Richard E. Cutkosky

Cutkosky took all his degrees at the Carnegie Institute of Technology (now Carnegie Mellon University), receiving his PhD in physics in 1953 under the direction of Gian-Carlo Wick. After a year at the Niels Bohr Institute, Cutkosky joined the faculty of Carnegie Institute of Technology; he was named Buhl Professor in 1963.

Much of Cutkosky's work concerned the analytic properties of scattering amplitudes. Following the work of Lev Landau, Cutkosky derived general formulas for the discontinuities across cuts in Feynman amplitudes. The Cutkosky rules remain a basic tool in particle physics calculations.

His major concern during the 1960s was understanding the excited states of baryons. He worked on supermultiplet symmetry, its possible bootstrap origin and the interrelations among the deviations from it. Cutkosky's interest in baryon excited states led him to explore methods of analyzing pion–nucleon scattering data. He developed a conformal transformation that could be used to improve the usual partial wave expansion method. For many years Cutkosky and his associates applied his methods, providing comprehensive analyses of pion–nucleon scattering data. This work led to the finding of many baryon resonances that serve as major tests of the constituent quark model. Cutkosky contributed regularly to the *Review of Particle Properties* and was one of the editors of the π–N *Newsletter*.

With his students and postdocs, Cutkosky had recently been studying nonperturbative quantum chromodynamics. In contrast to the standard lattice methods, Cutkosky developed a hyperspherical expansion that retained the spherical symmetry of the theory. This work provided interesting insights into the problem of confinement and the properties of glueballs.

Dick was a dedicated teacher and an active environmentalist. He served as chairman of the Carnegie Mellon science faculty for 1990–91. He will be missed by his colleagues at the university and his associates around the world.

LINCOLN WOLFENSTEIN
Carnegie Mellon University
Pittsburgh, Pennsylvania

Frank Lee Galeener

Frank Lee Galeener, a professor of physics at Colorado State University, died peacefully at home on 6 June 1993, after a long and valiant battle with esophageal cancer.

Frank was born on 31 July 1936 in Long Beach, California. He earned his SB and SM degrees in physics at MIT (1958 and 1962, respectively) and was a staff member at the MIT Lincoln Laboratories (1959–61) and at the National Magnet Laboratory (1961–64). Following receipt of his PhD in physics from Purdue University in 1970, he became a founding member of the research staff at the Xerox Palo Alto Research Center. In 1977 he became a principal scientist at Xerox PARC. During and just after his tenure there, he held visiting positions at the University of Oxford (1982), the University of Cambridge (1983–84) and the University of Paris VI (1988). He moved to Colorado State University in 1987.

Although his PhD studies were in solid-state theory, Frank rapidly converted himself into a consummate experimentalist, developing a state-of-the-art Raman spectroscopy laboratory at Xerox PARC that later formed the nucleus of a diversified glass physics laboratory at Colorado State University. Early in his career, his interests were centered on the atomic and vibrational structures of amorphous solids and thin films. Among his most important achievements were his demonstration of the splitting of transverse and longitudinal optical modes in glasses, the determination of selection rules for Raman and infrared absorption in glasses, the study of intermediate-range structural order in glasses and the identification of planar three-ring structures in glassy SiO_2. In recent years he bravely shifted into the highly competitive field of point defects and radiation-damage mechanisms in silica glasses. He and his collaborators promptly discovered that the defect production efficiency had unanticipated dependences on both the fictive temperature of the glass and the energy of the defect-inducing x-ray photons.

Frank Lee Galeener

Frank was greatly admired for the energy and originality that he brought to the study of the physics and chemistry of glasses and for the rigorous standard of proof that he imposed on all proposed models of glass structure, including his own. He was greatly loved and will be long remembered by his numerous friends and colleagues for his courage, his kindness and his rich sense of humor. He was generous, helpful, fair and never less than considerate in his dealings with his students, his collaborators and even his (very rare) detractors.

DAVID L. GRISCOM
Naval Research Laboratory
Washington, DC
ADRIAN C. WRIGHT
University of Reading
Reading, UK

Dieter K. Wohlleben

Dieter K. Wohlleben, a professor of physics at the University of Cologne, died on 19 July 1992 in Germany as a result of an automobile accident. Born on 23 April 1935, he was 57 years old.

Wohlleben earned the degree of *Diplom* in 1961 at the Technical University of Berlin. He received his PhD in physics in 1968 from the University of California, San Diego, in the research group of Bernd T. Matthias. His thesis research involved measuring the magnetic susceptibilities of scandium, yttrium,

lanthanum and lutetium with a Faraday magnetometer of his own design and construction.

Wohlleben remained at UCSD for five more years, first as an assistant research physicist and then as an assistant professor. At UCSD Wohlleben and M. Brian Maple developed a technique for studying pressure-induced phase transitions between magnetic and nonmagnetic ground states in weakly magnetic materials. They proposed a phenomenological model to account for the nonmagnetic states and other anomalous properties of these materials and coined the term "valence fluctuations." This work contributed to a general field of research that has since acquired several new names, such as concentrated Kondo systems, heavy fermions and strongly correlated electron systems.

In 1974 Wohlleben accepted a professorship at the University of Cologne, where he initiated an extensive experimental and theoretical program on valence fluctuations in rare earth compounds that would span more than a decade.

During the latter part of the 1980s Wohlleben's interests shifted to high-temperature superconductivity in oxides and quantum size effects in mesoscopic systems. He and his coworkers discovered a spontaneous paramagnetic moment in certain bismuth-based high-T_c ceramic superconductors, which he interpreted within the context of spontaneous orbital currents.

Wohlleben was an inspirational teacher in the classroom as well as in the laboratory. During his academic career he supervised 45 doctoral and 101 *Diplom* thesis students. His enthusiasm, leadership and high standards brought out the best in the young scientists with whom he interacted.

Dieter Wohlleben will be remembered in particular for his warm personality, his dedication to science, his ability to motivate his coworkers, his creativity and courage in developing unconventional ideas, and his profound and enduring research contributions.

M. Brian Maple
University of California, San Diego
Ana Celia Mota
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Zurich, Switzerland
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Ohio State University
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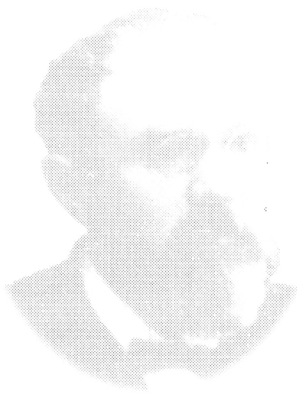

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