

Lawrence K. (Mike) Montgomery

Mike Montgomery joined Indiana University as an instructor in the Department of Chemistry in the fall of 1962. He retired as professor of chemistry after 44 years of service.

Mike was born in Denver, Colorado, in 1935. He grew up in Longmont, where his father was a highly successful basketball coach. Mike majored in athletics in high school and was awarded all-state honors in football, basketball, and track. Fortunately his mother was a vigilant academic counselor, and he graduated from Longmont High School as valedictorian in 1953. Mike attended Colorado State University as a Beottcher Scholar. At CSU Mike was introduced to the excitement of organic chemistry by the most inspiring teacher that he ever encountered in his career, Cyrus Omar Guss. He graduated from CSU with a B.S. in Chemistry with highest distinction in 1957.

Mike was fortunate to work in the laboratories of two of the premier physical organic chemists of the twentieth century. His doctoral mentor at the California Institute of Technology was John D. Roberts. His dissertation involved the use of carbon-14 labeled molecules to study the detailed reaction pathways of chemical reactions. He completed his Ph.D. in Chemistry in 1960. Mike spent two years at Harvard University as a B. F. Goodrich Fellow carrying out postdoctoral research with Paul D. Bartlett. The experimental results of his studies were influential in shaping a powerful new theory of chemical reactivity developed by two Harvard chemists, Woodward and Hoffmann.

Mike's early research addressed the details of how organic chemical reactions take place. He utilized a host of experimental and theoretical techniques and made significant contributions in six different areas. The two most original contributions were in deuterium magnetic resonance spectroscopy and high-temperature gas-phase electron diffraction. The spectroscopy experiments entailed introducing a hydrogen atom isotope (deuterium) into a molecule and following this isotope during the course of a chemical reaction using deuterium nuclear magnetic resonance. These were the first experiments of this type. This is now a standard procedure in chemistry and biochemistry. In the second contribution, Mike designed an oven capable of attaining temperatures as high as 2,000 degrees Celsius. The oven was used to break chemical compounds into highly reactive pieces. The structures of the pieces were determined by gas-phase electron diffraction. Structural experiments of this type had never been attempted previously.

In the 1987–88 academic year Mike was a scientist in residence at Argonne National Laboratory, where he participated in organic superconductor research. Upon returning to Indiana University, he established his own research program in the design, preparation, and characterization of new organic superconductors. This evolved into the leading chemistry program in this area in the United States. In this work he collaborated with over 40 physicists.

Mike has given invited lectures at more than 100 universities, industrial laboratories, and government laboratories in the United States and abroad. He has been an invited or plenary lecturer at many national and international conferences on organic conductors. He presented extended lecture series at the University of Paris, the University of Illinois, the Central University of Venezuela, and Argonne National Laboratory.

Mike was an enthusiastic and demanding teacher at both the graduate and undergraduate levels. The difficulty of his undergraduate organic chemistry courses presented a major obstacle to many preprofessional students. Nevertheless, Mike maintains that one of the most satisfying aspects of teaching undergraduate courses was the numerous letters and telephone calls he received from doctors and lawyers long after they had left IU, thanking him for teaching them how to think clearly and study independently. They felt that it had a significant impact on their careers. As with many chemistry professors, Mike feels that he had his greatest influence on the graduate students, undergraduates, and postdoctoral fellows that he mentored in his research group. He received Teaching Excellence Recognition Awards in 1998 and 1999.

Mike served as graduate advisor in the Department of Chemistry for 12 years. He instituted a number of the important procedures that are still employed. He also served on several research and fellowship panels for the National Science Foundation, the Department of Energy, and the Air Force Office of Scientific Research. In an effort to

improve the quality of organic chemistry textbooks, Mike consulted extensively for publishing companies and was the consulting editor in organic chemistry for Holt, Rinehart, and Winston for 12 years.

Mike's principal reason for joining the faculty at IU was that the Department of Chemistry was growing rapidly and it seemed to have a bright future. And it did. As the son of a basketball coach, he has felt very much at home in Bloomington, where he could engage in lively discussions at the barber shop debating whether Bloomington High School should have used a 1-3-1 zone defense instead of a 2-3 zone defense the night before. When Mike was in grade school, he had a superb music teacher, Miss Nesbit, who was passionate about opera and instilled this love in her students. Accordingly, the many years of opera that Mike has enjoyed at IU are for him an unforgettable fringe benefit.

Mike and his wife of 48 years, Mary Anne, raised three children in Bloomington: Jeff, an artist and computer programmer who designs Web sites; John, a television editor specializing in high-end editing software; and Anne, a dedicated critical care nurse. Last October, Mike and Mary Anne purchased a beautiful new condo in Durango, Colorado, where they will retire after Mike terminates his research at IU. In Durango Mike can enjoy many of his favorite leisure activities, such as hiking, fly-fishing, and basking in the warm, dry air. His Colorado body has never adapted to the hot humid summers of southern Indiana.

Dennis G. Peters