Logan Nguyen*

The Wayne State University American Chemical Society-Student Affiliates (WSU ACS-SA) has been Wayne State's chemistry club since 1943. As a chapter of the American Chemical Society, it hosts symposiums, mixers, professional networking events, and various other events in the field of chemistry. Members are also highly involved in chemistry outreach in the Detroit community and aspire to strengthen interactions among students who enjoy chemistry.

This year, the highly motivated team intends to offer new events to reach more members than ever. These events include several question-and-answer sessions with Ph.D. chemists and medical doctors. The organization will also run several workshops during member meetings, such as Resume Building and How to Survive Chemistry Classes. Anyone interested in interacting with the WSU ACS-SA can contact the organization at [wsuacs@wayne.edu](mailto:wsuacs@wayne.edu).



*Photo by Paul Marshall*

**ACS-SA members recruiting students at WSU's FestiFall**



# New mission statement stresses equity and inclusion

Written by Christine Chow

The Department of Chemistry recognizes the important links between diversity, equity, inclusion, and educational excellence. Our goal is to provide exceptional opportunities for students, faculty, and staff at all levels. Increased diversity, along with an inclusive environment, enriches the educational and research experiences of our students through their exposure to differing perspectives and ideas. As we move forward in 2018-19, the Equity and Inclusion

Committee will assess the climate of the department, address inequity, develop strategies to increase engagement of diverse groups of individuals, and improve our understanding of different viewpoints.

## Our new mission statement was developed in 2018:

“The Department of Chemistry at Wayne State University is dedicated to education, research, and outreach efforts that benefit Detroit, the

state of Michigan, and the world. We are committed to educating a diverse undergraduate and graduate student body, advancing chemical knowledge, and positively impacting society. We actively promote a safe and ethical environment that is equitable and inclusive, so that students, staff, and faculty may thrive and advance personally and professionally within Wayne State University and beyond.”

# Alumna dedicates time and talent to support current students

Written by Lisa Anga

As the vice president of global advanced development and material engineering at International Automotive Components (IAC) Group North America, it's an understatement to say that Rose Ryntz maintains a busy schedule. Between frequent business travel to Europe, managing a staff of more than 100 people and contributing to the development of groundbreaking new automotive interiors, Ryntz is always on the go. Despite a full calendar, she continues to dedicate her time and talent to helping chemistry students at Wayne State — both at the graduate and undergraduate levels.

Ryntz earned her bachelor's in chemistry at Wayne State in 1979. She completed her Ph.D. in polymer/organic chemistry at the University of Detroit Mercy and went on to earn an M.B.A. from Michigan State University. Ryntz



Photo by Rose Ryntz

has published extensively, including over 180 publications, 25 patents, and four books. Her professional experience includes positions at Dow, Ford Motor Company, DuPont, and Visteon.

In 2017, Ryntz served as the keynote speaker for the Department of Chemistry's Graduate Research Symposium. IAC served as the lunch sponsor for the 2018 symposium, and Ryntz worked with symposium co-chairs Jordan Burton and Bailey McCarthy Riley to connect with additional sponsors and event speakers.

In addition to her work on the Graduate Research Symposium, Ryntz is mentoring undergraduate chemistry students in the 2018-19 school year. “Since the university provided me the background to enable my success in the industry, mentoring and helping with the Graduate Research Symposium is the least I can do to give back,” she said. “It is invigorating to meet with such energetic, professional students. Any help I can deliver to open the eyes of the students to what the real world will bring is very important to me.”

# DEGREES

## AWARDED 2017-18



### BACHELOR'S

Ali Abikhodr	Yasmine Elghoul	Laura Mendoza
Amber Aboona	Korney Gozman	Samantha Odeesho
Amer Abu-Kwaik	Salma Hassanieh	Estevan Osorio
Riyam Askar	Klea Haxhiu	Gijong Paik
Ranya Aziz	Justin Holbrook	Milad Qazazi
Tanya Bukavyn	Nicholas Houston	Ibrahim Rababa
Madison Censoni	Brigid Jacob	Taylor Reynolds
Fadi Charif	Wedyan Jameel	Aimee Rodriguez
Latricia Conaway	Jafar Kassir	Adrienne Rosselli
Alexsandra Cvetkovska	Abida Khan	Ahmed Saab
Jehann Dagher	Amy Kirsch	Rocky Saxena
Dominique Denny	Kenneth Kutschman	David Sloss
Riane Dixon	Jissa Mathew	Christopher Watts
Fatima Elchawich	Nicholas McCann	

### MASTER'S

Name	Degree	Advisor
Joseph Baumann	M.S.	Winter
Adam Boyden	M.S.	Feig
Bryan Harless	M.A.	Kodanko
Ayanna Hogan	M.A.	Kodanko

### DOCTORATES

Name	Degree	Advisor
<b>Habib Baydoun</b> Dissertation Title: Water Splitting Using Cobalt-Based Amidopyridine Complexes	Ph.D.	Verani
<b>Dilini Kekulandara</b> Dissertation Title: Investigating Redox-Mediated Protein Glutathionylation and Trx1 Signaling Pathway	Ph.D.	Ahn
<b>Marissa Kerrigan</b> Dissertation Title: Selective Atomic Layer Deposition of Transition Metal Thin Films	Ph.D.	Winter
<b>Thilini Kondasinghe</b> Dissertation Title: Progress Toward Controlled Disulfide Formation to Access Neuroactive Conotoxins	Ph.D.	Stockdill
<b>Kenneth Kpogo</b> Dissertation Title: Evaluation of Earth-Abundant Monometallic and Bimetallic Complexes for Catalytic Water Splitting	Ph.D.	Verani
<b>Da Li</b> Dissertation Title: Synthesis of Discrete Transition Metal (Ni, Co, Fe, Mn) Phosphide Nanoparticles: Compositional Effect on Catalytic and Magnetic Properties	Ph.D.	Brock



Dr. Vimukthi Senevirathne

Photo by Ramini Sakthemani

## DOCTORATES *(continued)*

Name	Degree	Advisor
<b>Pramodha Liyanage</b> Dissertation Title: Real-Time Investigation of Bulky Lesion Bypass by Y-family DNA Polymerase, Dpo4, Using Single Molecule FRET	Ph.D.	Romano
<b>Alberto Lopez</b> Dissertation Title: Progress Toward the Total Synthesis of <i>Daphniphyllum</i> Alkaloids	Ph.D.	Stockdill
<b>Fidelis Ndombera</b> Dissertation Title: Carbohydrate-Based Inducers of Cellular Stress for Targeting Cancer Cell Metabolism	Ph.D.	Ahn
<b>Ahmed Negmeldin</b> Dissertation Title: Design, Synthesis and Biological Evaluation of Histone Deacetylase (HDAC) Inhibitors: SAHA (Vorinostat) Analogs and Biaryl Indolyl Benzamide Inhibitors Display Isoform Selectivity	Ph.D.	Pflum
<b>Travis Ness</b> Dissertation Title: Investigation of the <i>Saccharomyces cerevisiae</i> GPI Transamidase: Insights into its Activity and Subunit-Subunit Interactions	Ph.D.	Hendrickson
<b>Kusal Samarasinghe</b> Dissertation Title: Development of Chemical Tools to Investigate Protein S-glutathionylation in Response to Metabolic Alteration	Ph.D.	Ahn
<b>Girish Sati</b> Dissertation Title: Addressing the Threat of Multidrug Resistant Infectious Diseases by Synthesis of Novel Aminoglycoside Antibiotics	Ph.D.	Crich
<b>Vimukthi Asgiriya Senevirathne</b> Dissertation Title: Quantification and Mapping of Uracils in Genomes	Ph.D.	Bhagwat
<b>Hyosuk Seo</b> Ligand Binding Studies of a Peptide Targeting Helix 69 of 23S rRNA in Bacterial Ribosomes	Ph.D.	Chow
<b>Xuetao Shi</b> Dissertation Titles: Computational Study of Transition Metal Complexes for Solar Energy Conversion and Molecular Interaction with Strong Laser Fields	Ph.D.	Schlegel
<b>Amr Sonousi</b> Dissertation Title: Synthesis of Netilmicin and Apramycin Derivatives for the Treatment of Multidrug-Resistant Infectious Diseases	Ph.D.	Crich
<b>Bishnu Thapa</b> Dissertation Title: Exploring Potential Energy Surfaces of Chemical Reactions Using Electronic Structure Methods	Ph.D.	Schlegel
<b>Hedieh Torabifard</b> Dissertation Title: Classical and Quantum Mechanical Simulations of Condensed Systems and Biomolecules	Ph.D.	Schlegel/Cisneros
<b>Alexander Winney</b> Dissertation Title: Attosecond Spectroscopy Probing Electron Correlation Dynamics	Ph.D.	Li
<b>Maryam Yousif</b> Dissertation Title: Synthesis of Low-Coordinate Transition Metal Bis (Alkoxide) Complexes and their Reactivity Toward Small Molecules	Ph.D.	Groysman
<b>Yanlong Zhu</b> Dissertation Title: Tandem Mass Spectrometry and Computational Approaches to Elucidate Conformations and N-Glycosidic Bond Stabilities of DNA and RNA Nucleosides	Ph.D.	Rodgers



From left to right: Dr. Alexander Winney, Dr. Hedieh Torabifard, Professor Berny Schlegel, Professor Stas Groysman, Dr. Habib Baydoun, and Dr. Bishnu Thapa.



From left to right: Dr. Thilini Kondasinghe, Dr. Alberto Lopez, and Professor Jenn Stockdill.



From left to right: Professor Berny Schlegel, Jackie Baldyga, Dr. Marissa Kerrigan, Professor Matt Allen, Dr. Fidelis Ndombera, and Dr. Da Li.



# Obituaries

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## William Martin McClain

By David M. Coleman and H. Bernhard Schlegel



It is with sadness that the department reports the passing of our longtime colleague W. Martin McClain, who died on Jan. 20,

2018, following a series of health-related issues.

McClain was born on May 25, 1938, in Georgetown, Texas. After his education in Georgetown, he received his B.S. from Rice University and Ph.D. in physical chemistry from Cornell University. He pursued postdoctoral studies in theoretical chemistry at Cambridge.

McClain began his academic career as an assistant professor at the University of California, Berkeley. He joined the Wayne State chemistry department as an associate professor

in 1973 and was promoted to full professor in 1976.

Throughout his career, McClain received numerous awards, including an NSF Postdoctoral Fellowship, an Academic Achievement Award from the Probus Club of Detroit, and a Guggenheim Memorial Foundation Fellowship.

He was considered by many to be the “inventor” of contemporary 2-photon absorption spectroscopy, and he published more than 60 manuscripts dealing with experimental, theoretical, and practical studies, including the design of dye-laser systems and applications to biological and polymeric and other systems. His publications have been widely cited by others. Over the years, his work was funded by the Research Corporation, the National Science Foundation, the National Institutes of Health, Wayne State University, and others.

McClain’s best-known work in this domain is a well-respected treatise *Symmetry Theory in Molecular Physics with Mathematica* (Springer, 2008). It was promoted as “a new kind of tutorial book” that facilitated learning of introductory and advanced topics of Group Theory.

McClain retired in 2010 and was named an emeritus professor in recognition of his service and scholarship.

He was a true renaissance man. Shortly after arriving in Detroit, McClain and his wife, Carol, bought a dilapidated Victorian house — the site of a former drug den — near campus and lovingly converted it into an architectural showplace. McClain was a terrific storyteller, lover of art and music, and a gourmet chef.

He will be missed by his friends, his community, and his family.

A memorial was held in July 2018.

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## Mary Jane Heeg

by David M. Coleman



Dr. Mary Jane Heeg succumbed to endometrial cancer on March 26, 2018. She was the X-ray Laboratory manager

in Wayne State’s Department of Chemistry for many years.

Heeg received her B.S. in chemistry and Ph.D in inorganic chemistry from the University of Cincinnati and then pursued postdoctoral studies at

Ohio State University, Wayne State University, and the University of Cincinnati. After a brief stint on the faculty at the University of Oklahoma, she returned to Wayne State as manager of the Central Instrument Facility X-ray Laboratory in 1985. She took early retirement in 2011, but stayed on for a few months part time until a replacement could be hired.

Heeg was recognized as an extremely talented, competent, and hard-working crystallographer with collaborations with many Wayne State faculty members, including Chuck Winter, Carl Johnson, John

Endicott, Claudio Verani, Milton Glick, Berny Schlegel, Jim Rigby, Paul Schaap, David Rorabacher, John Oliver, and John Montgomery, to name a few. She was a co-author on numerous publications as a collaborator. She was well known for her ability to work with “difficult” crystals and to sleuth out challenging structures. She was active in national X-ray crystallography societies and many of her structures reside on their databases.

Heeg is survived by her daughter, Emily.



# Awards, Scholarships, and Fellowships

## GRADUATE AWARDS for 2017-18

### Departmental Citations for Excellence in Teaching Service

Harshani Jayabahu Arachchilage  
Sameera Jayanath Siyabalapitiya  
Arachchige  
Abigail Cousino  
Zachary Devereaux  
Aparni Kithulgoda Gamage  
Rabiul Islam  
Courtney Kondor  
Sydney Lavan  
Xiaoxiao Liao  
Jonathan Quirke  
Amirreza Samarbakhsh  
Adedayo Sanni  
Lalani Mawella Vithanage  
Duleeka Wannipurage

### Graduate School Citations for Excellence in Teaching

Nuwan Chinthaka Punchi Naide  
Acharige  
Kavinda Herath  
Jessica Hovey  
Joseph Knoff  
Timothy McMillan  
Samarage Sameera Perera  
Austin Walsh

### Esther and Stanley Kirschner General Chemistry Teaching Award

Rasoul Daliri Asbforoushani  
Brooke Corbin

### Herbert K. Livingston Award for Excellence in Teaching

Jordan Burton

### David F. Boltz Award in Analytical Chemistry

Lina Basal  
Chenchen He

### Esther and Stanley Kirschner Graduate Award in Inorganic Chemistry

Kyle Blakeney

### Dan Trivich Memorial Award for Research in Physical Chemistry

Lin Fan  
Yi-Jung Tu

### Biological Chemistry Graduate Student Award

Dhanushka Nalin Perera  
Munkanatta Godage

Norman A. LeBel Endowed  
Graduate Award in Organic  
Chemistry

Jonathan Quirke

### James C. French Graduate Award

Karan Arora

### Clifford G. Drouillard Annual Chemistry Award

Fidelis Ndombera

## GRADUATE SCHOLARSHIPS and FELLOWSHIPS for 2017-18

### ARC and Surendra Gupta Family Endowed Scholarship

Karan Arora

### Dr. Cal Stevens Memorial Scholarship (created by the Surendra and Karen Gupta ARC Foundation)

Christine Arbour  
Bibek Dhakal  
Philemon Ngoje

### A. Paul and Carol C. Schaap Research Fellowship

Mathes Hewage Hansamali  
Sirinimal

### Schaap-Rumble Graduate Research Fellowship

Karan Arora  
Matthew Bailey  
Lina Basal  
Sandeep Dhanju  
Danushka Ekanayake  
Dhanushka N. Munkanatta  
Godage  
Pavithra Hetti Achchi  
Kankanamalage  
Samuel Mutinda  
Madusha Lakshani  
Watuthanthrige Perera  
Ramin Sakhtemani

### Willard R. Lenz, Jr. Endowed Memorial Scholarship

Aparni Kithulgoda Gamage  
Thilini Kondasinghe

## UNDERGRADUATE AWARDS for 2017-18

### John H. Secrist Memorial Award in General Chemistry

Laura Lica

### J. Russell Bright Award for Distinction in General Chemistry

Dalia Kassabieh

### Harold B. Cutter Memorial Award in Organic Chemistry

Julia Chase

### Wiley Award in Advanced Organic Chemistry

Klea Haxhiu

### Esther and Stanley Kirschner Undergraduate Inorganic Chemistry Award

Graham Cwycyshyn  
Shane Jackowski

### American Chemical Society, Division of Inorganic Chemistry Award

Todd Yee

### Merck & Company Award in Biochemistry

Mackenzie Olbrys

### David and Beverly Rorabacher Award in Quantitative Analytical Chemistry

Myles Hardeman

### David and Beverly Rorabacher Research Award in Analytical Chemistry

Nicole Beller

### American Chemical Society, Division of Analytical Chemistry Award

Ali Abikhodr

### Hugh and Mary Ann Kelly Chemistry Undergraduate Endowed Research Scholarship

Paul Marshall  
Mackenzie Olbrys  
Ali Ramzan

American Chemical Society,  
Detroit Section Award for  
Outstanding Chemistry  
Graduate

Brigid Jacob

## UNDERGRADUATE SCHOLARSHIPS for 2018-19

### Uzoma Azuh Endowed Memorial Research Scholarship in Chemistry

Lauren Oppenheiser

### Ralph E. and Helen G. Carter Endowed Scholarship

Abeer Ali  
Kayla Belavek  
Ramona Stamatina

### Chemistry Undergraduate Scholarship

Kelly Shaye Patero

### James C. French Undergraduate Chemistry Scholarship

Ahmed Ayantayo  
Aya Dudar  
Aroma Naeem  
Dhruvil Patel

### Jane and Frank Warchol Foundation Scholarship

Myles Hardeman  
Noah Stempniewski

### George H. Wheatley Memorial Scholarship

Logan Nguyen

### Chemistry Graduates for 2018 Elected to Phi Beta Kappa

Amber Aboona  
Nirmeen Chouaib  
Jehann Dagher  
Shane Jackowski  
Japnam Singh Jassal  
Gi-Jong Paik

### Mary G. Wood Memorial Endowed Scholarship

Mackenzie Olbrys

## FACULTY AWARDS

### Darrell Ebbing, Ph.D. Endowed Faculty Development Award

Professor Thomas Linz  
Professor Jennifer Stockdill

# Welcome, ZHENFEI LIU

Written by Zhenfei Liu



The Department of Chemistry welcomed Zhenfei Liu, Ph.D., as a new assistant professor in 2018.

Originally from Beijing, Liu obtained a B.S. in chemistry from Peking University. He then moved to the United States, attending the University of California, Irvine, to pursue his Ph.D. with Professor Kieron Burke. During this period, he carried out formal and model density functional theory studies of spatial and on-site strong correlations. After that, he moved to the Lawrence Berkeley National Laboratory, working first as a postdoctoral scholar and then as a project scientist under

the supervision of Jeffrey B. Neaton. During this period, he carried out first-principles computational studies of charge transport through molecular junctions. Now that he has completed his training, Liu is excited to start his independent career at Wayne State University.

At WSU, Liu positions the research themes in his group on the border between conventional chemistry and conventional physics, developing and applying state-of-the-art computational methods that are both accurate and efficient for the electronic structure and dynamical properties at heterogeneous interfaces formed between molecules and solids. These systems are of paramount

importance in many areas in nanoscience and nanotechnology, such as energy conversion and catalysis. The theories and computational methods developed by Liu and his group will lead to fundamental understandings of the mechanisms of these existing and other emerging phenomena.

Liu said he is impressed by the research atmosphere in the department and is looking forward to sharing his passion with the graduate students, as well as collaborating with his colleagues. Besides science, Liu is a fan of cars, and is excited to explore what the Motor City has to offer.

# Welcome, KIM MILLER

Written by Kim Miller



In March 2018, the Department of Chemistry welcomed Kimberly S. Miller as an administrative

assistant. Kim has worked over 18 years at Wayne State University. Her experience in personnel comes from working in the College of Education and Human Resources. Her new

duties in chemistry include being the personnel contact in our department and working with human resources on personnel-related matters.

# Welcome, CHARLIE FEHL

Written by Charlie Fehel



Charlie Fehel is delighted to return to Michigan to start a research group focused on developing chemical

tools to track dynamic signaling processes in living cells.

Fehel grew up nearby in Farmington and completed a B.S. in biochemistry at the University of Michigan, where he began his research career on the enzyme kinetics and structural biology of flavoenzymes with Bruce Palfey. Fehel earned his Ph.D. in medicinal chemistry under the direction of Jeff Aubé at the University of Kansas. There, he used an iterative synthesis/protein crystallography/

assay cycle to design potent probes to inhibit sex steroid biosynthesis. These pathways exclusively fuel breast and prostate cancer growth, allowing highly selective therapeutic options. He also became interested in catalytic techniques and worked on metal- and photo-catalyzed reaction methodologies.

To complete his training, he moved to the United Kingdom and performed postdoctoral research with Ben Davis at Oxford Chemistry. He used high-throughput enzymology and computational tools to validate and predict reactivity and mechanisms for sugar-transferring enzymes. In a separate project, he developed a visible light-driven reaction mild

enough to label proteins at desired sites, allowing the synthesis of pure, modified protein species for defined biological studies.

At Wayne State, Fehel combines his research interests — organic synthesis, enzymology, machine learning, and photocatalysis — in a chemical biology setting. This multidisciplinary approach will enable his group to reveal the complex epigenetic signaling pathways of protein glycosylation in disease to develop new therapeutic strategies. He is excited to keep up the activities he acquired in Britain, including cycling and rowing — just on the Detroit River, no longer the Thames!



# Welcome, HIEN M. NGUYEN

Written by Hien Nguyen



Hien M. Nguyen was born in Vietnam and came to the United States in 1989. He graduated from Tufts University in Boston,

where he majored in chemistry and conducted research.

Nguyen attended the University of Illinois at Urbana-Champaign, where his Ph.D. thesis focused on developing new carbohydrate methods for use in the synthesis of the bioactive natural products.

As an National Institutes of Health postdoctoral fellow, Nguyen pursued training in the area of transition-metal

catalysis. He began his independent career in 2006 at the University of Iowa.

In 2018, Nguyen relocated to Wayne State University as the Carl Johnson/Pfizer Endowed Chair and professor of chemistry. Nguyen's research group focuses on the development of the catalytic stereoselective glycosylation methods for the synthesis and biological studies of oligosaccharides and polymers, the catalytic asymmetric C-F bond formation for access to a variety of bioactive pharmaceuticals, the radiofluorination methods for use as PET radiotracers to monitor cancers and neurological disorders, and the potent heparanase inhibitors for cancer therapy.

## ALUMNI Updates

**Peter Frade, B.S. 1968, M.S. 1971, Ph.D. 1978**, was recognized as a 50-year member of the American Chemical Society.

**Vahid Majidi, Ph.D. 1987**, was named director of the Savannah River National Laboratory.

**Cathrine Reck, Ph.D. 1998**, received the Distinguished Service Award from Indiana University Bloomington, recognizing faculty leadership and dedication within the university, discipline, and community.

**Joanna Klapacz, Ph.D. 2003**, gave a platform presentation at the 56th Annual Meeting and ToxExpo of the Society of Toxicology.

**Chunhai Ruan, Ph.D. 2008**, began a position as a senior analytical chemist at Fontem U.S.

**Yu Chen, Ph.D. 2012**, started as a senior development engineer in the Molecular Instrumentation Center at the University of California, Los Angeles.

**Nilshad Salim, Ph.D. 2012**, received the Pall President's Award for his work at Danaher-Pall Corporation.

**Chamara Senevirathne, Ph.D. 2013**, started as an assistant professor at St. John's University in New York.

**Derek Averill, Ph.D. 2014**, took a position as the lab director at Cutting Edge Solutions.

**Akhila Kuda-Wedagedara, Ph.D. 2015**, started a position as an associate scientist of imaging operations at MI Bioresearch.

**Zhijin Lin, Ph.D. 2015**, accepted a position as senior analytical scientist at AAK China Ltd.

**Kenneth Kpogo, Ph.D. 2017**, started a position as a research chemist at Moses Lake Industries.

**Yuan-wei (David) Nei, Ph.D. 2017**, took a position as technical operations specialist with Quest Diagnostics.

In remembrance of alumni who have passed away over the past year:

**Robert (Bob) Eugene Mosher, B.S. 1942, M.S. 1948, Ph.D. 1950**

**Robert Rudzinski, B.S. 1972**

**Michael Martin, Ph.D. 1980**

# Welcome, EDUARD Y. CHEKMENEV

Written by Ed Chekmenev



Eduard Y. Chekmenev, Ph.D., was born in Perm, Russia. He earned a Ph.D. in physical chemistry

from the University of Louisville. Upon completing his doctorate, Chekmenev joined the National High Magnetic Field Laboratory (NHMFL) in Tallahassee, Florida, as a postdoctoral fellow to work on multi-nuclear high-field NMR spectroscopy of membrane proteins.

In 2006, Chekmenev joined Huntington Medical Research Institutes and Caltech in Pasadena, California, as a postdoctoral fellow to work on NMR hyperpolarization and MRI imaging of hyperpolarized contrast agents using parahydrogen gas. In 2009, he started the hyperpolarized magnetic resonance program at Vanderbilt University Institute of Imaging Science as an assistant professor. Hyperpolarization of nuclear spins enhances NMR and MRI sensitivity by four to eight orders of magnitude, and enables molecular imaging of metabolites. In 2016, Chekmenev was elected to the Russian Academy of Sciences.

In 2017, Chekmenev received the Distinguished Investigator Award for his accomplishments in the field of medical imaging from the Academy for Radiology and Biomedical Imaging Research. In 2018, he started the Hyperpolarized NMR and MRI program at Wayne State University via the Integrative Biosciences initiative. His research projects, supported by numerous awards from NIH, NSF, and DOD, focus on the development and validation of hyperpolarized contrast agents for sub-second imaging of cancer, lung diseases, and other disorders.



WAYNE STATE  
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# THE PERIODIC TABLOID

Department of Chemistry  
5101 Cass Avenue  
Detroit, MI 48202



Photo by Bismah Janshed

*Welcome to the incoming graduate student class of 2018!*

See what our  
department is up to!



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