George Hsing Kwei

George Hsing Kwei, known for his foundational research in chemical physics, particularly on molecular-collision dynamics and neutron diffraction, died on 10 June 2005 in San Francisco of a hemorrhagic stroke.

Born in China's Hunan province on 17 November 1938, George spent his early childhood in Switzerland; during World War II his father, General Kwei Yun-Ching, headed a diplomatic mission there. After the war, his family returned to China, but moved to Taiwan in 1949 when the Nationalist government fell. George came to the US at the age of 12, and entered Harvard University at 16. As an undergraduate, he did significant work in microwave spectroscopy with Robert Curl Jr in the laboratory of E. Bright Wilson Jr. George graduated with honors in chemistry and physics in 1959.

At the University of California, Berkeley, where he pursued his graduate degree, George was the first student to join one of us (Herschbach) in experiments using molecular beams to resolve chemical-reaction dynamics under single-collision conditions. George had a key role in early studies of reactions of alkali atoms with halogen compounds. That work was seminal to the development of molecular beam chemistry, now a major field. After receiving his PhD in 1967, George joined the chemistry faculty at the State University of New York, Stony Brook. There he conducted experiments and classical trajectory calculations dealing with long-lived collision intermediates and made a unique study of the reaction of hydrogen atoms with tritium molecules.

In 1974 George became a research scientist at Los Alamos National Laboratory. He conducted several experiments on collisional energy transfer, especially the exchange of electronic excitation, and on laser-induced photodissociation and ionization. He also elucidated the dynamics of the reaction of nitric oxide with ozone, an important reaction in stratospheric chemistry. Increasingly asked to take on administrative responsibilities at Los Alamos, he became deputy associate director for chemistry, Earth, and life sciences in 1982. In that position, he helped launch several new initiatives, including resonance ionization mass spectroscopy, synchrotron beam line instrumentation, and a molecular biology program that eventually contributed to the National Human Genome Project.

George returned to research in 1988. Remarkably, he undertook work

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in a field wholly new to him—structural studies of materials by means of neutron and x-ray diffraction. Over the next 14 years, he published more than 100 papers, many on high-temperature superconductors and other mixed-valency solids, others demonstrating structural instabilities near phase transitions, ordering on nanometer length scales, and intercalation into fullerene interstices. An important aspect of much of his work was its focus on local structure. George advocated and demonstrated the advantages of evaluating pair-distribution functions from powder diffraction data. That method, ordinarily used for gases or liquids, reveals local structural variations and distortions from crystal symmetry and has proven particularly fruitful in analysis of metallic alloys, order–disorder transitions, superconductors, and proteins.

In 1994, George moved to Lawrence Livermore National Laboratory, but he continued to pursue projects at several neutron-source facilities in collaboration with researchers from institutions across the US and Japan. He took leave in 1997 to return to Los Alamos, where he spent two years as a special assistant in the director's office. He returned to Livermore in 2000, and was awarded the Edward Teller Fellowship in recognition of his scientific accomplishments. Beset by ill health, he retired in 2002. Although unable to complete the book on science policy he intended to write as his Teller Fellowship project, he much enjoyed writing letters on political issues to newspapers and seeing a number of them published.

George lived his life with passion and pleasure. To his scientific work, he brought joyful enthusiasm, intellectual acuity, and virtuoso craftsmanship. His willingness to ask "dumb" questions enabled him to bring fresh perspectives to any new endeavor. In those who were privileged to work with him, he fostered a congenial team spirit. He was especially sensitive to the professional development of his postdocs and younger colleagues, and he took great pride in their later achievements. George's interactions were enhanced by his warm good humor, ample supply of apt stories, high standards, and astute judgment. He was generous in acknowledging the contributions of his colleagues.

Intensely devoted to his family and many friends, George shared with them his love of music, art, fine wine, and food. Even in his graduate-student days at Berkeley, he led his fellow researchers on many trips to savor restaurants in San Francisco; he always knew, week by week, where the best chefs would be. At Los Alamos, his hobby activities focused in succession on racing bicycles, collecting fine violins and bows, and constructing an elegant harpsichord. He was directly responsible for Yo-Yo Ma's first New Mexico appearance, at a performance for the Los Alamos Concert Association. Over the years, he assembled more and more splendid high-fidelity sound equipment. Ultimately, his gear included a pair of big bass horns that are more than a meter in diameter. He delighted in seating visitors between those massive horns, adjusting ears by a few millimeters to achieve optimal results.

Thoughts of him always bring forth a vision of his smile. Earnestly charming, often playful, his smile radiated happiness in sharing with others his wholehearted zest in life.

Dudley R. Herschbach
Harvard University
Cambridge, Massachusetts
James L. Kinsey
Rice University
Houston, Texas

Anatoly Ivanovich Larkin

Anatoly Ivanovich Larkin—"Tolya" to his friends and colleagues—died of heart failure on 4 August 2005 in Aspen, Colorado. He was a universally recognized leader in condensed matter theory and a celebrated teacher of several generations of theorists. Until the very end, he was remarkably productive and remained a desirable collaborator for many