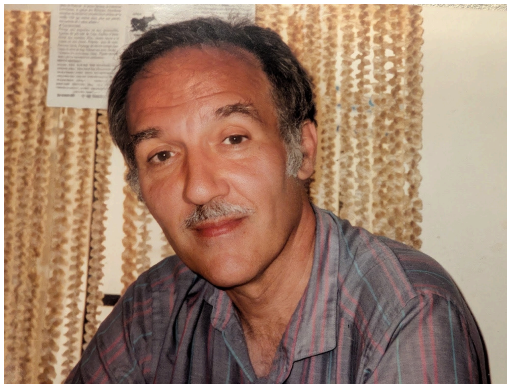
News & Events

In memoriam: Douglas J. Klein (1942–2026)



D. J. (Doug) Klein was a theoretical chemist (who might have preferred to be remembered as just a "scientist"). He wrote more than 400 papers; a **comprehensive bibliography** with his first 380 papers and two edited collections up to 2012 can be found in Croatica Chemica Acta.

Given Klein's continuing interest in valence bond theories, it might be significant that Klein grew up in Oregon, home also to Linus Pauling; both Klein and Pauling received undergraduate degrees from Oregon State University. Klein received a Ph.D. in chemical physics under F. A. Matsen at the University of Texas (U.T.) in 1969. He spent most of the following decade in post-doc, visiting, or contingent positions at Princeton, Rice University, the University of Cologne, and the physics department at the University of Texas. He first met Bob Curl, who later shared a Nobel prize for discovering fullerenes, during this stint at Rice. In 1979 he took the position at Texas A&M University, Galveston (TAMUG), he would stay at for the rest of his career.

Klein was in the Marine Sciences department at TAMUG. While there were no chemistry, physics or mathematics departments at this TAMU campus, he formed a very successful and prolific research group which, for instance, first formulated the hypothesis and a justification that stable fullerenes should have isolated pentagons. While there were no graduate students or advanced classes he maintained a steady stream of high-level visitors that stayed for months or years including A. T. Balaban, D. Bonchev, T. Došlić, A. Graovac, I. Gutman, H. Hosoya, N. H. March, M. Randić, E. Ruch, T. H. Seligman and N. Trinajstić with the support of the Welch Foundation. In 1994 Klein spent the year with March at Oxford University on a Fulbright fellowship.

Klein appreciated the importance and utility of a variety of computations in support of his research. His advisor Matsen was a signatory of a 1955 Molecular Quantum Chemistry conference recommendation that governments support high-speed computing resources for "molecular problems". Matsen had the first computers at U.T. and would share these with researchers in other departments. Klein loved to repeat the story about U.T.'s President calling Matsen in to ask about U.T.'s computers and learning these were Matsen's computers! Matsen then helped create U.T.'s first computer lab.

Klein was a high-powered user of a wide variety of mathematical tools including random walks, double cosets, transfer matrices (for enumeration), partially ordered sets, graph theory and especially linear algebra (his favorite theorems included Gershgorin's Disk theorem and Sylvester's Inertia theorem). **His paper** (with Randić, cited more than 800 times) on "resistance distance" is chemically motivated but really a purely mathematics paper; they prove that if the edges of a graph are view as unit resistors, the resistance between any pair of vertices is actually a graph metric. Klein also knew a number of surprising, and mathematically equivalent, graph metrics.

Klein had a deep knowledge of the history of science. He seemed to have internalized the early history of quantum applications to chemistry. He often told stories about J. W. Gibbs and G. N. Lewis (he thought both were mistakenly overlooked for Nobel prizes) and other scientists. Klein often referenced mostly forgotten ideas (even 19th century work) in chemistry that he thought were still worthwhile in his papers. While this added flavor to his

The IAMC 2023 meeting was held on June 22, 2023, in Kranjska Gora, Slovenia. The meeting was a satellite event of the **10th Slovenian International Conference on Graph Theory - SiCGT'23**.

All Members of the IAMC are invited to send information about workshops, meetings and conferences organized about the topics of the Academy. The received information will published on the IAMC website.

Main topics of the Academy are: discrete mathematics, graph theory, statistics, chemometrics, molecular descriptors.

papers, Klein thought it was important both to credit the ideas of others and to position new ideas within the tapestry of the history of ideas.

Klein was incredibly supportive of his collaborators and generous with ideas and credit. Besides providing funding for visitors he often put them up in his own house. Klein was an avid hunter of used books (he had an enormous scientific library) and would often buy books he already owned and loved to present to collaborators. One that he bought repeatedly was E. Bright Wilson's Introduction to Scientific Research.

Klein was a committed teacher. He was a prolific author of notes for his students, wrote an unpublished text on environmental modeling for a TAMUG class he regularly taught and a number of expository articles aimed at chemistry students. He liked to give a quiz on Texas and U.S. history on the first day of his classes (questions included, "What president finally got around to bring metric legislation before the U.S. House for adoption?" It was Lincoln!)

At the end of his career Klein was pleased to have received external recognition. In 2015 he was appointed a Texas A&M University Regents Professor (Curl, Roald Hoffmann and Harold Kroto wrote recommendation letters), and in 2023 he received the American Chemical Society's Joe W. Hightower Award.

Craig Larson

In memoriam: Professor Zhang Fuji (1936–2026)

It is with profound sorrow that we mourn the passing of our beloved teacher, Professor Zhang Fuji. We, his grateful students, offer this tribute in remembrance of a scholar whose devotion to mathematics, unwavering integrity, and generous mentorship profoundly shaped our lives.

Professor Zhang was born in Chengdu, Sichuan Province, in 1936 and graduated from Beijing Normal University in 1962. From an early age, he cultivated a deep love of learning and scientific inquiry. Although his life was marked by extraordinary hardship, he remained steadfast in his pursuit of mathematics. During the difficult years spent on China's northwestern frontier, he continued his research under challenging conditions with remarkable perseverance and quiet determination. His poem *The Valley*, in which hardy plants growing among rocks symbolize resilience in adversity, reflected the strength of character that accompanied him throughout his life.

Upon the recommendation of the renowned mathematician Professor Hua Luogeng, Professor Zhang joined Xinjiang University, where he devoted himself to building a vibrant mathematical research environment. He promoted academic exchange, established graduate education in mathematics for students from ethnic minority communities, and helped lay the foundation for the continued development of mathematics in Xinjiang. After moving to Xiamen University, he devoted himself fully to research and teaching, making lasting contributions to the University's mathematical sciences through both his scholarship and his guidance of younger generations.

Professor Zhang was among the early pioneers of graph theory, combinatorics, and mathematical chemistry in China. His pioneering research opened new directions in mathematical chemistry, statistical physics, and knot theory. The Zhang–Zhang Polynomial and the Z-transformation graph that he introduced have found wide application in mathematical chemistry and matching theory. His work received broad recognition, including the First Prize of the Fujian Provincial Science and Technology Award, and he was among the first Chinese scholars elected to the International Academy of Mathematical