Geoffrey V. Chester

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Physics Today **67** (10), 64 (2014);
https://doi.org/10.1063/PT.3.2557

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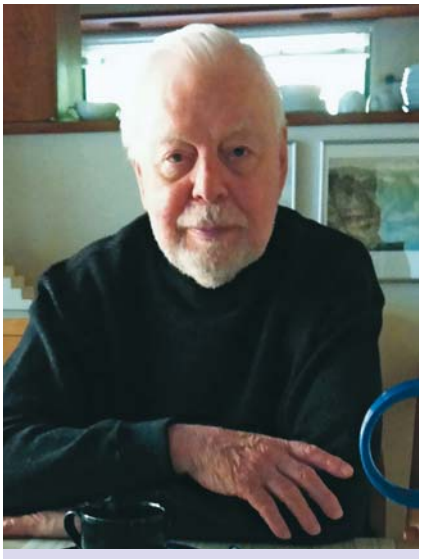
Geoffrey V. Chester

Geoffrey V. Chester died in Ithaca, New York, on 27 June 2014 after a brief illness. He was a professor emeritus of physics at Cornell University, where he had served as director of the Laboratory of Atomic and Solid State Physics from 1968 to 1974, associate dean of Cornell's College of Arts and Sciences from 1978 to 1986, and dean from 1986 to 1991. He had retired in 1995 but maintained a lively and insightful interest in all aspects of physics and life right up to his final week.

Born on 11 March 1928 in Totley in Derbyshire, England, Geoffrey was six years old when his family moved to Edinburgh, Scotland. There he attended Daniel Stewart's College and graduated in 1950 from Edinburgh University, where he had studied with and admired Max Born. When people referred to Geoffrey as English, as they often did, he would correct them: "Scottish."

Geoffrey received his PhD in physics in 1954 from Kings College London; in his thesis he acknowledged Charles Coulson and H. Christopher Longuet-Higgins. He then did postdoctoral studies in the US, where he worked with Lars Onsager at Yale University and with Joseph Mayer at the University of Chicago. From 1957 to 1964 he was a member of Rudolf Peierls's renowned department of mathematical physics at the University of Birmingham in the UK. In 1964 he joined the faculty at Cornell, where he helped build and lead the Cornell condensed-matter theory group, which attracted extraordinary graduate students, postdoctoral fellows, and faculty visitors from all over the world.

In low-temperature physics, Geoffrey has long been known for two theoretical predictions. In 1955 he was among the first to calculate that "we should expect a phase separation of the isotopes" in mixtures of liquid helium-3 and helium-4. A strictly quantum effect, the phase separation was observed the following year and is now exploited in commercially available dilution refrigerators to reach millikelvin temperatures. In 1970 Geoffrey discovered a plausible ground state for ^{4}He that had both crystalline ordering and the off-diagonal long-range order characteristic of Bose–Einstein condensation. That work launched the theoretical and experimental study of supersolids, an endeavor that remains active and controversial.



Geoffrey V. Chester

Following Richard Hamming's injunction that "the purpose of computation is insight, not numbers," Geoffrey was one of the first physicists to use extensive computation as a crucial component of rigorous theoretical analysis. He began that work in the late 1970s, with postdocs and graduate students at both Cornell and the Courant Institute of Mathematical Sciences at New York University. He and his collaborators made significant advances in quantum Monte Carlo algorithms and found a method for calculating the properties of a Bose fluid directly from the Hamiltonian, with all errors small and controlled. That led to essentially exact equations of state for liquid and solid ^{4}He. The researchers also developed variational Monte Carlo methods for fermion systems, along with the necessary efficient manipulations of determinants. Their numerical results for Hans Bethe's "homework problems" in models of neutron and nuclear matter were widely influential.

Instrumental in those successes were Geoffrey's love of physics, his integrity, and his warm encouragement of young people. His special gift was being able to picture the quantum mechanical phenomena before starting any calculations. His profound phenomenological intuition was the key to the success of his theoretical constructions. He knew the right questions to ask about the most interesting systems.

Several years before the advent of personal computers and text-editing programs, Geoffrey's expertise in computational physics led him to introduce humanists to computers as surprisingly valuable aids in preparing manuscripts.

Geoffrey was a long-time assistant to and collaborator with his wife, ceramist Carolyn Chester. He built many of the wooden structures and frames for her ceramic sculptures, and he introduced her to chemicals not ordinarily used in ceramics.

Geoffrey was a modest, kind, and deeply ethical person; he possessed a ready and playful sense of humor and a tremendous curiosity about almost everything he came across. He had many interests and pursuits and enjoyed talking with anyone who shared them: bread baking, woodworking, art-book collecting. He loved the western islands and highlands of Scotland, and he delighted in the wild turkeys that paraded across the family's backyard in upstate New York. He will be very much missed by his family and by friends and colleagues from his rich academic life.

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Arthur Michael Wolfe

Arthur Michael Wolfe, professor emeritus of physics at the University of California, San Diego (UCSD), died of cancer on 17 February 2014 in La Jolla. Art had a vibrant career that spanned nearly five decades; he conducted research in theoretical cosmology, experimental physics, and observational astrophysics. He had a terrific passion for physics that he shared with researchers throughout the community and that inspired scientists young and old.

Art was born on 29 April 1939 in Brooklyn, New York, and spent his formative years in Manhattan. His family then moved to Queens, where he