

CHEMISTRY **NEWS**

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

SPRING 2020



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From the Chair

Happy New Year! The 2020 version of the Chemistry Newsletter shares much news from the past year, plus a few months. It was a year of success, challenge and change. The department continues to move forward implementing initiatives related to the University strategic plan and focus on student success in undergraduate and graduate programs. I hope you enjoy all the news and updates.

An important initiative for 2018-2019 was to hire an assistant lecturer as the first-year chemistry laboratory coordinator. With one-quarter to one-third of all first-year students taking first-year chemistry, the impact on student success and retention is substantial. Nate Coleman was hired and has already made many improvements in the curriculum and content coordination with the companion lectures. At the same time, the lecturer group, Claire Cohen-Fray, Kristi Mock, Amy Toole and Lisa Zhurova are leading the way to enhance student success by participating in a grant-funded initiative with the Provost Office to introduce adaptive learning techniques into the department's foundational classes. Quality instruction is important to our faculty and we were delighted to learn John Bellizzi was recognized as one of the 2018-2019 Outstanding Teaching Award recipients at the University.

Students, faculty and staff were also recognized for their research contributions. In particular, Ajith Karunaratne's research group and their study on the impact of blue light on vision was highlighted by news media around the world. UToledo media relations estimated his work reached more than 400 million people. The College of Natural Science and Mathematics also recognized Ajith with the Outstanding Research Award for 2018-2019. Our director

of the NMR facility, Yong Wah Kim, received the 2018-2019 Outstanding Staff Member award. The NMR facility is one of the best facilities of its kind for teaching and research in the region.

Other highlights included the celebration of the 50th anniversary of the Ph.D. program in chemistry, in November 2018. More than 125 current and former students, faculty and staff gathered at the Radisson on the Health Sciences campus to reminisce and share stories. In September 2019, the department dedicated the Dr. Nina McClelland Laboratory for Water Chemistry and Environmental Analysis. Nina was, and still is, a leader in promoting safe water throughout the world. The department is proud to be the home of this laboratory to assist research efforts in the region. These two important initiatives are the focus of fundraising efforts for the next year. Goals are to fund a fellowship to recruit outstanding doctoral students in recognition of the 50th anniversary of the Ph.D. program and fund research opportunities in water chemistry and environmental analysis.

Sadly, our colleague and friend Dean Giolando passed away in January 2019. Dean was an excellent teacher and researcher, and freely gave his time for community outreach activities. He is greatly missed by the department.

As always, please keep in touch, stop by and visit, and send us your news and career updates.



DEPARTMENT UPDATES



Nathaniel Coleman, Jr.

was hired as an assistant lecturer beginning August 2019 after a successful year

as a visiting assistant professor in the department. Nate received B.A. degrees in chemistry and mathematics in 2008 from Monmouth College and his Ph.D. in inorganic materials chemistry from The University of Iowa with Ed Gillan. He continued as a postdoctoral associate from 2015-2016 at The University of Iowa and then at Kansas State University with Emily McLaurin in 2017-2018. Prior to coming to UToledo, Nate was an adjunct instructor at Lindenwood University and Heartland Community College in Illinois.



Amy Paik

joined the department in fall 2019 as visiting assistant professor to assist the department's

teaching mission. Amy received her B.S. in chemistry in 1991 from Western Kentucky University and Ph.D. in 2002 from the University of Illinois, specializing in analytical and materials chemistry under the direction of Andrej Wieckowski. She has prior industrial experience with the Ford Motor Company and United Technologies, and most recently taught chemistry at Henry Ford College, University of Michigan, Dearborn and Monroe Community College.

Steve Moder,

Master Scientific Glassblower, retired on February 28, 2020, after almost 24 years of service to the department.



Youming Cao,

Electronics Technician 3, retired on April 30, 2019, after 14.5 years of service to the department.



IN MEMORY

Professor Dean M. Giolando, 1957-2019. Our colleague, Dean Giolando, passed away suddenly on January 2, 2019. Dean joined the UToledo faculty as an assistant professor in 1988. He received tenure and was promoted to associate professor in 1994, and then was named professor in 2001. His research focused on inorganic and organometallic chemistry, especially developing and characterizing new functional materials. In particular, he focused on materials that improved the efficiency of solar cells, developing collaborations with faculty in the Department of Physics and Astronomy. He was a dedicated teacher of inorganic and general chemistry at both the graduate and undergraduate levels and enjoyed spreading his enthusiasm for STEM

education through outreach to the community. Dean was a member of the American Chemical Society, Materials Research Society and Sigma Xi, the Scientific Research Society, and will always be known as an excellent colleague, teacher and scientist. He is survived by his wife, Kristin Kirschbaum, and two sons, Mark Robin and Patrick. Links to the published obituary can be found at: www.legacy.com/obituaries/toledoblade/obituary.aspx?n=dean-giolando&pid=191187167&fhid=15375.



THE GIFT THAT KEEPS ON GIVING

The Living Periodic Table

*Women & Philanthropy Newsletter, October 2018,
used with permission*



The Periodic Table that we funded continues to impress and delight visitors. Here is a recent email that we received from Kristin Kirschbaum, "I just want to tell you about our visitors from last Saturday. I recently received an email from a Spanish teacher from Sandusky, Mich. His son is fascinated by the chemical elements and the parents are always looking for

things to do to nurture his interest. The father found our Periodic Table on TripAdvisor and took the whole family - wife and three boys - on a trip to Toledo to see the Periodic Table. This was a three-hour drive (with traffic) for them and they had to leave at 6:30 a.m. to make it here before the Homecoming Parade. When I asked the parents how they managed to get three kids ready that early in the morning, they said, "we just told them that we have a surprise for them." That surprise was our display. Darpan and I added a few things such as cool experiments and looking at a moth

wing in our electron microscope to make it all worth it, but the reason for their weekend trip to Toledo was our display - isn't that awesome? I think we will hear from this boy in a few years when he is looking for college; we already talked about research."

The father of this boy also sent Kristin an email in which he said, "We had a great time yesterday. Thanks for the tour and for inspiring my son. He has already spent a ton of time reading the book and will choose an element soon, so that he can contribute. I put a five-star review on TripAdvisor."

Check out this link and watch the young man sing the "Science Song": <https://www.youtube.com/watch?v=DKcgmss0l68&feature=youtu.be>



Our gift of the Periodic Table does, indeed, continue to impress and inspire.

Photos from the Dr. Nina McClelland Lab Dedication Ceremony, page 9



Pictured (L-R): Dr. Frank Kero (Perkin-Elmer), Dr. Nina McClelland, Dr. Sharon Gaber and Dr. Emanuela Gionfriddo.



Pictured: Dr. Nina McClelland with new equipment in her namesake Laboratory for Water Chemistry and Environmental Analysis.

IN THE NEWS

UToledo Blue Light Research Named a Top 100 Science Paper of 2018

A scientific discovery at The University of Toledo was selected as one of the top 100 most talked about scholarly publications in the world this year (2018).

Altmetric, a data company that tracks and tallies the year's 100 most attention-grabbing studies, chose UToledo's blue light research as No. 76 in its annual list that provides a picture of the influence and reach of academic work.



Dr. Ajith Karunaratne examined toxic oxygen generation by retinal during blue light exposure.

According to Altmetric's analysis, "The blue light coming from your computers, phones and tablets is doing damage to your retinas, and this study elaborates on the mechanisms by which blue light causes retinal degradation. The study has elicited a lot of interest, concern and conflicting advice across popular media about how best to protect your eyes."

Dr. Ajith Karunaratne, assistant professor in the UToledo Department of Chemistry and Biochemistry, earned international attention in August for discovering how blue light triggers cell death in the presence of retinal, a light harvesting molecule in the eye.

His research about blue light-induced cell damage reached more than 400 million people around the world through hundreds of news outlets, including Popular Science, USA Today, CNN Headline News/HLN, The Guardian, Teen Vogue, Forbes and Newsweek.

Altmetric not only tracks news media mentions, but also social media shares and policy documents. Overall, the company tracked more than 25 million mentions of 2.8 million research outputs in 2018.

In its demographic breakdown of the blue light research, Altmetric shows that while scientists and physicians shared UToledo's news on Twitter, most of the tweets — 84 percent — came from members of the public.

"My group is composed of extremely talented and hardworking graduate and undergraduate students, and this recognition is a tribute to their passion in advancing science," Karunaratne said. "Our published work is an example of how multidisciplinary research can unveil hidden molecular details of crucial cellular mechanisms."

In this case, UToledo chemists explored how the combination of blue light and retinal — the abundant chromophore in the eye — damages cells.

Karunaratne's lab found that blue light exposure causes retinal to trigger reactions that generate poisonous chemical molecules in photoreceptor cells.

After his research showing retinal-generated toxicity by blue light was published in the journal *Scientific Reports* in July 2018, Karunaratne said he received feedback from people who shared their experiences on how occupational blue light exposure is a major health concern for them.

"It is an honor to study a process that people care so much about," Karunaratne said. "In this high-tech world, we are being exposed to blue light continuously. It is crucial to find how and when blue light becomes damaging."

Karunaratne's lab currently is measuring light coming from television, cell phone and tablet screens to get a better understanding of how the cells derived from the eye respond to everyday blue light exposure.

"We are looking into the details of the discovered mechanism and investigating if commonly used light-emitting devices have the potential to trigger toxic chemical reactions in cells," Karunaratne said.

By Christine Billau (reprinted with permission of UToledo News as published December 21st, 2018)

Editor's note: The Karunaratne research group's study on the effect of blue light on vision was highlighted in Dr. Gaber's State of the University address on April 3, 2019. Ajith was also invited to present his research at the December 2018 Board of Trustees meeting, and was featured in the following UToledo video:

https://youtu.be/8X_txTLvEY0



Pictured (L-R): Dr. Sharon Gaber and Dr. Ajith Karunaratne.

DEPARTMENT HIGHLIGHTS

GRANT\$\$

Peter Andreana and Jianglong Zhu

received UToledo small grant awards to support the 2019 Carbohydrates Gordon Research Conference and the Lemieux 100 Year Birthday Symposium at the Fall ACS meeting, respectively. Peter was vice-chair of the Gordon Conference in Hong Kong and Jianglong is the ACS symposium co-organizer.

Terry Bigioni

was awarded a \$50,000 grant from the NSF I-Corps program for his project, *Silver Materials for Antimicrobial Coatings*.

Claire Cohen-Fray, Cora Lind-Kovacs, Kristi Mock, Amy Toole and Lisa Zhurova

were instrumental in UToledo receiving a Program for Academic Excellence/ Association of Public and Land Grant Universities grant to improve success in introductory chemistry classes by introducing active learning strategies into the curriculum. Barbara Schneider in the Provost Office is coordinating this effort. Their efforts have reduced the number of students earning D, F and W grades in general chemistry classes.

Emanuela Gionfriddo

was awarded three grants. First, \$20,000 from the Research Awards and Fellowship Program for the proposal titled, *Development of Alternative Microextractive Sampling Strategies to Capture Elusive Plant Emissions Linked to Chemical Signaling Mechanisms in Response to Insect Attack*. This award is in collaboration with Heidi Appel and Jack Schultz from the Department of Environmental Sciences. Second, a one-year renewable award for \$6,000 from Restek Corporation titled, *Direct Coupling of Arrow SPME Device to Mass*

Spectrometry via Thermal Desorption/ Direct Analysis in Real Time (TD-DART/ MS). Third, a collaborative research agreement sponsored by Supelco, Inc. titled, *Development of Analytical Methods for Complex Matrices using Matrix-Compatible SPME Fibers*. The grant period is from September 2019 to September 2021, for \$20,000 per year.

Dragan Isailovic

is a co-PI on Jim Slama's recent NIH R15 award for \$461,898 from the National Institute of General Medical Sciences to identify the elusive receptor for nicotinic acid adenine dinucleotide phosphate.

Xiche Hu, Cora Lind-Kovacs and Matt Wohlever

received travel grants from the Foy and Phyllis Penn Kohler Fund for International Studies. Xiche went to Lund University in Sweden for a collaborative scientific research project in October 2019; Cora presented an invited lecture at the Third International Symposium on Negative Thermal Expansion Materials (ISNTE-III) in Edinburgh, Scotland, in December 2019; and Matt went to the European Molecular Biology Organization (EMBO) Workshop on Protein Quality Control in Costa de la Calma (Mallorca), Spain, April 2019.

Ajith Karunarathne (PI) and Emanuela Gionfriddo (co-PI)

received a \$10,000 award from the American Chemical Society to continue the Project SEED program for the 16th year at UToledo. The funds were used to host six students in summer 2019.

Cora Lind-Kovacs and Kristin Kirschbaum (Director, NSM Instrumentation Center)

were part of a team led by Bill Gunning (Health Science Campus) receiving funding for their NSF MRI proposal, *MRI:*

Acquisition of a Transmission Electron Microscope for Research and Research Training. The three-year award of \$545,650 will run from September 1, 2019, to August 31, 2022. Yanfa Yan, Amit K. Tiwari and Tomer Avidor-Reiss were also involved in the proposal. The instrument will be located on the Health Science Campus and have remote access in the NSM Instrumentation Center.

Cora Lind-Kovacs

and Veronica Livingstone (Ph.D. student, Lind-Kovacs) received a grant from RJ Marshall Company on the *Formulation and Characterization of Polymer Composites* in the amount of \$36,941, running from May 13, 2019, to August 21, 2020.

Mark Mason

received an American Chemical Society Green Chemistry Institute Pharmaceutical Roundtable Research Grant for his project titled, *Iron-Catalyzed Cross-Coupling of Heterocycles*. The \$25,000 grant runs from September 2019 to March 2020.

Steve Sucheck

along with Kathy Wall and Erin Prestwich from the Department of Medicinal and Biological Chemistry, received a five-year NIH R01 grant totaling \$2,338,199 for their project titled *Methods to Synthesize Oligosaccharide-Fusion Protein Conjugates and Enhancement of their Antigenicity*. The project is active from January 1, 2020, to December 31, 2024. The UToledo video including their work can be seen at: https://youtu.be/Adu_GDwkhq8.

Mike Young

received funding for his NIH R15 grant application titled *Late Stage Derivatization of Complex Molecules via Hydrogen Bond-Directed C-H Functionalization*. The three-year award of \$450,594 will run August 1, 2019, to July 31, 2022.

Department Highlights, continued from page 5

APPOINTMENTS

Dragan Isailovic

was promoted to professor at the April 2019 Board of Trustees meeting. His sabbatical application for fall 2020 was also approved.

Wei Li

was selected to participate in a workshop on synthetic organic chemistry, sponsored by Organic Synthesis, Inc., in August 2020, in Steamboat Springs, Colo. Wei was one of 14 early-career organic faculty members

selected from a pool of 120 pre-tenure applicants from the U.S., Europe, Asia and Canada

Cora Lind-Kovacs

was appointed for a two-year term to UToledo's Conflict of Interest (COI) Committee. She was also elected as the 2020 Solid State Subdivision Chair-Elect and 2021 Solid State Subdivision Chair for the Division of Inorganic Chemistry of the American Chemical Society.

Mark Mason

was invited to serve on the advisory committee for the 24th Annual Green Chemistry & Engineering Conference to be held on June 16-18, 2020, Seattle, Wash.

Steve Sucheck

was elected as Chair-Elect for the Carbohydrate Division of the American Chemical Society for the period 2020-21, Chair for 2022-2023 and Past-Chair for 2024-2025.

HONORS, AWARDS AND RECOGNITION

FACULTY/STAFF

John Bellizzi

received one of the University of Toledo Outstanding Teacher Awards for 2019 in recognition of his outstanding work in the classroom for UToledo students. John becomes the 8th member of the department to receive this high honor in university teaching, joining Lance Thompson ('67), Al Foster ('77), Andy Jorgensen ('92), Julian Davies ('94), Roy Stein ('98), Bob Flowers ('98) and Claire Cohen-Fray ('16).

John Bellizzi and Joe Schmidt

received the 2019 Edith Rathburn Outreach and Engagement Excellence Award for their Saturday Morning Science program.

Claire Cohen-Fray

completed her 3rd Boston Marathon, and her 19th marathon overall, in 3:58:27.

Emanuela Gionfriddo

served as guest editor for a special edition on *Development of Alternative Green Sample Preparation Techniques* in the journal *Separations*.

Ajith Karunarathne

received the Excellence in Research for Academic Year 2018-19, and

Yong Wah Kim

received the Outstanding Staff Member Award for Academic Year 2018-19 at the College of Natural Sciences and Mathematics Convocation held prior to the start of the fall 2019 semester.

Ajith Karunarathne, Elizabeth Zhurova and Vladimir Zhurov

became U.S. Citizens.

Alan Pinkerton

received the 5000th citation for his research publications.

Mike Young

received The Thieme Chemistry Journals Award. The Thieme Chemistry Journals Award was established in 1999 to encourage and recognize young scientists who are considered high-potential researchers in synthetic organic chemistry. Recipients are selected by the editorial board members of *Synthesis*, *Synlett* and *Synfacts*. Mike also was recognized by the American Chemical Society Petroleum Research Fund with a certificate

of appreciation for his outstanding contribution to the review process in both 2018 and 2019.

The following employees received their service recognition awards - 10 years: **John Bellizzi, Dragan Isailovic, John Rentner**; 15 years: **Cora Lind Kovacs**; 20 years: **Xiche Hu, Mark Mason**; 30 years: **Eric Findsen**.

STUDENTS

Pratibha Chand Thakuri

(Ph.D. student, Young) received a \$1,000 ACS Women Chemists Committee Travel Award sponsored by Eli Lilly & Company for her travel to the 260th ACS National Meeting in Philadelphia, Pa., March 2020.

Ronnie Emmons

(Ph.D. student, Gionfriddo) received the Best Poster Award at ANACHEM 2019 in Livonia, Mich. Ronnie also received a travel award to attend and present his research at the 2019 North American Chemical Residue Workshop in June.

Mollie Enright

(Ph.D. student, Mason) received a 2019-2020 Ciba Travel Award in Green Chemistry to attend the 24th Annual Green Chemistry & Engineering Conference in Seattle, Wash., June 16-18, 2020.

La'Nese Lovings

(Ph.D. student, Lind-Kovacs) received the 1st place Poster Award and **Veronica Livingstone** (Ph.D. student, Lind-Kovacs) received 2nd place for her oral presentation at the 2019 May Conference at John Carroll University. (Pictured right.)

on for his talk, *Blue Light-Sensitized Retinal Disrupts Cellular Signaling*. The meeting was held at the Burton Manor in Livonia, Mich., November 1, 2018.



Padam Prasad Acharya

(Ph.D. '19, Zhu) and **Vinod Gattoji** (Ph.D. student, Andreaana) received Best Poster Awards at the 14th Annual Midwest Carbohydrate and Glycobiology Symposium held at Michigan State University, September 21-22, 2018.

Allison Rabon

(Ph.D. student, Young) and **Justin Maxwell** (M.S. '19, Young) attended the ACS Summer School on Green Chemistry and Sustainable Energy. The school was held at the Colorado School of Mines, July 16-12, 2019.

Kasun Ratnayake

(Ph.D. student, Karunarathne) received the award for the best oral presentation by a student at the 2018 ANACHEM Symposium

Ahmad Rohani Far

(Ph.D. '18, Kirchhoff) received second place in the 2018 Fresh Ideas Student Poster Competition, from the Ohio Section of the American Water Works Association, for his poster *Pyrrole-based Conductive Polymers for Determination of Heavy Metals and Their Removal from Water*. The meeting was held in Columbus, Ohio, August 2018.

Prakash Thapa

(Ph.D. student, Zhu) received Honorable Mention for his poster presentation at the 15th Annual Midwest Carbohydrate and Glycobiology Symposium at the University of Notre Dame, September 2019.

The American Chemical Society (ACS)

student chapter at UToledo, academic year 2017-2018, received an Outstanding Chapter award for their activities. The chapter had 133 events and was ranked 2nd behind Salt Lake Community College. They were honored at the ACS National Meeting in Orlando, Fla. The group also received an Honorable Mention award for 2018-2019 and received the Green Chemistry Award for its activities conducted during the 2018-2019 academic year. They were one of 51 chapters nationwide to be recognized by the ACS Green Chemistry Institute. The students will accept their awards at the Philadelphia ACS meeting, March 2020.

Fourteen undergraduate chemistry and biochemistry students received undergraduate summer research awards

(USRCAP and FYSRE Awards), the most from any department. Students and mentors were Kern Baxter (Young), Timothy Beaudry (Mason), Sharvari Brahme (Li), Jared Doremus (Young), Samantha Friday (Viola), Alyssa Garreau (Young), Chaitanya Koli (Wohlever), Ashley Scheutzow (Wohlever), Natalie Schulte (Sucheck), Nadia Sherman (Wohlever), Gracie Siffer (Wohlever), Sam Simpson (Ronning), Cassidy Stevens (Ronning) and Nathan Walker (Wohlever).

EVENTS AND ACTIVITIES

STEM in the Park

The College of Natural Science and Mathematics (NSM) attended the annual STEM in the Park event at Bowling Green State University, September 28, 2019. The department's hands-on experiments for students



included the construction of dye-sensitized solar cells using blackberries. Approximately 100 exhibitors at the event provided the 5,000 attendees with a range of science and engineering activities. UToledo chemistry graduate students who helped were Rhadika Thanvi (Sucheck), Daria Kucheriavaia (Isailovic), Allison Rabon (Young), Christine Jette and Mollie Enright (Mason). Mollie coordinated the activities for the chemistry component of the NSM table.

Project SEED

The 16th Annual Project SEED Symposium was held on August 9, 2019, highlighting the student research projects from the

Events and Activities, continued from page 7

summer. Project SEED is a program to introduce economically disadvantaged high school students to research and scientific careers. UToledo Project SEED alumni George Kim and Claire Gray received Project SEED College Scholarships. Claire (Northview High School, Sylvania, Ohio) is attending Brown University, majoring in chemistry. George (Emmanuel Christian High School, Toledo) is attending the University of Michigan.



Both George and Claire worked at UToledo in the laboratory of Ajith Karunarathne.

UToledo Hosts Ohio Inorganic Weekend

Mike Young and the Young Group organized a highly successful Ohio Inorganic Chemistry weekend, November 2-3, 2019. More than 200 faculty, undergraduate and graduate students from Ohio, Mich. and Ind. gathered at UToledo where approximately 120 posters and 19 talks highlighted the event. Student award winners were Emily Norwine from the University of Michigan, at the graduate level, and Sarah Roell from Ohio University, at the undergraduate level.



The Ph.D. Program Turns 50!

The department celebrated the 50th anniversary of the Ph.D. program in chemistry and biochemistry, as well as the 219 doctoral degree recipients, with a banquet at the Radisson Hotel on the Health Sciences Campus, November 17, 2018. More than



120 current students, faculty and staff, graduates and retirees attended the event. Seven emeriti faculty members attended, including four (Drs. Edwards, Fry, Gano and Niedzielski) who were instrumental in the beginning of the doctoral program. Jim Fry and Jim Gano shared many interesting and humorous stories reminiscing about the early days and how science had changed in the fifty years since the program started. **David Boucher** (Ph.D. '92, Edwards) earned the honor of traveling the farthest from his home in Louisiana. Jack Wise, the department's first glassblower also attended, as did Norm Rapino (Ph.D. '71, Griffith), the department's first Ph.D. graduate.



Jack and Nancy Wise

The highlight of the evening was the announcement of the Ramachandran and Potlapally Chemistry Graduate Fund by **Sampath Ramachandran** (Ph.D. '92, Funk).



Sujji Potlapally, Sampath Ramachandran and Jon Kirchoff.

Sam and Sujji's generous gift will provide a merit fellowship each year to the outstanding first-year graduate student. The Ramachandran and Potlapally Outstanding First Year Graduate Student will receive a merit stipend for their second year in the doctoral program to supplement their assistantship support. Their thoughtfulness will greatly assist students with living expenses so they can focus on their doctoral studies. The first award was given at the spring 2019 Honors Tea to Rasangi Pathirage (Ronning). Drs. Ramachandran and Potlapally are currently Staff Physicians in Radiology at Henry Ford Hospital in Detroit, Mich. The department greatly appreciates their support of the program. The impact for the training of future students will be tremendous.

A second fellowship fund is also being established as a grassroots effort to recruit outstanding graduate students by providing a higher stipend level through a merit-based award. This award will be named the 50th Anniversary Doctoral Program Fellowship. The endowment is approximately 40% funded at this time by donations from faculty, staff, alumni and friends of the



department. Anyone interested in donating to this fund can contact Nick Butler at the UToledo Foundation at: nick.butler@utoledo.edu.

Above (L-R): Alan Pinkerton, Max Funk, Bob Niedzielski, Jimmie Edwards, Andy Jorgensen, Jim Gano and Jim Fry.

Water Chemistry and Environmental Analysis Laboratory Dedicated for Chemistry Alumna, Dr. Nina McClelland

Reprinted, in part, from an article by Jon Kirchhoff in *Lab Manager Magazine*.

The Dr. Nina McClelland Laboratory for Water Chemistry and Environmental Analysis in the Department of Chemistry and Biochemistry was officially dedicated on September 19, 2019. The new laboratory honors Dr. Nina McClelland, an alumna and lifelong pursuant of improving water quality and ensuring safe drinking water for the public.

The ceremony, including a surprise birthday celebration for Nina, was attended by more than 110 guests. Guests included family, friends and colleagues of Nina, business and community leaders, three current and former UToledo Presidents and many UToledo faculty and administrators. Citations from Congresswomen Marcy Kaptur, Ohio State Senator Teresa Fedor and American Chemical Society President Tom Connolly were read during the program.

Nina received her B.S. ('51), M.S. ('63) and Honorary Doctorate ('03) from The University of Toledo, and her M.P.H. ('64) and Ph.D. ('68) from the University of Michigan. She began her career with the City of Toledo as a chemist and bacteriologist in the Department of Health at the Wastewater Reclamation Facility (1951-1956) and served as Chief Chemist from 1956-1963. She became the first woman in Ohio to earn a Class A license for wastewater treatment. After receiving her Ph.D., she joined NSF International, formerly the National Sanitation Foundation, in Ann Arbor, Mich., in 1968, and rose through the ranks to become Chairman of the Board of Directors and Executive Committee, President and Chief Executive Officer from 1980 to 1995. Upon retirement in 1995, she founded and was President of McClelland Consulting Services, LLC, providing her expertise to organizations throughout the world.

Nina returned to the University of Toledo in 2003 and was Dean of the College of Arts and Sciences until 2011. Her faculty appointment was in the Department of Chemistry and Biochemistry. She currently holds titles as Chairman Emeritus at NSF International,



and Dean Emerita and Executive-In-Residence in the College of Business and Innovation at The University of Toledo. She is a former board chair of the American Chemical Society and served on major committees

including NIST, the National Drinking Water Advisory Council and the Committee on Water Treatment Chemicals. In an interview with *The Toledo Blade* about her work, she humorously stated, "I've 'retired' six times. That's the only thing in my career that I've failed at."

The initial mission of the laboratory encompasses individual and collaborative research projects related to environmental analysis



in the four laboratories of the analytical chemistry faculty in the department. By focusing on research related to water quality and environmental analysis under one banner, the laboratory will accelerate discoveries and encourage collaboration to solve pressing and emerging threats to the environment. The founding faculty include Drs. Jon Kirchhoff, Emanuela Gionfriddo, Dragan Isailovic and Ajith Karunarathne.

The laboratory's unique mission will focus on developing innovative scientific methodology, especially greener, more environmentally friendly methods to address threats to our water resources. A further goal is to create a hub for scientific discoveries to mitigate some of the most pressing environmental problems and provide a state-of-the-art facility for the training of future researchers to be new leaders and environmental stewards.

Instrumentation in the faculty labs includes a Thermo Scientific Orbitrap Fusion Tribrid LC-MS, a Thermo Scientific Vanquish Flex Binary UHPLC system with a Thermo Scientific LTQ XL linear ion trap MS, an Agilent 7890B GC/5977B Inert Plus MSD with a GERSTEL robotic auto-sampler for headspace and solid-phase microextraction, a DART SVP thermal desorption sampling module, a portable Perkin-Elmer Torion T-9 GC coupled to a miniaturized ion trap MS and an Andor confocal imaging system with FRAP and TIRF capabilities. The facility was bolstered by a partnership between Emanuela Gionfriddo and Perkin-Elmer, which placed an additional Perkin-Elmer Q-Sight 220 LC-MS/MS triple quadrupole MS into her laboratory.

Special thanks to Dr. Joe Cotruvo, Perkin-Elmer and NSF International for their support in the development of the laboratory.

The department is proud to be the home of this new facility and is working hard to grow the capabilities. Several news stories related to the new lab can be found online at:

https://news.utoledo.edu/index.php/09_17_2019/new-chemistry-lab-to-be-dedicated-in-honor-of-water-quality-leader-utoledo-alum-sept-19

<https://www.toledoblade.com/environment/2019/09/18/university-of-toledo-dedicating-new-lab-in-honor-of-one-of-its-most-distinguished-scientists-on-thursday>

<https://nbc24.com/news/local/university-of-toledo-honors-dr-nina-mcclelland-with-new-chemistry-lab>

ALUMNI NEWS

WEDDINGS

John Beck

(Ph.D. '11, Schmidt) married Paige Eagan on December 22, 2016, in Puerto Vallarta, Mexico.

Nichole Bennett

(B.S. '12) married Sean Pawlowski (UToledo alum) on September 8, 2018.

Lindsey Young

(M.S. '15, Lind-Kovacs) married Tom Galandiuk (B.S. '12) on October 27, 2018. Lindsey works at Proto Manufacturing as the head of the testing lab. Her responsibilities include performing final assembly on new instruments, testing their performance and shipping them to customers. Tom Galandiuk is working at Toledo Hospital as a general circulator in the surgical department.

BIRTHS

Tamam Baiz

(M.S. '07, Schmidt; Ph.D. '10, Lind-Kovacs) and husband, Hassan Jad, welcomed Ali Jad on September 6, 2018. Big sister is Jenna.

Laurence Boutemy

(Ph.D. '08, Mueser) and Marcus Edwards welcomed baby boy, Lucas, on January 3, 2019, at 11:37 p.m.

Anna Butcher is very happy to announce that she is officially a big sister. Sarah Marie Butcher arrived December 5, 2018, at 9 lbs 10 ounces and 21.5 in long. Parents are **Adeline Miermont Butcher** (Ph.D. '08, Huang) and James Butcher.

Dilrukshika Palagama

(Ph.D. '18, Isailovic) and **Amila Devasurendra** (Ph.D. '17, Kirchhoff) welcomed baby girl, Adhya, on September 10, 2019.

Krishani Rajanayake

(Ph.D. '18, Isailovic) and Dileepa Jayawardena welcomed baby boy, Gavin Jayawardena, on July 23, 2019. He weighed 7 pounds 15 ounces.

Ruwani Wasalathanthri

(Ph.D. '19, Giolando/Lind-Kovacs) and **Kasun Ratnayake** (Ph.D. student, Karunarathne) welcomed baby girl, Amindi Imaya Ratnayake, on October 19, 2019, weighing 5 lb 13 ounces and measuring 19.5 inches long.

CAREER UPDATES

Claudine (Lumibao) Arm

(M.S. '06, Kirchhoff) received a promotion to program manager at Laird-Performance Materials located in Cleveland, Ohio, after receiving her M.B.A., in 2016. She has two children, Arabella and Logan, who keep her busy.

John Beck

(Ph.D. '11, Schmidt) was elected Chair of the Natural Sciences Department at Lake Michigan College. The department includes chemistry, biology, physics, earth sciences and engineering.

David Boucher

(Ph.D. '92, Edwards) retired from the Radiation and Trace Metals sections of the water testing laboratory for the Louisiana Department of Health. He was also the lead assessor for the State's Laboratory Accreditation Program.

Pradheep Eradi

(Ph.D. '19, Andreana) is a postdoctoral associate with Dr. Elliot Chaikov at Harvard University.

Farzana Hossain

(Ph.D. '19, Andreana) is a postdoctoral associate with Dr. Stephen Bergmeier at Ohio State University.

Matt Hertel

(M.S. '08, Schmidt) is a senior chemist working the OCG (Organic Chemistry Group) at Siemens.

Mallory Ladd

(B.S. honors '11) was the 2018 recipient of the Edward H. Schmidt Outstanding Young Alum Award during the 2018 Homecoming celebration. Mallory earned her Ph.D. from the University of Tennessee. She is currently working at the federally funded Center for Naval Analysis (CNA) in Washington, DC. She is an internationally recognized scientist who has developed mass spectrometry tools to measure the chemistry of soils in the Arctic, which is viewed as a tipping-point area for climate change. Mallory also has served as a panelist at the Lindau Nobel Laureate Meetings in Germany, and participated in a field assignment onboard the USS Theodore Roosevelt as it took part in the U.S. Navy-U.S. Air Force joint Northern Edge exercises in the Gulf of Alaska.

Camille Lombard-Banek

(M.S. '13, Griffith) received and accepted a NRC fellowship as a postdoc at NIST, which she started in October 2019.

Yujing Meng

(Ph.D. '11, Anderson) is working at Recro Pharma in the R&D department in Atlanta, Ga.

Padam Prasad Acharya

(Ph.D. '19, Zhu) is a postdoctoral researcher in the College of Pharmacy at the University of North Carolina at Chapel Hill, N.C.

Sourav Sarkar

(Ph.D. '12, Sucheck) was promoted at Cygnal Therapeutics to senior scientist, chemical biology. Cygnal Therapeutics is in Cambridge, Mass.

Daniel Schwert

(Ph.D. '99, Davies) received tenure from the University of St. Francis in Joliet, Ill.

Paul Sifuna Oshule

(Ph.D. '14, Mueser) is a lecturer at Mount Kenya University Medical School in Thika, Kenya.

Ajith Yapa Mudiyansele

(Ph.D. '16, Yamamoto) is a senior lecturer in chemistry at the University of Ruhuna in Sri Lanka.

Xiuquan Zhou

(M.S. '13, Lind-Kovacs) finished his Ph.D. under Dr. Efrain Rodriguez at the University of Maryland in 2018, and accepted a position as a postdoctoral associate at Argonne National Laboratory under Mercuri Kanatzidis in the emerging materials group of the Materials Science Division. The research focuses on the rational discovery of novel superconductors.

ALUMNI SPOTLIGHT

Ibraheem Badejo (Ph.D. '89, Fry), Senior Director, New Ventures (Med Devices), Johnson & Johnson Innovation Center, Boston, Mass.

Ibraheem leverages his expertise in smart materials and biomaterials to support the medical device sector of Johnson & Johnson. From 2010 to 2013, he was a Research Fellow at Global Surgery Group of Johnson & Johnson where he was responsible for external and front-end innovations and intellectual property for Ethicon Biosurgery. From 2006 to 2010, he was the Director of Applied Research & New Technology Assessment of novel biomaterials. Prior to that, he was the Chief Scientist of Closure Medical Corp (acquired by Johnson & Johnson in 2005). Ibraheem has held various positions at Bayer, North Carolina State University, and the College of Charleston. He currently serves as an Adjunct Professor of Biomedical Engineering at Drexel University.

During his career, Ibraheem has led teams in the development of commercialized biomaterials based products and new technology/products licensed or acquired. Ibraheem received his Ph.D. in organic chemistry from the University of Toledo where he was the Robert Whiteford Memorial Scholar for Outstanding Graduate Research and a Petroleum Research Fund Fellow. He is also the recipient of 24 U.S. patents, he's also well published in many peer review journals.

Ibraheem spends some of his spare time meeting the needs of others and giving back to the world. He has participated and led mission trips to rural North Carolina, Mexico, Kenya, Haiti, Trinidad and Tobago and also serves in Boston Rescue Mission – meeting the needs of homeless in the Boston. He currently serves as board member or on the advisory board of Avila University, MedShare – a not for profit medical mission organization, Southeast Medical Device Association (SEMDA) and M2D2. He also supports Coulter Foundation Programs at Georgia Tech/Emory University, Drexel University, University of Michigan and University of Pittsburgh on advisory role.

<https://www.linkedin.com/in/ibraheem-badejo-ph-d-24249b1a/>

NEW ALUMNI (June 2018-December 2019)**B.A.**

Anastasia Aronova
Joseph McTague
Gabriel Naimy

John Kennedy
Michelle Klingberg
Kyle Meyer
Shannon Saluga
Celine Schreidah
Steven Walton
Kayla Wade
Andrew Westrick
Jin Zhang

Gwedal Loarer
Justin Maxwell
Weliwaththage Perera

Morteza Jandaghi
Sunayana Kapil
Dilrukshika Palagama
Gwenn Parungao

B.S.

Derrick Barenbrugge
Muhammed Cetiner
Evan Diemler
Megan Giles
Jonathan Grayczyk
Jennifer Hammar
Gabrielle Hymel

M.S.

Giridhar Chejerla
Grace Irumva

Ph.D.

Padam Acharya
Michael Banco
Badri Bhattarai
Gopal Dahal
Steven Dajnowicz
Pradheep Eradi
Nasim Esmati
Farzana Hossain

Cecile Petit
Krishani Rajanayake
Ahmad Rohanifar
Kanishka Senarath
Abhishek Vartak
Ruwani Wasalathanthri
Fan Wu
Yan Zhu

AWARDS/SCHOLARSHIPS

The following awards and scholarships were presented at the spring 2019 Honors Tea:

Alfred F. Foster Health Science Award

Scott Ross (fall 2018)
Anna Brown (spring 2019)

Analytical Chemistry Award

Jeremiah Berger

Arthur H. Black Award in Analytical Chemistry

Celine Schreidah
Alexander Vogel

Arthur H. and Virginia R. Black Merit Scholarship

Alyssa Garreau

Biochemistry Award

Daniel Liu

Bodo Diehn Undergraduate Award

Skyler Weber

The Chemical and Allied Industries of Northwest Ohio (CAI-NWO) Scholarship

Jared Doremus

CRC Press Freshman Chemistry Achievement Award

Drew Pariseau

CV Wolfe Scholarship in Natural Sciences

Gabrielle Wasikowski

David Dollimore Award in Chemistry

Grace Steimle

David R. Hostetler Memorial Scholarship

Nathan Gembreska

Elmer R. and Gertrude M. Brigham Scholarship

Daniel Lee

Faculty Scholarship/Dean Giolando Scholar

Alexander Vick

Henry R. Kreider Scholarship in Chemistry

Sarah Becker
Brandi Kaskel
Collin Reimer

Inorganic Chemistry Award

Alyssa Garreau

James E. and Margaret M. Sander Scholarship in Chemistry

Alexander Vogel

Joseph A. and Mary A. Capobianco Memorial Scholarship

Gracie Siffer

Organic Chemistry Award

Abigail Baker

Organic Progress Fund Graduate Student Award

Abhishek Vartak

Outstanding First-Year Graduate Student/Ramachandran and Potlapally Graduate Award – inaugural

Rasangi Kankanam Pathirage (fall 2019)
Ronnie Emmons (spring 2020)

Outstanding Graduating Senior

Celine Schreidah

Outstanding Graduate Student Research Paper of the Year

Kasun Ratnayake

Outstanding Teaching Assistant

Ronnie Emmons and Leart Sejderasi

Physical Chemistry Award

Alyssa Garreau

William B. Silverman Scholarship

Eve Sroczynski

CHEMISTRY AND BIOCHEMISTRY ENDOWED FUNDS

As the University moves forward during the capital campaign, donors to the University can designate their contributions to a specific fund in a department where it will have the greatest impact. Most chemistry alumni and friends of the department choose this option and donate directly to the fund of their choice in the chemistry department. Many enhance their contributions even further with matching gift programs through their employers.

The department is currently focusing on fundraising initiatives for the Dr. Nina McClelland Laboratory for Water Chemistry and Environmental Analysis and the 50th Anniversary Doctoral Fellowship Fund. Other endowed funds in chemistry available for donations are:

ACS Student Group

Arthur H. Black Award in Analytical Chemistry

Arthur H. Black Professorship

Chemical and Allied Industries of Northwest Ohio Scholarship

Chemistry Faculty Scholarship

Chemistry Progress Fund

David R. Hostetler Memorial Scholarship

Doctoral Fellowship Fund

Dr. Nina McClelland Laboratory for Water Chemistry and Environmental Analysis

Frontiers in Chemistry Lecture Series

Henry R. Kreider Scholarship

James A. Poure Scholarship

Undergraduate Research Fund

William B. Silverman Chemistry Scholarship

Thank you to everyone who has made, or considered making, a contribution to support chemistry and biochemistry students who are working to become the next generation of chemists, teachers and medical professionals. Through your generosity and thoughtfulness many dreams have been and will be achieved. The impact of every contribution is felt by all our students.

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