

James A. Krumhansl

August 2, 1919 — May 6, 2004

James A. Krumhansl, associated with the Department of Physics at Cornell for fifty years (graduate studies in 1940 to retirement in 1990), was a peripatetic theoretical physicist whose efforts benefited science, Cornell, and the physics community at large.

Krumhansl's scientific research focused on theoretical condensed matter physics and materials science, but his research interests also spanned communication and information systems, applied mathematics, nonlinear science and molecular biological physics. During World War II, he worked on pulse communication systems and secrecy systems for the U.S. Navy, and at the Stromberg-Carlson Corporation on microwave systems. He received U.S. patents on pulse coding communications circuits.

He was particularly known for his Cornell work on phonons (quantized sound waves), solitons (particle-like wave excitations) and defects in materials. He was a Guggenheim fellow, a National Science Foundation senior postdoctoral fellow at the University of Oxford, a Fulbright fellow to Yugoslavia, a Royal Society visiting fellow at the University of Cambridge and a visiting fellow at Oxford University. His scientific influence went beyond the direct contributions of his papers and those of his students: he traveled extensively and proselytized on behalf of ideas and methods he identified as of central importance. Much of the excitement about solitons and martensitic transformations in the physics community grew out of his enthusiastic talks around the country.

Along with Robert L. Sproull, Krumhansl played a major role in launching the Laboratory of Atomic and Solid State Physics at Cornell in 1959. During his tenure as the Director of that Laboratory from 1960-64, he was instrumental in bringing to Cornell many of the young theorists and experimentalists who led the department to a central national role in the physics of condensed matter. Cornell Ph.D. students now populate many of the key laboratories and departments around the country, in no small part because of Krumhansl's vision.

Krumhansl played significant roles in various national enterprises. He co-founded the Materials Research Council at the Defense Advanced Research Projects Agency at the U.S. Department of Defense. From 1977-79, he was Assistant Director for Mathematics, Physical Sciences and Engineering at the National Science Foundation, where he led program development in microscience and computer systems. He was a consultant to the director of the Los Alamos National Laboratory. He served on the board of the American Institute of Physics and served terms

as Editor-in-Chief of *Physical Review Letters* and the *Journal of Applied Physics*. He served as President of the American Physical Society in 1989.

Through all of these activities, Krumhansl's congenital optimism, enthusiasm and joie de vivre energized his students, research collaborators, colleagues and friends.

Jim's life was characterized by diversity of interest, exploration, and enthusiasm (some might say impulsive recklessness). We have heard tales of Jim riding down the Beebe Lake toboggan run on ice skates and down Buffalo Street Hill without brakes, playing the violin in string quartets, choosing the steepest ski slope to accelerate his learning curve (at the expense of a ripped Achilles tendon), aspiring (early on) to play professional baseball, practicing for six hours on the recorder in the back seat of a car on the drive from Ithaca to Ontario, and sailing the shores of Maine with little attention to the danger markings on the charts. For Jim, life was an adventure game, which needed to be played to the full.

Following his retirement from Cornell in 1990, Krumhansl moved to Amherst, Massachusetts and, ultimately, to a Kendal community in Hanover, New Hampshire. His daughter, Carol Krumhansl, is a Professor of Psychology at Cornell, specializing in cognitive psychology. Two sons, James and Peter, a grandson, Robert, and a granddaughter, Kira, also survive him.

Doug Fitchen, Don Holcomb, Bob Silsbee, Jim Sethna