

**MEMORIAL RESOLUTION OF THE FACULTY
OF THE UNIVERSITY OF WISCONSIN-MADISON**

ON THE DEATH OF PROFESSOR EMERITUS HOWARD E. ZIMMERMAN

Howard Zimmerman, professor emeritus of chemistry, died at the age of 85 on February 11, 2012 from injuries received after a fall. His passing brought an end to a distinguished career in research, teaching and service to the University of Wisconsin which began in 1960 and continued after his official retirement in 2010 until his passing.

Howard was born in New York City on July 5, 1926, and grew up in Stamford, Connecticut. He served in the Army in Europe as a tank gunner during the last days of the Second World War and enjoyed showing visitors his photograph as a teenager peering out of a large tank. He had been promoted to corporal, buck sergeant, staff sergeant and then tech sergeant and was discharged in 1946. He then attended Yale University and received his BS degree in 1950 and his PhD in 1953. After a year of postdoctoral work at Harvard University in the group of (later) Nobel Laureate R. B. Woodward, he started his academic career at Northwestern University and moved to the University of Wisconsin in Madison in 1960. In 1975, he became the Arthur C. Cope Professor of Chemistry at the UW, and in 1990 he received in addition the Hilldale Professorship. Among his many awards and honors are the American Chemical Society James Flack Norris Award in Physical Organic Chemistry (1976), the Halpern Award of the New York Academy of Sciences (1980), the American Institutes of Chemists Pioneering Award (1985), the ACS Arthur C. Cope Scholar Award (1991), and the IUPAC Porter Medal for Photochemical Research (2006). He was elected to the National Academy of Sciences in 1980 and received a Senior Alexander von Humboldt Award in 1988. He organized the 1972 IUPAC Photochemistry Symposium in Baden-Baden, Germany and five Pacificchem Symposia on Photochemistry, the latest in 2010.

Howard Zimmerman is most well-known for his pioneering work in the field of mechanistic organic photochemistry, and he helped establish photochemistry as an exciting area of research in the 1960s. Many graduate and postdoctoral students trained in his laboratory continued on to make their own major contributions to the area. He authored a textbook in 1975 entitled *Quantum Mechanics for Organic Chemists* and gave American Chemical Society short courses on organic quantum mechanics and molecular orbital theory. Perhaps his most important theoretical contribution was the development of the Möbius-Hückel concept, a very general qualitative theory for understanding and predicting concerted pericyclic reactions. He pioneered the application of quantum mechanics to the understanding and prediction of photochemical reactions, discovered several new photochemical processes and studied their behavior in great detail, especially the Di-Pi-Methane Rearrangement (Zimmerman Reaction). He elucidated many details of these and other photochemical reactions. He also left his mark on ground state chemistry with his insightful analysis of the stereochemistry of the ketonization of enols, his pioneering description of the aldol reaction (now widely called the "Zimmerman-Traxler" transition state with over 600 citations), discovery of the 1,2-carbanion rearrangement (the "Grovenstein-Zimmerman Rearrangement"), and elucidation of the detailed mechanism of the Birch reaction. In recent years, he investigated solid state photochemical reactions by detailed computational analysis of the "Quantitative Cavity," which defines the motional flexibility of a molecule in a crystal lattice and puts serious and predictable constraints on reaction possibilities. His work resulted in over 280 publications in the premier journals of his discipline.

Howard was an exacting mentor for his many coworkers, both in the dedication to research that was expected, and in the quality of the experimental scientific work. He worked long hours, including most weekends, and expected the same dedication from his coworkers. Once they embarked on their independent endeavors, he was constantly supportive and maintained contacts and remained interested for the rest their careers. He has the quite remarkable record that 87 of his former undergraduate, graduate and

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postdoctoral students went on to academia as professors, and almost all of them achieved tenure. His pride in these scientific progeny was clear to many visitors to his office, who were shown a large world map with many pins marking the location of these former coworkers. Many of them have maintained close ties to the University of Wisconsin and have encouraged their own students to come to Wisconsin for graduate work. In addition, Howard strove to maintain the high standards of his department by playing an active and discerning role in the hiring and development of younger colleagues.

Howard is survived by his wife Peggy and sons Steven, Robert and James from his marriage to his first wife Jane, along with numerous stepchildren, grandchildren and step-grandchildren. His son Steven is a professor of chemistry at the University of Illinois at Urbana-Champaign and was until recently head of its Department of Chemistry. It is sad to lose colleague of over 50 years who contributed so much to his family, friends, and profession.

MEMORIAL COMMITTEE

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