

MU Chemistry

year-in-review

Fall 2022

Kenneth J. O'Connor: 1962 - 2022



We are saddened to report that Dr. Kenneth J. O'Connor, passed away on January 5, 2022. Ken went to Hunter College in the Bronx for his undergraduate chemistry degree, then to the University of Rochester for his master's and Ph.D. in Chemistry, and finally was at State University of New York (SUNY) Stony Brook for a two-year postdoctoral fellowship. Ken moved to West Virginia with his wife, Hyla Harvey, as an industrial chemistry working for Rhône-Poulenc. When he and Hyla adopted three children, Ken took a hiatus in his career to be a stay-at-home father while Hyla continued her medical practice. During that time, he obtained a B.A. in Education from West Virginia State University and in 1999 began to teach part-time for this department. Ken worked several years as a full-time, term instructor in Chemistry before he was hired as an Assistant Professor in 2008. He was promoted to Associate Professor in 2014.

While Ken was a successful researcher, his real passion was classroom instruction and working with students. In fact, his research was in the area of chemical education and the design of experiments to improve the learning experience for students taking organic chemistry. Dr. O'Connor was a greatly respected professor, colleague and friend who possessed a unique ability to make organic chemistry unintimidating and fun through his wit, off-beat comedic manner and his creative approach to teaching. Ken spent an amazing amount of time developing demonstrations for his classes to help them better understand

organic chemistry. A visit to his office meant seeing lab benches covered with an impressive collection of demonstrations that he was currently using along with those in development. Ken regularly donated a great deal of his personal time to meet individually with his students outside of class to review class material or give career advice. He mentored scores of students and was instrumental in many of them going to graduate school or professional school. He had a knack for helping students identify their strengths and helping them discover what future profession might be the best match for them. Until his death, he routinely kept up with many of his mentees, continuing to coach them through career issues and bumps in life. Beyond his work teaching Marshall students, Ken was active in helping the Boy Scouts with chemistry/science-based merit badges. Ken was also very active in performing chemistry "magic" shows in the community to children of all ages to spark and develop their interest in science.

Dr. O'Connor is survived by his wife, Hyla Harvey, of 32 years, and children: Kala O'Connor, Jewel O'Connor, and Ravi O'Connor, as well as his mother, Joy Michaels. More details about Ken's life may be found online. A scholarship in chemical education at Marshall has been set up in his honor. Funds for this scholarship were graciously donated by his family, friends, associates, and past students.

Harry E. Persinger: 1918-2020



Born on October 14, 1918, in Raymond City, WV, and raised in Nitro, he earned a B.S. degree in chemistry from West Virginia Wesleyan College in 1940 and a master's degree in chemistry from West Virginia University two years later. After marriage to Vivian Kelly in 1947, they lived and raised their three children in and around St. Albans, WV. He worked in Union Carbide's research laboratories from

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1942 until his retirement at age 65, after which he taught chemistry courses at Alice Lloyd College, West Virginia State College, West Virginia Institute of Technology and Marshall University until the mid-1990s. During World War II, he served in the U.S. Navy as an LST radio technician. He served as chief egg-fryer at Christ's Kitchen at St. Mark's Episcopal Church in St. Albans for 10 years until a few months before his death.

He was preceded in death by his former wife, Vivian Kelly Persinger. He is survived by his children: son Philip, daughters Ann and Patricia Hagan (William) Medland; grandchildren Julia and Robert Medland; and dozens of friends and colleagues he helped and mentored throughout his life.

His interests and hobbies were vast and varied: archaeology, blacksmithing, bricklaying, canoeing, cooking, gardening, genealogy, psychology, stained glass — and the list goes on.

Students and faculty present and publish their research

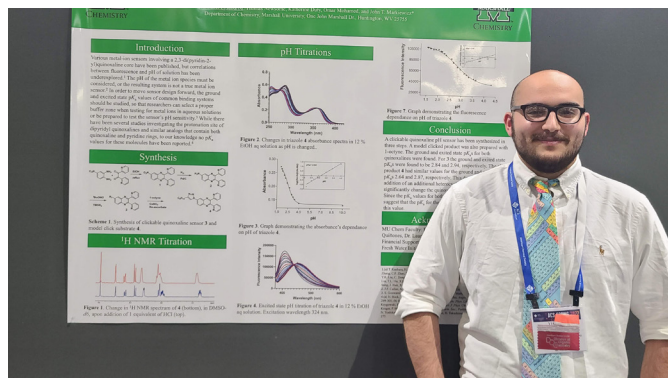
Professor Laura McCunn and junior Khaled El-Shazly attended the International Symposium on Molecular Spectroscopy in Urbana-Champaign, Illinois, in June 2022. Each gave oral presentations of their research.

Professors Rosalynn Quinones, John Markiewicz, and Jenifer Markiewicz traveled with students to the American Chemical Society national meeting in San Diego in March 2022. Six poster presentations were made by students. A total of 15 students attended as part of our program to introduce as many of our majors to professional meetings as possible.

Dr. Derrick Kolling traveled with students to the American Society for Biochemistry and Molecular Biology (ASBMB 2022) in Philadelphia, PA. Student attendees were: Danielle Slone, Hayden O'Dell, Kara Joseph, Trace Clark, Sierra Lutz, Kayla Tyler.

One effect of the pandemic was to slow down research considerably because labs were closed for months and when they reopened, room capacity limits affected the number of

students who could work at any time. Despite that, over the past two years, six chemistry faculty published 10 manuscripts, six with student co-authors. Laura McCunn published "Vibrational Bands of the 2-Butyn-1-yl Radical" in the Journal of Physical Chemistry A with students Glenna Brown, Martha Ellis, and Thaddeus Martin. Scott Day published a paper titled "Structure and Function Analysis of DNA Monolayers Created from Self-Assembling DNA-Dendron Conjugates" with former students Christian Warner, Zachary Hunter, Destiny Carte, and Tyler Skidmore. Rosalynn Quinones published three manuscripts: "Chemical Composition Effect on Latent Print Development Using Black Fingerprint Powders," "Examining Particle Size of Inorganic Active Ingredients within Sunscreens Using Dynamic Light Scattering," and "Chemical Shift Tensors of Cimetidine Form A Modeled with Density Functional Theory Calculations: Implications for NMR Crystallography." Former students Sara Moreno, Glenna Brown, Deben Shoup, and Aakriti Damai co-authored two of the papers. Assistant Professor of chemistry John Markiewicz and Forensic Science professor Catherine Rushton co-authored the fingerprint paper. Derrick Kolling, in collaboration with Xiaoping Sun of the University of Charleston, published two papers, "Inner-sphere and outer-sphere charge-transfer quenching of the uranyl $\text{UO}_2^{2+}(\text{VI})$ luminescence, and kinetics for the tertiary and secondary alcohols activated uranyl emission" and "Investigations of the photochemical charge-transfer reduction of uranyl $\text{UO}_2^{2+}(\text{VI})$ to uranyl $\text{UO}^{2+}(\text{V})$ by benzene-1,4-diol ($1,4\text{-C}_6\text{H}_4(\text{OH})_2$) and oxalate ($\text{C}_2\text{O}_4^{2-}$) by UV-Vis, electron paramagnetic resonance, and luminescence spectroscopies." Former student Amanda Smythers coauthored the second paper. Bin Wang published "Identifying i-motif formation using capillary electrophoresis" with undergraduate student Eric Chatterton. Former students Michael Thompson and Kevin Adkins published "Characteristics of the Iron-responsive Element (IRE) Stems in the Untranslated Regions of Animal mRNAs" with Dr. Wang in the Open Biochemistry Journal. Finally, Michael Norton published "Feeding silkworms with HPMC dispersed MoO_2 NPs: An efficient strategy to enhance the supercapacitance performance of carbonized silk." Mike partnered with eight researchers from the State Key Laboratory of Silkworm Genome Biology at Southwest University in Chongqing, China.



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Scott Day, Derrick Kolling, Laura McCunn, and Bin Wang promoted to Professor



Although the requirements for promotion to full professor are well-defined and the list of activities faculty use to meet those requirements isn't particularly long, it is remarkable how differently faculty fulfill the criteria for promotion. This is the case for Drs. Day, Kolling, McCunn, and Wang. Unfortunately, privacy considerations prevent a detailed discussion of their individual portfolios, but we can discuss their accomplishments as a group. Collectively, they have assembled an impressive body of work. In their time as associate professors, these faculty taught nearly every course in the curriculum from first semester major's chemistry (CHM 211 & 212) through senior and graduate courses. They mentored almost 90 undergraduate and master's students on individual research projects. Bin, Derrick, Laura, and Scott published more than a dozen

papers with 30 student co-authors and had 26 of their students make 31 presentations at national and regional chemistry conferences. The students they mentored have been successful with many attending chemistry graduate programs and medical schools following graduation. Finally, they engaged in an extensive, wide-ranging, and important collection of service activities. A brief sampling of their service work includes running our summer research program and seminar program, mentoring new chemistry faculty, serving as assistant chemistry department chair, chairing several university, college, and departmental committees, serving as officers in the local chapter of the American Chemical Society, and serving on National Science Foundation proposal review panels.



Elaine Martino receives a John Marshall Service Award

Laboratory manager Elaine Martino was one of six Marshall University staff members to receive a 2021 John Marshall Service Award. Elaine joined the department in January 2018 and quickly established herself as indispensable. She was nominated because of her incredible work ethic, ability to learn quickly, troubleshoot, and work with faculty, students, and other staff. Elaine was hired as our stockroom manager, then promoted to laboratory manager in 2019 when Manjira Ghosh-Kumar moved to Missouri to start a faculty position. Turnover in the stockroom manager position required that Elaine do both jobs for about half of her time as lab manager. Despite doing two jobs, Elaine was able to save the Department thousands of dollars through negotiating with vendors and finding lower cost suppliers. She has done an excellent job of keeping our freshman labs prepped and all labs, teaching and research, supplied. More details may be found at the university website.

For more details about any stories in this newsletter, please visit our News page by using the News link at www.marshall.edu/chemistry



Professor Laura McCunn and her students author two book Chapters

Professor Laura McCunn has authored two chapters in a book, *Physical Chemistry Research at Undergraduate Institutions*, which is part of the ACS Symposium

Series. Laura was an invited speaker at the symposium of the same title, held at the Fall 2021 National Meeting of the American Chemical Society. After the meeting, she was invited to contribute two chapters to the book. The first chapter is based on her experimental work on “The signature C=C=O stretch of propenylketenes and ketene clusters” and has several Marshall co-authors, including undergraduate students Khaled El-Shazly, Elizabeth Sparks, Kathryn Narkin, Heather Legg and Julia Cardot, former assistant professor Matthew Hostetler, as well as collaborator Carol Parish from the University of Richmond. The second chapter is entitled “Developing an Undergraduate Research Laboratory for Experimental Physical Chemistry” and was co-authored with A.J. Vasiliou, a chemistry professor from Middlebury College. This chapter is a how-to guide meant for physical chemistry faculty just beginning their own research programs.

Larry Schmitz Retires (2020)



Larry Schmitz retired in the spring of 2020 after 31 years of service to the department. Prior to coming to Marshall, Larry had a very interesting past, including sky diving and a bohemian lifestyle in Europe in pursuit of his love of skiing. A Minnesota native, Larry received his B.S. in chemistry from St. John's University. He earned a master's degree from the University of Montana, and his

Ph. D. from the University of Calgary in Alberta Canada. Larry's research at Marshall focused on computational chemistry, including investigating the heats of formation of organic compounds through ab initio calculations. He also investigated carbocations and their magnetic susceptibilities by computational chemistry. He published nine papers throughout his time here.

Larry taught a wide variety of courses at Marshall, but his specialty was in organic chemistry. Larry was a widely sought-after instructor because of his student-centric approach to instruction. In fact, when asked who their favorite chemistry instructor was, for many years the immediate response was “Dr. Schmitz.” When walking around the chemistry floor, it was common to see Larry helping students with their homework or going over tests with them. Larry coordinated the ACS Organic Chemistry final exam

each semester as a way of tracking students' performance in organic chemistry. This allowed the organic chemistry professors to adjust their teaching to improve student learning. He served on a variety of committees, including College Curriculum Committee, as secretary to the local section of the American Chemical Society (COVACS.org) and as the National Chemistry Olympiad Coordinator. As a result of his service efforts, Larry won the university's Distinguished Service Award in 2014.

In retirement, Larry has been very busy pursuing his hobby of wilderness canoe trips with his wife, Bin Schmitz. Although he has ventured to many parts of the U.S., his favorite and most frequently visited location is the Boundary Waters Wilderness

Frank H. Turrill and Alice Romans-Hess Chemistry Scholarships Established

Nicole Welch (1991 B.S., 1993 M.S., Biological Sciences), Shirley Turrill, and their family endowed a scholarship in Chemistry in honor of her father, Frank Turrill (B.S. in Chemistry, cum laude, 1958), who passed away in 2019 at the age of 83. He is survived by his wife of 56 years, Shirley, daughter Nicole and her family. Mr. Turrill was the Outstanding Graduating Chemist award winner in 1958. After graduating from Marshall, Mr. Turrill was a research chemist, first at BASF, followed by over 20 years at Ashland Oil Inc. During his career at Ashland Oil, he was an inventor on numerous carbon fiber patents and the overseer of crude oil analysis. Outside of work, Mr. Turrill enjoyed judging science fairs, listening to opera, and reading as hobbies. The scholarship benefits students majoring in chemistry.

Alice Romans-Hess (1969 B.S. in Chemistry) has established the Alice Romans Scholarship in Chemistry and an endowed fund to support students engaged in summer research. After receiving her bachelor's degree in chemistry from Marshall, Dr. Romans-Hess obtained her Ph.D. in biophysical chemistry from Duke University and then engaged in post-doctoral research at the University of Alabama-Birmingham Medical Center. From there, she joined the research laboratories at Kimberly-Clark where she engaged in basic research developing feminine and infant care products earning nearly 100 invention disclosures. At Kimberly-Clark, she met her husband, Greg Hess, who was also a chemist. They retired to North Carolina in 2003. In retirement, Dr. Romans-Hess worked part-time for 17 years in Oncology Clinical Trials at Moore Regional Hospital. Their respective undergraduate educations were greatly aided by scholarships, an INCO Scholarship in the case of Dr. Romans-Hess, and matching undergraduate scholarships were established at Marshall and the University of Wisconsin-Stephens Point, Mr. Hess' alma mater. Because of the value of research to chemical education, funds to support students working in research labs was also part of her gift.

Transitions: We are pleased to announce several changes to faculty and staff positions that benefit both the individuals and department.



Dylan Carpenter joined us as our new Stockroom Manager in the fall of 2021. A native of Kitts Hill, OH, Dylan earned dual bachelor's degrees in Natural Science Chemistry and Geology from Shawnee State University in 2019, followed by a master's degree in Coastal Marine Wetland Studies from Coastal Carolina University in 2021. In his free time, Dylan likes to hike, kayak, and go to the movies.



Joyce Maynard, our office manager from 1993 through 2010, passed away on June 18, 2022. Joyce was not only integral to operating the Department of Chemistry, but was a pleasure to work with. There is a wonderful write-up on Joyce's life in the We Are Marshall, August 3, 2007, newsletter. One of her great joys at Marshall was her interactions with our students and that comes out clearly in her interview in the newsletter.



Michael Parsons (B.S. in Chemistry, 2015; M.S. in Chemistry 2019) Our previous stockroom manager has been hired by BridgeValley Community and Technical College as their Program Coordinator for Brewing Technology.



John Rakus moved to the University of Louisiana at Monroe in August 2021, where he is currently an Assistant Professor of Chemistry.



Sarah Brunty and **Eduard Luhkmanov** joined the Department in the Fall 2022 semester as one-year temporary faculty. Sarah earned her B.S. in Biochemistry from the University of Tennessee at Chattanooga in 2012, M.S. in Forensic Science from Marshall University in 2015, and Ph.D. in Biomedical Sciences from Marshall University in 2021. Her dissertation title was "Targeting Epigenetic Mechanisms in Endometriosis" under the direction of Professor Nalini Santanam. Ed Luhkmanov earned his B.S., Major in Forensic Chemistry in 2018 and his M.S. in Chemistry in 2022 under the mentorship of Professor Scott Day. Sarah and Ed will help the department address the death of Ken O'Connor and the departures of John Rakus and Matthew Hostetler. Dr. Hostetler was hired in 2018 as tenure-track assistant professor and departed in 2022 for an industrial chemistry position closer to his home.

Our Vision

To be known as one of the top undergraduate programs in the nation by integrating teaching with research experience.



Department of Chemistry
One John Marshall Drive
Huntington, WV 25755