

THE PERIODIC TABLOID

from Wayne State's Department of Chemistry

WINTER 2022



Photo by Shakila Pei Thanthiri

The NOBCChE K-12 committee and volunteers enthusiastically prepared take-home experiment kits in February 2020.

NOBCChE sends sparks of STEM to local students

By Cathleen Saraza

Even during the pandemic, the WSU Chapter of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers has used its time and talents to help local educators stress the importance of chemistry.

The chapter's new K-12 Committee began collaborating with Cass Tech chemistry teacher Felicia Benson to help students prepare for the AP Chemistry exam. Volunteers helped students work through example problems, provided feedback on their approaches, and helped them improve their problem-solving skills.

Committee members also showcased virtual demonstrations and discussions at Osborn High School. One presentation featured the chemical and physical changes that occur when a Cheeto is set ablaze. Another presentation demonstrated how to model molecules using computer software, giving students a different perspective on chemistry. The chapter also invited WSU

alumnus Edward Thomas to present on COVID-19 vaccines, giving students an opportunity to engage with a professional chemist.

Finally, in February 2021, the chapter launched a monthly experiment series for students from the Mark Murray Campus of the University Preparatory Academy Elementary School. Students used Zoom to carry out experiments at home, creating self-propelling cars from plastic bottles, bouncy eggs, self-inflating balloons, samples of DNA extracted from strawberries, and acid/base tests of household products using red cabbage pH indicator.

In the future, the chapter plans to facilitate tutoring sessions, career talks, and experiment sessions. Email nobcche@wayne.edu for more information about the chapter. The chapter is also active on Twitter (@WSU_NOBCCHE), Instagram (@wsunobcche), and Facebook (@wsunobcche).

WSU ACS-SA remains active

By David Solar

Despite the challenges posed by the pandemic, Wayne State's American Chemical Society – Student Affiliates (WSU ACS-SA) had a successful year.

The club was involved in many social events, including a virtual escape room and virtual game nights. WSU ACS-SA also provided learning and networking opportunities for students, such as gift card giveaways at exam review sessions and a virtual hands-on demonstration with individually packed kits for Neinas Dual Language Learning Academy students. The club also hosted a Detroit Local Section ACS meeting for undergraduate students.

For the upcoming year, multiple in-person events are already planned. The club will host an undergraduate symposium in the winter, organize a student-faculty mixer, and host an analytical chemistry speaker. The WSU ACS-SA is also organizing a new event with the sorority Nu Rho Psi, a national honors society in neuroscience. Finally, club members will attend the national ACS conference in San Diego in March.

Anyone interested in becoming a member of the club can email wsuacs@wayne.edu or follow the club's social media platforms, @WSU_ACS on Instagram and @WSUACSSA on Facebook.



LETTER FROM THE CHAIR

Dear friends and alumni,

The past year has seen the department move through the global pandemic toward a return to in-person everything. Vaccines were made available to all researchers, and research levels gradually increased to pre-pandemic levels. We held virtual visit weekends for prospective graduate students and, as a department, we joined the Green Chemistry Commitment. Thanks to the generosity of donors on Giving Day, enough funds were raised to provide lab coats to students in upper-division chemistry lab classes.

The following highlights provide a small sampling of what happened in the department over the past year. Stas Groysman and Ed Chekmenev were both promoted to full professor. Our assistant professors also scored some major successes: Tom Linz and Zhenfei Liu both received CAREER Awards from the National Science Foundation, Zhenfei Liu received a Ralph E. Powe Junior Faculty Enhancement Award, Long Luo was recognized with an Academy of Scholars Junior Faculty Award, Long Luo and Charlie Fehl both received R35 grants from the NIH, and Aaron Rury received a large grant from the Department of Energy.

Three NIH grants were acquired to fund a new NMR spectrometer, a new mass spectrometer, and a new X-ray diffractometer to be housed in the Lumigen Instrument Center. The department worked together (remotely) as a team to acquire these three new instruments, and the following people played key roles: Young-Hoon Ahn, Dennis Anderson, Ed Chekmenev, Charlie Fehl, Stas Groysman, Jeremy Kodanko, Hien Nguyen, Mary Kay Pflum, Federico Rabuffetti, Jenn Stockdill, Claudio Verani, Cassie Ward, Judy Westrick, Chuck Winter, and myself. Vladimir Chernyak joined the WSU Academy of Scholars.

Additionally, John SantaLucia received the Official Methods Board Achievement in Technical and Scientific Excellence Award. Federico Rabuffetti received a Career Development Chair Award, Sean Hickey received a University Research Grant, and Colin Poole was named professor emeritus.

Berny Schlegel retired but remains research active as a distinguished professor emeritus. Maryfran Barber retired, and we wish her well.

Our students and postdocs also continue to thrive. Garry Leonard was recognized by the WSU Midland NOBCChE chapter for outstanding achievement, Nuwandi Ariyasingha received an F32 fellowship from the National Institutes of Health, the WSU Chem Club received an Outstanding Chapter Award from the American Chemical Society, and alumnus Jason McLellan played a major role in the development of COVID-19 vaccines.

My sincere gratitude goes to chemistry alumni Derek Averill, Lina Basal, Tarick El-Baba, Sibrina Collins, Sarah Fezzey, Dhanushka Nalin Munkanatta Godage, Shawn Hitchcock, Asha Hitihami, Ed Hortelano, Brian Johns, John F. Kadow, Lakmal Kalutarage, Jaya Lakshmi, Xiaosong Li, Alberto Lopez, Corinne Lutomski, Michael McGillivray, Jason McLellan, Elayaraja Muthuswamy, Irina Pala, Sameera Perera, Jane Philip, Larry Roy, Rose Ryntz, Sachini Siriwardena, Ed Thomas, Ryan Thomas, and Keith Williams for taking their time to virtually return to network with our current students and share their post-WSU experiences.

Alumni, please stay in touch. Send updates with your outstanding achievements and new jobs so that we can include them in future newsletters. Next time you are in the Detroit area, please let us know and stop by to meet with friends, colleagues, and mentors.

Sincerely,

Matthew J. Allen
Professor and Chair

ECS student chapter started at WSU

By Long Luo, Kunal Velinkar, and Shakila Peli Thanthri

The Electrochemical Society (ECS) Detroit student chapter was established in 2020 by graduate and postdoctoral students, along with faculty from Wayne State's chemistry, chemical engineering, and materials science departments, thanks to the support of the National Science Foundation. The chapter is the first and only ECS student chapter in Michigan.

Throughout an inaugural year beset by the pandemic, the chapter successfully organized multiple virtual events involving knowledge-sharing discussions and workshops from dignitaries in electrochemistry and electrocatalysis.

The students initiated electrochemistry workshops hosted by Professor Long Luo from Wayne State University and Professor Tianbiao Liu from Utah State University. This free workshop was offered to undergraduate and graduate students who are using or will use electrochemistry in their careers, teaching them

the fundamentals and applications of electrochemistry.

The Trailblazers in Electrochemistry seminar series provided a platform to discuss the new ideas and long-term vision for electrochemistry research of renowned electrochemists. The event was streamed for participants around the globe.

The chapter also invited scholars and industry experts for the seminar series "Powering the Industry with Electrochemistry" and "Coffee Fueled Electrochemistry," allowing these leaders to share their experience in the electrochemical industry. Both events offered unique opportunities to connect with researchers from academia and the industry.



ECS Detroit Student Chapter members, Left to right; 1st row: Dr. Long Luo, Dr Eranda Nikola, 2nd row: Elif Tezel, Shakila Peli Thanthri, Forough Rouhollahi, Sachini Rodrigo, Kunal Velinkar, 3rd row: Ruchiranga Ranaweera, Samji Samira, Disni Gunasekara, Chathuranga Hewa, Yanik Wanzi, 4th row: Daohua Liu, Tharanga Batugedara, John Carl Camayang

The ECS Detroit student chapter looks forward to organizing more exciting events in the coming year. For more information and updates, follow the chapter on Twitter @ECS_Detroit or email ecs.waynestate@gmail.com.

Chemists attract training grants to WSU

By Mary Kay Pflum and Christine Chow

"I had the will to a Ph.D., but not the way," says second-year graduate student Garry Leonard.

Leonard was involved with an undergraduate training program at California State University. He came to Wayne State in 2020 to take advantage of graduate training programs that involve peer groups of students with similar aspirations.

Through the Initiative for Maximizing Student Development (IMSD) program, he joined a diverse pool of students and mentors to build the skills and confidence to successfully

transition to careers in the biomedical workforce.

The program is directed by Joseph Dunbar and was recently funded by the National Institutes of Health (NIH), with leadership by Stephen Lanier, vice president for research at Wayne State University, and Michele Cote of the Karmanos Cancer Center, along with chemistry faculty Christine Chow.

Building on the strong history of training through the IMSD program, chemistry faculty recently secured two additional NIH-funded

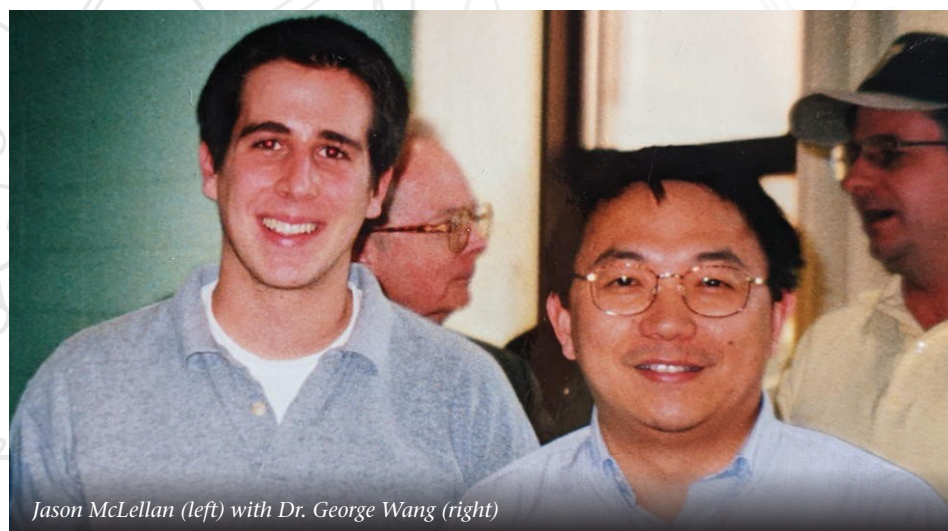
training grants. Mary Kay Pflum and Chow initiated a doctoral student training program focused on multidisciplinary research and skills at the Chemistry Biology Interface. Chemistry faculty and chair Matthew Allen, along with Lori Pile in the Department of Biological Sciences, obtained a Maximizing Access to Research Careers grant to provide research experiences to the diverse undergraduate population at Wayne State, similar to the program that inspired Leonard to pursue his Ph.D. in chemistry.

FROM A CHEMISTRY DEGREE TO TEXAS INVENTOR OF THE YEAR: **JOURNEY OF JASON MCLELLAN**

By Ashok S. Bhagwat

Jason McLellan graduated from Wayne State in 2003 with a B.S. in chemistry with an emphasis in biochemistry. As an undergraduate, he was included on a paper from the research group of organic chemist Dr. George Wang in the journal *Organic Letters*. However, when he started taking biochemistry classes in his junior year, he found his calling — structural biology.

“It was at Wayne State where I confirmed that I loved research and needed to attend graduate school,” said McLellan.



Jason McLellan (left) with Dr. George Wang (right)

McLellan obtained a Ph.D. from the Johns Hopkins University School of Medicine and joined the lab of Dr. Peter Kwong in the National Institute of Allergy and Infectious Diseases (NIAID), exploring the possibility of creating structure-based vaccines for HIV. McLellan’s mentor suggested that he focus on respiratory syncytial virus (RSV), which can cause serious illness in infants and older adults.

A key insight about RSV was that the virus surface protein F changes its shape as it infects human cells, making vaccines based on the post-infection form of the protein ineffective. In collaboration with the lab of Dr. Barney Graham at NIAID, McLellan made a variety of mutations in this protein to stabilize its structure in the pre-infection form. Several companies are now developing RSV vaccines based on such mutant virus proteins.

Later, as a faculty member in Dartmouth’s Geisel School of Medicine, McLellan applied this strategy to the spike proteins of other coronaviruses, including those that cause severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). This strategy is being used by Moderna to develop a vaccine against MERS.

In 2018, McLellan moved to the molecular biosciences department at the University of Texas as the Robert A. Welch Chair in Chemistry and went on to apply a similar strategy to the spike protein of SARS-CoV-2. The results were shared with collaborators at the NIAID, who teamed with Moderna and other companies to make the first COVID-19 vaccines.

The technology invented by McLellan and his colleagues resulted in several patents and to McLellan being declared the 2021 Texas Inventor of the Year.

McLellan says that “Wayne State was a near-perfect experience for me. Academically, I was challenged in my classes and enjoyed being a part of the Honors program. Scientifically, having access to the terrific faculty and research was important for preparing me for graduate school and my future career.”

WSU Chemistry activities aim to improve equity in STEM

By Charlie Fehl and Christine Chow

The global pandemic has brought heightened awareness of social disparities in health care and many other fields, including chemistry education and training. In response, the WSU Chemistry Diversity, Equity, & Inclusion Committee implemented several positive changes toward addressing social justice gaps in the department.

The committee held Journal Clubs in the department, as well as practical strategies to expand awareness.

Departmental outreach efforts also continued in an increased online format.

On the policy side, committee members worked with the Office for Teaching and Learning on syllabus reform to update access and transparency in all courses during the shift to online learning. New implicit bias training modules have been added to the department’s graduate student orientation program, and a number of chemistry faculty have participated in similar training.

The committee will continue its monthly equity and inclusion department workshops, encouraging inclusive teaching pedagogy and ensuring that policies in the Department of Chemistry are equitable. There are also plans to build a departmental platform for enhanced communication and equity and inclusion messaging. Finally, the committee is preparing to launch the endowed Bettye Washington Greene Endowed Lecture Series.

Bettye Washington Greene’s legacy lives on

By Lesa Petersen

To honor the legacy of trailblazing research chemist Bettye Washington Greene, Ph.D. ‘65, the Wayne State University Department of Chemistry will launch the Bettye Washington Greene Endowed Lecture Series in 2022. A generous \$50,000 seed gift from Professor of Chemistry Christine Chow established the series, followed by gifts from the Dow Chemical Company Foundation, from the James R. and Anita Horne Jenkins Family Foundation, and from James and Anita Jenkins personally.

The Bettye Washington Greene Endowed Lecture Series will expose students from diverse backgrounds to experts who have taken a variety of career paths in research-based fields.

First-generation college students and students of color aren’t necessarily aware of the routes available in science and research-based fields of study. These students benefit immensely from meeting mentors in academia, industry, and other job sectors who can help them envision opportunities they might not have considered otherwise.

When Chow discovered an article about Greene written by Department

of Chemistry alumna Sibrina Collins ‘94, she was inspired to create a lectureship focused on the accomplishments. There was no question in Chow’s mind that Greene was the perfect fit. She established the Bettye Washington Greene Endowed Lecture Series to provide a critical resource that will be available for Wayne State students forever.

Greene broke barriers culturally and scientifically when she earned her Ph.D. from Wayne State in 1965, becoming one of a handful of African American women with doctoral degrees in chemistry. Greene went on to a brilliant career at Dow, where she published studies in peer-reviewed journals that established her expertise in latex materials and polymers.

Greene was promoted to senior research chemist at Dow in 1970. Three years later, she joined the Designed Polymers Research Division. In 1975, Greene was promoted to senior research specialist. She worked at Dow for 25 years, retiring in 1990. Throughout her career, Greene established many patents and received many accolades. Her research is still cited in leading



journals, and her work to improve the properties of latex was pivotal to many industries.

If you would like to join Professor Chow and others in supporting the lecture series, there are several ways to make your gift. Donate online at giving.wayne.edu/donate/washingtongreene. Or, send a check to Wayne State University, P.O. Box 674602, Detroit, MI 48267-4602, with “Bettye Washington Greene Endowed Lecture Series” in the memo line.

DEGREES AWARDED 2020-21



BACHELOR'S

Enas Al-Ani	Peter Haworth	Egan O'Callaghan
Zainab Albodeiri	Kimberly Horn	Grace O'Neill
Zeinab Albugalal	Dana Iles	Kelly Shaye Patero
Ali Al-Hashemi	Sai Dheeraj Reddy	Madeline Quinn
Deciah Antkowiak	Kagithala	Mahima Rahman
Amatullah Burhani	John Karns	Mothiur Rahman
Julia Chase	Bilal Kawsara	Chelsea Roberge
Tagrid Choudhury	Judson Knott	Sardou Sabeyo-Yonta
Safwan Didar	Lushon Kuczewski	Kamal Safah
Ryan Dulay	Kostana Ligori	Joseph Sanna
Jordan Emanuel	Marva Malik	Alina Shafikova
Raed Fares	Ann Mark	Ahmad Sous
Julia Forgaciu	Kevin Miller	Joshua Sylvester
Sally George	Syed Ahmed Musavi	Rooha Tariq
Shiimaa Ghames	Huy Nguyen	Charlie Trice
Ward Ghazi	Logan Nguyen	Alissa Turnbull
Matthew Golovoy	Debra Nischik	

MASTER'S

Name	Degree	Advisor
Todd Faner	M.A.	Pflum
Amirreza Samarbakhsh	M.A.	Nguyen

DOCTORATES

Name	Degree	Advisor
Dinesh Amarasinghe Mn4+ and Rare Earth Activated Group V and VI Metal Oxides as Thermosensitive Phosphors	Ph.D.	Rabuffetti
Matthew Bailey Physicochemical Properties of Divalent Europium Containing 222-Cryptates	Ph.D.	Allen
Zachary Devereaux Structures and Energetics of Common Naturally Occurring and Synthetic Fluorinated Nucleoside Analogues: Investigations Via Tandem Mass Spectrometry and Theoretical Methods	Ph.D.	Rodgers
Amanda Grass Reactions of First-row Transition Metal Complexes in BIS(Alkoxide) Ligand Environments with Diazoalkanes: Formation of Carbenes versus Reductive Coupling to form Bridging Tetrazenes	Ph.D.	Groysman
Mohammed Hawsawi Exploring the Scope and Limitations of the Oxidative Deamination of N-ACETYL Neuraminic Acid	Ph.D.	Crich
Sebastien Hebert Computational Investigations into Organic and Bioorganic Reaction Pathways	Ph.D.	Schlegel
Harshani Jayabahu Arachchilage Thermal Atomic Layer Deposition of Silvermetal Films: Synthesis and Characterization of Thermally Stable Silver Metal Precursors	Ph.D.	Winter
Tyler Jenks The Effects of Coordination Environment on the Spectroscopic and Electrochemical Properties of Divalent Lanthanides	Ph.D.	Allen
Aparni Kithulgoda Gamage Development and Application of Chemical Tools to Identify Kinase-Substrate Interactions	Ph.D.	Pflum
Philemon Ngoje Synthesis of Bradyrhizose and the Equatorial Glycosides of 3-Deoxy-D-Manno-Oct-2-Ulosonic Acid	Ph.D.	Crich
Nuwan Chinthaka Punchi Naide Acharige Kinase-Catalyzed Labeling to Study Phosphatase Substrates, Phosphosite-Specific Kinases, and Histidine Kinases	Ph.D.	Pflum
Vindya Ramanayake-Mudiyanselage Kinase-Catalyzed Biotinylation to Map Signaling Pathways and to Identify Kinase Substrates	Ph.D.	Pflum
Ramin Sakhtemani Using UPD-Seq to Understand Genome-Wide Targeting by the Human AID/APOBEC3 Enzymes	Ph.D.	Bhagwat
Jessica Stewart The Biology and Biochemistry of APOBEC3A	Ph.D.	Bhagwat
Nuwandi Maduranga Urugoda Wiyannalage Parahydrogen Hyperpolarized Multi-Nuclear Contrast Agents for Potential MRI Applications	Ph.D.	Chekmenev



Dr. Tyler Jenks



Dr. Aparni Kithulgoda Gamage



Dr. Mohammed Hawsawi

Assistant professors receive honors

By Mary Iverson

Five assistant professors in the Wayne State University Department of Chemistry have recently received one or more grants.

- Tom Linz, Zhenfei Liu, and Long Luo received National Science Foundation (NSF) CAREER Awards. Linz's award is for his project "Developing Thermal Gel Electrophoresis to Interrogate Higher Order Biological Structure." Liu's award will support research and education in computational and theoretical condensed matter and materials physics. Luo will use the award to develop gas bubbles as a new tool identifying

surfactants, molecules widely used as detergents, fabric softeners, and wetting agents in many household and industrial products.

- Liu also received a Ralph E. Powe Junior Faculty Enhancement Award from Oak Ridge Associated Universities to develop novel density functionals based on machine learning to study perovskite.
- Aaron Rury received a \$3.3 million award from the U.S. Department of Energy's Quantum Information Sciences program to study multicomponent cavity polaritons as well as a Young Investigator Award from the Air

Force Office of Scientific Research to investigate how the strong coupling of molecules and photons in nanoscale optical cavities affects photochemistry.

- Two National Institutes of Health (NIH) Maximizing Investigators' Research Award for Early-Stage Investigators valued at \$2 million each were granted to Charlie Fehl and Long Luo. The Fehl Lab will track and target sugar signaling in live cells, and the Luo Lab will develop alternating current electrolysis for achieving new chemical reactivities in organic synthesis.

In Memoriam

Obituary – Norman Allinger

By Carl Johnson and Robert Bach

On July 8, 2020, the scientific community lost a powerful intellect whose contribution to computational chemistry will live on for decades. Former Wayne State Professor of Chemistry Norman “Lou” Allinger is one of the most cited chemists in history. His 1977 pioneering paper on the MM2 method has been cited more than 4,000 times; his 1989 MM3 paper has been cited nearly 3,000 times.

Allinger was born in Alameda, California, on April 6, 1928. Early in his life, he developed an interest in chemistry. He enlisted in the U.S. Army in 1946; after serving, he attended the University of California, Berkeley and received a bachelor of science in 1951. He earned his Ph.D. from the University of California, Los Angeles in 1954. He began his career as a synthetic chemist and published six papers on paracyclophane chemistry before developing an interest in molecular structure and energetics.

Allinger appreciated how the implementation of molecular mechanics provided a significant tool for practicing organic chemists. He completed his formal education at

Harvard University.

Allinger joined Wayne State University in 1956 and began his research on the development of the molecular mechanics series of force fields, which led to MM2, MM3, and MM4 molecular mechanics software programs. At the time, these methods were the most sophisticated and accurate available for the treatment of organic molecules.

In the mid-1960s, all faculty members in the organic chemistry division at WSU began a dialogue about a new approach to teaching undergraduate organic chemistry and decided to jointly write a textbook. *Organic Chemistry* — with Allinger as the coordinating author and Michael Cava, Donald De Jongh, Carl Johnson, Norman LeBel, and Calvin Stevens as co-authors — was published in 1971 and eventually printed in six additional languages. For decades, it has had a significant global impact on teaching organic chemistry.

In 1969, Allinger became a research professor at the University of Georgia. His contributions to chemistry were recognized with many awards,



including an Alfred P. Sloan Foundation Fellowship, the ACS Herty Medal, the Arthur C. Cope Scholar Award, the James Flack Norris Award, and the Benjamin Franklin Medal of the Franklin Institute. He was elected to the National Academy of Sciences in 1991. In 1980, he founded the *Journal of Computational Chemistry* and served as the journal's editor for more than 20 years.

Allinger was an extraordinarily talented and well-respected “New Orleans jazz” musician — pianist and tenor banjo player — who performed at “jazz dives” for more than six decades. He appeared in two albums with the band Sundown Stompers. He was particularly appreciated by his colleagues at Wayne State, where he often performed at social gatherings with visiting lecturers.

Obituary: Gopal Singhal

By Lisa Anga, photo courtesy of Raag Singhal



Gopal Singhal passed away on May 13, 2021, at the age of 91. Singhal was a Wayne State University alumnus who earned his Ph.D. in organic chemistry in 1963.

Singhal had a long and distinguished career in industry, including positions at the Pennwalt Corporation, Esso, and ExxonMobil. He obtained 37 U.S. patents and 90 international patents and became an expert in the fields of fuel chemistry, novel catalysts, and catalysts for upgrading synthetic fuels.

In 1998, Singhal established the Urmila Gopal Singhal Endowed

Memorial Lectureship to honor the memory of his late wife, who earned her master's in American literature from Wayne State in 1963. The Singhal Lecture features individuals who have made notable advancements in research, development, or education in chemistry and related sciences.

Obituary: Gene Reck

Written by the family, friends, and colleagues of Gene Reck

Gene Reck joined the Department of Chemistry in 1965. Before coming to Wayne State, he did his Ph.D. work with one of the pioneers in studies of chemical reactions with molecular beams, physical chemist Edward Greene at Brown University.

Groundbreaking work developing the use of molecular beams to examine molecular dynamics was the excitement at the time, and Gene contributed significant new insight to understanding molecular beam atom-molecule rainbow scattering. That experiment yields the depth of intermolecular potential. These pioneering studies were published in the prestigious *Journal of Chemical Physics*.

Gene continued this work at WSU with his first student, Robin Hood, who subsequently directed the department's analytical facility for 18 years. In 1969, he met a new arrival to the College of Engineering, Erhard Rothe, who had previously done a different form of molecular beam. They formed a partnership on many experimental projects that were carried out in the chemistry and engineering buildings. Most of Gene's published papers between 1974 and 2002 were coauthored with Erhard.

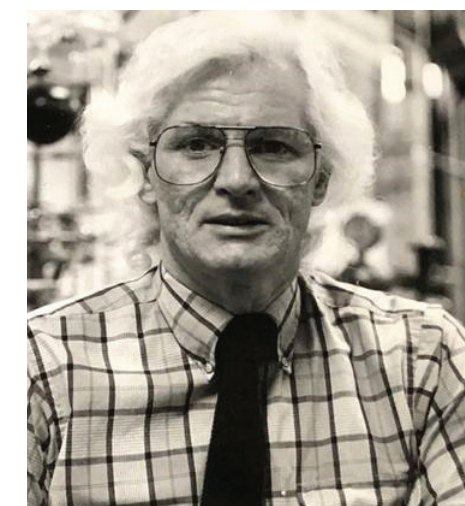
While Gene and Erhard were based in separate departments, their experiments were essentially chemical physics. Some examples of beam experiments were the use of eV-range atoms to measure electron affinities, chemi-ionization of alkali dimers, and the effect of electronic alignment upon reaction. Subsequently, they acquired excimer lasers, and ablation experiments, ultra-rapid cooling of metal melts and real-time combustion analyses via UV-Raman. Their final published work was a Raman-analysis of a high-pressure aircraft combustor in the NASA-Glenn (Cleveland) lab of WSU graduate Randy Locke (Ed Lim).

Gene's research was always a distinctive one-on-one collaboration with each of his graduate students

and postdoctoral associates, for whom he was a caring mentor. He challenged them to work on good problems and supported their interests and ingenuity with guidance, insight and encouragement. Gene was big on collaboration; it was his hallmark. Students from his research group later understood the importance and value of the experience for their later success and came to appreciate it a result of Gene's mentoring and network. He enhanced those skills within his students, who now are passing them on to others.

Gene served on many departmental and college committees and was a responsible and active member of the departmental personnel committee for more than a decade. Research students from other groups and undergraduates — as well as faculty and elsewhere — sought his advice and help. He was known to openly debate issues, willing to discuss the pros and cons if the matter was something he opposed. At the end of the day, he believed the more information, the better to the resulting decision. Unofficially, he was easily accessible for questions and discussions about technical scientific issues, and he was especially available to and supportive of junior physical chemistry faculty.

Gene particularly enjoyed and found fulfillment in teaching and mentoring students. He led the restructuring and redesign for how General Chemistry should be taught, with the broader expectation to enhance the chemistry experience for minority students. In 1996, Gene was instrumental in developing “Gateway to Excellence in Chemistry,” an effort directed at enhancing the learning experience of minority student interest in STEM. He was a committed supporter of the ACS Project SEED program, where he provided high school students an advanced research experience in his lab over the summer. His commitment to outreach reached its height by his engagement and interaction with



more than 1,800 pre-college students annually, largely from the Detroit Public Schools.

Early in his career at Wayne State, Gene was a major stimulus in an informal and flunctional luncheon group averaging four to six junior faculty who explored the various WSU-area food venues. Also in those early years, Gene was a major instigator of a chemistry department handball group, which he and Ron Schroeder seemed to always dominate.

In later years, Gene became a dedicated runner and triathlete. He moved to northern Michigan upon retirement in 2000 to spend time pursuing outdoor activities. After moving to Cross Village, he immersed himself in the community, serving 12 years as township supervisor and 18 years as a first responder for the Readmond Fire Department. Gene and his wife, Joann Condino, founded Three Pines Studio in 2000. Three Pines is a working artist's studio and sales gallery in the arts and crafts tradition, representing only Michigan artists above the 45th parallel. Gene became a self-taught ceramic artist, marrying his chemistry career with artistic creativity. He often spoke about the parallels in experimentation in the artistic process to experiments pursued in the research lab. He continued to educate others even during retirement.

Welcome, Alice Walker!

By Alice Walker



Photo by Mark Fix

The Department of Chemistry welcomes Alice R. Walker, Ph.D. Walker obtained her bachelor of science at University of Michigan-

Dearborn, and began her graduate work at Wayne State before transferring to University of North Texas. She graduated from UNT in 2018, and her work primarily involved applying computational chemistry to biochemical systems, especially DNA polymerases.

After finishing her Ph.D., Walker went to Stanford University as a postdoctoral scholar with Todd J. Martínez, where she worked to simulate excited state dynamics of light-reactive proteins, especially fluorescent proteins. She also worked on collaborative efforts to understand the short-timescale dynamics of

photoacids in explicit solvents.

Walker's research program at Wayne State combines her expertise in simulations of complex biochemical systems with excited state reactivity, with the aim of strengthening the links between theory and experiment by focusing on light as a shared observable feature. Her team applies various methodologies to uncover rational design principles to create new fluorescent molecules, specifically synthetic nucleobases and photoactive proteins.

ALUMNI Updates

Bacon Ke, Ph.D. 1959, retired from Kettering Lab, was honored for his 100th birthday by an article in *Photosynthesis Research* (147, 2021, 243–525)

Tsuneo Imamoto, postdoc 1973-1975, is professor emeritus at Chiba University and won the Noyori Prize from the Society of Synthetic Organic Chemistry, Japan.

Sibrina Collins, B.A. 1994, was awarded the John G. Petty Community Champion Award for Diversity Efforts.

May Khanna, B.S. 1995, Ph.D. 2001, was promoted to associate professor with tenure at the University of Arizona, Department of Pharmacology.

Xiaosong Li, Ph.D. 2003, is the Harry and Catherine Jayne Board Endowed Professor and associate chair of chemistry at the University of Washington. Xiaosong also began

servicing as associate editor of *Chemical Physics Reviews*.

Jason McLellan, B.S. 2003, was awarded the Addgene Blue Flame Award in recognition of SARS-CoV-2 HexaPro (S-6P) plasmid being distributed to more than 100 labs around the world, and he was named 2021 Texas Inventor of the Year.

Hrant Hratchian, Ph.D. 2005, started a term as chair of the Department of Chemistry and Biochemistry at the University of California Merced.

Santosh Mahto, Ph.D. 2009, was promoted to senior scientist at EAG Laboratories.

Rajan Lamichhane, Ph.D. 2011, is an assistant professor at the University of Tennessee, Knoxville and received a MIRA Award from the National Institutes of Health.

Jeremy Moore, Ph.D. 2013, began a position as a research technologist at Los Alamos National Laboratory.

Josh Fischer, B.S. 2014, completed a Ph.D. at Purdue University and started a position as an imaging applications scientist at Bruker.

Derek Averill, Ph.D. 2014, started as chief technology officer of Green Scientific Labs.

Buddhima Siriwardena-Mahanama, Ph.D. 2014, was promoted to chemist at the Environmental Services Department of the City of San Jose.

Sue White, B.S. 2016, M.A. 2020, received a second Outreach Volunteer of the Year Award from the American Chemical Society.

Ryan Hollingsworth, Ph.D. 2018, started a new position at Wacker Chemical Corporation.

Travis Ness, Ph.D. 2018, started as a scientist, protein engineering, at Sanofi.

Mohammed Hawsawi, Ph.D. 2020, started as an assistant professor of organic chemistry at Umm Al-Qura University.

Tyler Jenks, Ph.D. 2020, began a position as quality control lab manager at Springfield Industries.

Kavinda Herath, Ph.D. 2021, began a position at Eurofins Lancaster Laboratories.

Awards, Scholarships and Fellowships

GRADUATE AWARDS for 2020-21

Departmental Citations for Excellence in Teaching Service
Saheed Ayodeji
Sergely Steephen Bokouende
Courtney Cunningham
Dissanayake G. Asanka Dissanayake
Dallas Hildebrand
Hao Mai
Bailey McCarthy Riley
Hashini Munasinghe
Alexander Sertage

Graduate School Citations for Excellence in Teaching
Isaiah Adelabu
Hawau Abdulsalam
Daniel Corey
Connor English
Marcos Imer
Lauren Kotsull
Sydney Lavan
Rana Morsy
Nicholas Toupin
Lakshani Wathsala Kulathungage

Esther and Stanley Kirschner General Chemistry Teaching Award
Dulani Bajjala Kumbure Gedara

Herbert K. Livingston Award for Excellence in Teaching
Yasha Butt

David F. Boltz Award in Analytical Chemistry
Chathuranga Chinthana Hewa
Rahinduwege

Esther and Stanley Kirschner Graduate Award in Inorganic Chemistry
Brooke Corbin and Isuri Weeraratne

Dan Trivich Memorial Award for Research in Physical Chemistry
Duke Debrah and Sydney Lavan

Biological Chemistry Graduate Student Award
Rabiul Islam

Norman A. LeBel Endowed Graduate Award in Organic Chemistry
Fuad Usman

James C. French Graduate Award
Nicholas Toupin

GRADUATE SCHOLARSHIPS and FELLOWSHIPS for 2020-21

ARC and Surendra Gupta Family Endowed Scholarship
Sayak Gupta

Dr. Cal Stevens Memorial Scholarship (created by the Surendra and Karen Gupta ARC Foundation)
Chelsea Gary
Larry Mendoza
Rana Morsy
Courtney Kondor

Knoller Fellowship
Jessica Hovey

Schaap-Rumble Graduate Research Fellowship
Maheeshi Yapa Abeywardana
Duleeka Wannipurage
Nicholas Toupin
Karunamuni Silva
Adedayo Sanni
Alan Mlotkowski
Fredricka Morgan
Courtney Kondor
Herath Mudiyansele Herath
Mohamad Ramshan Fathima
Rukshana

Chemistry-Rumble Graduate Research Assistantship
Garry Leonard

Willard R. Lenz, Jr. Endowed Memorial Scholarship
Rachel Beltman and Jiayi Li

UNDERGRADUATE AWARDS for 2020-21

John H. Secrist Memorial Award
Miya Wycuff

J. Russell Bright Award for Distinction in General Chemistry
Shahad Kizi

Harold B. Cutter Memorial Award in Organic Chemistry
Joseph Smith

Esther and Stanley Kirschner Undergraduate Inorganic Chemistry Award
Julia Chase

American Chemical Society, Division of Inorganic Chemistry Award
Jason Blanchet

Merck and Company Award in Biochemistry
Mareim Abdullah

David and Beverly Rorabacher Award in Quantitative Analytical Chemistry
Zoe Harris

American Chemical Society, Division of Analytical Chemistry Award
Julia Chase

Hugh and Mary Ann Kelly Chemistry Undergraduate Endowed Research Scholarship
David Solar

Clifford G. Drouillard Annual Chemistry Award
Tejas Karun

American Chemical Society, Detroit Section Award for Outstanding Chemistry Graduate
Julia Chase

UNDERGRADUATE SCHOLARSHIPS for 2021-22

Uzoma Azuh Endowed Memorial Research Scholarship in Chemistry
Ci Lee

Ralph E. and Helen G. Carter Endowed Scholarship
Alyssa Erlenbeck
Elizabeth Madarang

Chemistry Undergraduate Scholarship
Mareim Abdullah
Anthony Bally
Unsa Fatima
Ryan Snyder

Dale H. Chidester Memorial Endowed Scholarship in Chemistry
Wade Burson
Chris Carter

James C. French Undergraduate Chemistry
Sydni Alexis Elebra
Zoe Harris
Vince Pallo
Livia Philip
Marilyn Williams

Dr. Bacon Ke Annual Scholarship
Mohamed Alshaiba
Nataly Kaadi
Varunika Savla

George H. Wheatley Memorial Scholarship
Joseph Simbeni

Mary G. Wood Endowed Scholarship
Sydney Kasmer

CHEMISTRY INDUSTRY MENTOR PROGRAM

Dr. Sarah Fezzy and Tagrid Choudhury
Dr. Ed Hortelano and Bridget Bone
Dr. Jane Philip and Unsa Fatima
Dr. Larry Roy and Marilyn Williams
Dr. Ed Thomas and Justin Ahrens

2021 CHAIR'S HONOR LIST

Aniqa Akther
Syed Muhammad Ali
Bana Alsagher
Maddox Arnold
Abdullahi Ayantayo
Dilnoor Kaur Bawa
Christianna Benson
Bassem Chamma
Fatima Dabaja
Shreya Desai
Julia Elia
Bruce Eley
Mary-Ann Essak
Faith Fowler
Brandon Georgis
Zahraa Ghosn
Jeren Maya Choujegyhi
Zachary Grandetti
Salam Hachem
Lillian Howe
Mudasir Hussain
Alexander Kallabat
Gabrielle Kaple
Mubashar Khan
Shahad Kizi
Dinh Luong
Jasirvin Mann
Sukrut Nadigotti
Nama Naseem
Alaa Naser
Surbhi Neole
Finn Osman
Nicholas Paolucci
Natalie Petrus
Michael Pizzuti
Huda Rabbani
Tasnim Rahman
Savyou Sagmani
Parshva Salvi
Joseph Smith
Jessie Tomazic
Elena Tsantis
Adrina Zaitona

CHEMISTRY GRADUATES for 2021 ELECTED to PHI BETA KAPPA

Julia Chase
Logan Nguyen
Seoyoung Woo



WAYNE STATE
UNIVERSITY

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Department of Chemistry
5101 Cass Avenue
Detroit, MI 48202



See what our
department is up to!



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Wayne State University Chemistry

Department

YouTube: [go-wayne.edu/chem-youtube](https://www.youtube.com/channel/UCgo-wayne-edu)

To keep up to date with what our

students are doing, follow NOBCChE, the Chem Club, and ECS: [facebook.com/waynestatechem](https://www.facebook.com/waynestatechem), [facebook.com/WSUACSSA](https://www.facebook.com/WSUACSSA), and Twitter @ECS_Detroit.



Welcome to the incoming graduate student Class of 2021!

Photo by Melissa Rochon