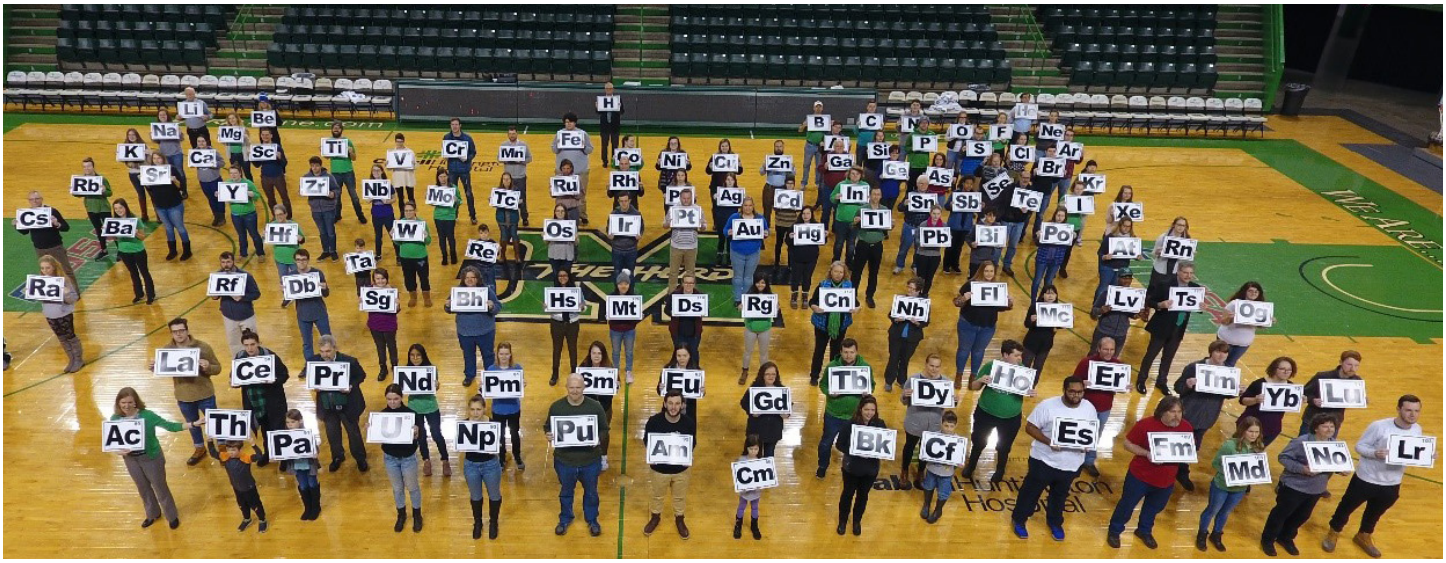
MU Chemistry
year-in-review

Spring 2019

UNESCO's International Year of the Periodic Table



The United Nations Educational, Scientific and Cultural Organization designated 2019 as the International Year of the Periodic Table in commemoration of the 150th anniversary of the formation of the modern Periodic Table by Russian scientist Dmitri Mendeleev in 1869. To kick off a year of chemistry-themed activities, the *American Chemical Society* created a "show us your periodic table" competition.

The Department participated by creating a human periodic table on the main basketball court in the Cam Henderson Center. In all, 118 students, faculty, staff, administrators, guests, and alumni each selected their favorite element and held a placard in the appropriate place on the court. Participants from the administration included Marshall University President Gilbert (H), Provost Taylor (Ts), Vice-President for Research Maher (Rh), and Vice-President for Institutional Research McGuffey (Pr). We also had faculty join us from the College of Science Dean's office, Biological Sciences and the Biomedical Sciences Ph.D. program. Students from half-a-dozen different departments also joined the event that, unfortunately, we did not win.

Creating the periodic table was proposed by Master's student Amanda Smythers, who also played a major role in soliciting an outside sponsorship and assisted in organizing the event. "When I started in the department as an undergraduate, I knew nothing about chemistry or research, but I was still given a chance to work in a lab and gain experience," Smythers said. "Four years later, I am months away from a Master's degree and have published research as well as given presentations at national conferences around the country. The department's commitment to empowering undergraduates of all backgrounds is to credit for all of my academic success to this point." President Gilbert summed up the event nicely when he said "Chemistry is the basis of everything, in terms of the structure of the universe, so I think it's important we recognize the International Year of the Periodic Table here at Marshall," he said. "This event - and this contest - is a fun way to prove that chemistry is cool.""

The periodic table event was sponsored by Contemporary Galleries of Charleston and covered in an *article by the Huntington Herald-Dispatch*.

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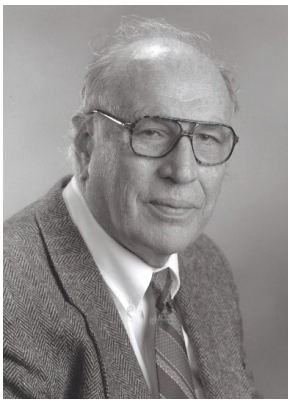
Joseph L. Roberts, 1929 - 2019



Joseph L. (Joe) Roberts, 89, professor emeritus of chemistry, died January 14, 2019 in Amity, Georgia. Born in Atlanta, Georgia, Joe received a B.S. degree in chemistry from Oglethorpe University in 1953. After completing an M.S. in chemistry at the University of South Dakota in 1955, he earned a Ph.D. at the University of Cincinnati (UC) in 1964 working with Hans Jaffé. Following two years working at UC, he came to Marshall in 1966 and spent 31 years with the department until his retirement in 1997. After his retirement, he and his wife of 65 years, June, split time between Huntington and June's hometown of Amity.

He shared his love of chemistry in teaching introductory chemistry and physical chemistry classes. One of his research interests combined his professional interest in chemistry with his personal interest in firefighting, and he conducted research on fighting chemical fires and taught as a volunteer at the Huntington Fire Department Academy. He was also interested in safety and first aid and went through Emergency Medical Technician training and served as department safety coordinator for many years.

His interest in computers was both a professional interest and a hobby dating back to his graduate school days. From the earliest days of the personal computer era he was a leader in making the chemistry department one of the earliest adopters of this technology.

Joe had a wide variety of friends and interests and was a warm, generous man who loved connecting and sharing stories with family, friends and many others. He shared a keen interest in artistic glass with June and they spent years traveling to glass shows and talking with fellow enthusiasts.

Music was a lifelong passion for Joe. He played bass in the Atlanta Symphony, amateur orchestras and jazz bands, and played guitar and sang in country bands and with family and friends. He was Scoutmaster of Boy Scout Troop 700 in Pea Ridge for many years and led countless camping trips, canoe trips, hikes and other outings over the years. Many of the same boys were also on the baseball teams he coached.

He was a dedicated fan of the Thundering Herd and a longtime season ticket holder for Marshall basketball and football. He especially enjoyed watching the early 1970s basketball teams, and, in football, one highlight for him was the 2006 fan event at the Marshall stadium during the filming of *We Are Marshall*.

In addition to June, he is survived by his sons Joe (a Marshall chemistry graduate), Darryl and Mike and grandchildren Chris, Sarah, Evy, William, and Thomas.

Faculty and Students Present at National and Regional Meetings

Spring 2019 was a busy semester for chemistry students and faculty attending national conferences to share their research and develop professional skills. These trips were made possible by the Babb Trust, which was established by the late Professor Dan Babb to support student travel and scholarships.

Eight undergraduate students and two graduate students attended the *American Chemical Society National Meeting* in Orlando, held March 31 - April 4, 2019, accompanied by professors McCunn, Morgan, Norton, and Quiñones. Glenna Brown, Martha Ellis, Marie Molina, Ethan Napier, Sarah Nickel, Ian Perry, Nicole Perry, and Kathryn Pitton each presented posters of their research, while Amanda Smythers contributed an oral presentation. The theme of the conference was "Chemistry for New Frontiers" and included exciting presentations on wearable technology and space exploration.

A week later, a second delegation traveled to Orlando for the *American Society of Biochemistry and Molecular Biology national meeting*. Undergraduate students Allison Cook, Carlen Merritt and Annabella Pauley traveled with professor John Rakus to attend this meeting and present posters on their work. They were joined by graduate students Nick Kegley, Michael Parsons and Amanda Smythers who also presented posters.

Students taking a break at with the ACS Mole Family at Sci-Mix

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

Rosalynn Quiñones Earns Tenure and Promotion

The Department is pleased to announce that Dr. Rosalynn Quiñones has been granted tenure and been promoted from Assistant to Associate Professor. Rosalynn joined Marshall chemistry in 2013 and readers of this newsletter will remember seeing her accomplishments appear frequently. Tenure in Chemistry requires exemplary performance in research and professional performance in teaching and service. Rosalynn exceeded expectations in all categories. A brief summary of her accomplishments includes having twice earned the university's top award for Faculty-in-Residence for the freshman dormitories, being a member of the Chemical Heritage Foundation's content committee for their You Be the Chemist national competition since 2013, and regularly presenting at the American Chemical Society's annual "Post-doc to Faculty" workshops. Rosalynn has mentored 17 different undergraduate students on research projects over the past six years. Over half of them have traveled to a national or regional professional meeting to present the results of their research, many presenting two or more times. She has been active in developing new laboratories, including two published in the Journal of Chemical Education on studying sunscreens in the teaching laboratory. In addition to combining her research interests with her instructional practices, Rosalynn has developed separate research projects on drug polymorphism and solar energy conversion in five peer-reviewed publications. This work led to her being the first chemistry faculty member to earn Marshall's Distinguished Artist or Scholar Award in the junior faculty category.

Lacy Stone Endowed Chemistry Scholarship

Darla Hamilton McCormack (B.S., 1969) has established the Lacy Stone Scholarship in honor of her high school chemistry teacher. Each year two students will be selected for this award. While all chemistry majors are eligible, preference will be given to residents from a group of 11 southern West Virginia counties. The students must have overall GPAs of 3.00 or higher and conduct research in the laboratory of a Chemistry professor. In its first year, Heather Legg (B.S., Major in Biochemistry) and Danielle Slone (B.S., Major in Chemical Sciences) are its first recipients. Ms. Hamilton was a long-time employee at Bayer International, rising to the rank of worldwide vice-president of strategic planning. She currently is a vice-president at Lanxess Corporation.

Laura McCunn and Rosalynn Quiñones Awarded Major Research Grants

Prof. Laura McCunn has been awarded a major federal research grant. The U.S. Department of Energy has awarded a two-year, $100,000 grant to Dr. McCunn to study the thermal decomposition of cyclic, oxygenated hydrocarbons. These molecules frequently occur in the processing of plant material into biofuels, so it is important to understand how they react at high temperatures in order to predict the efficiency and environmental impact of biofuels. She and her students will also construct a quadrupole mass spectrometer to expand their capabilities in detecting thermal decomposition products. The grant provides funds to hire two undergraduate students, in addition to purchasing supplies. The Huntington Herald-Dispatch wrote an article on the grant.

Dr. Quiñones will receive $100,000 as part of a $1,5 MM Research Challenge Grant with West Virginia University. The grant "Advancement of Science and Engineering for Localized Gas Utilization" seeks to develop a cost-effective, modular catalytic natural gas-to-chemical process utilizing microwave excitation at low temperatures and pressures. Dr. Quiñones and her students will work on characterization and chemistry of the surface of the nanocatalyst. John (Jianli) Hu of the West Virginia University Department of Chemical and Biomedical Engineering is principal investigator on the grant. This grant is a public-private partnership that includes several organizations from throughout West Virginia.

NSF Grant Purchases New Scanning Electron Microscope

Prof. Rosalynn Quiñones led a team of faculty from the Departments of Chemistry, Geology, Engineering, Physics, Biological Sciences, and Forensic Science that was granted almost $400,000 to purchase a Field Emission Scanning Electron Microscope (SEM) through NSF's Major Research Instrumentation (MRI) Program. NSF's MRI program is designed to assist groups of faculty members who need expensive research instrumentation acquire the equipment at little cost to the sponsoring universities. Scanning electron microscopes allow scientists to look at surfaces and observe molecular structures at the nanometer scale. Faculty at West Virginia State University (WVSU) and the University of Charleston (UC), as well as scientists at Alcon Laboratories and the SOGEFI Group also will participate in the grant. Aley El-Shazly (Geology) was co-principal investigator on the proposal. Mike Norton of Chemistry was a second contributing chemistry faculty member. Not only will the SEM make significant contributions to the research programs of the participating faculty, but it will be used extensively in the teaching laboratories in Geology, Chemistry, Physics, Engineering, Biological Sciences, and Forensic Science at Marshall University and Chemistry at WVSU and UC.

The NSF noted "The research that will be enabled by the [SEM] is meritorious and spans nanoscience, geology, materials engineering, biology, and petrology. The sense of the review panel is that the proposal makes a strong case for how a [predominantly undergraduate] institution can use MRI funding to elevate research and research training for students." Furthermore, it concluded "The panel noted a strong commitment to education in the proposed outreach activities in research and training."

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

Jenifer Markiewicz moves to the main Huntington campus after teaching for two years at our South Charleston campus.

Elaine Martino (M.S. Safety, 1994) has been promoted to laboratory manager after serving as our stockroom manager.

Michael Parsons (B.S. in Chemistry, 2015; M.S. in Chemistry 2019) joins the department as our new stockroom manager.

Dr. Manjira Ghosh-Kumar taught at our South Charleston campus for one year after serving as our laboratory manager for one year. She has recently accepted a tenure-track teaching position as an assistant professor at Cottey College in Nevada, MO.

Alpha Chi Sigma Update

The Gamma Eta chapter of Alpha Chi Sigma has kept themselves busy on campus as well as in the community this past year. AXΣ has recently performed many demonstrations to groups of students from around the Huntington area. The group of 4th grade Cabell County "Talented and Gifted" students are familiar faces as they return this year for a morning of chemistry fun and excitement as the members of AXΣ show them a bit of what chemistry is all about. That's not all, however, as a group of 11th graders from St. Joseph's Catholic High School were excited at our Periodic Table demonstration and have thought about returning next year.

Within the Department of Chemistry, AXΣ continues to work hard to help our great faculty. This includes helping with registration and events at the State Science Olympiad where students from all over WV come to compete. Gamma Eta has even represented our department at a series of Green and White Days where potential future students get to come and ask the departments different questions to determine if Marshall is the place for them. At these events, AXΣ members did a number of different demonstrations to keep the students interested and asking more about the great opportunities and experiences they can have in the Chemistry Department here at Marshall.

– Zachary Runyon, Former Master Alchemist

Our Vision

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

Department of Chemistry
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