Charles V Shank

Prof Emeritus
Lab Director Emeritus
University of California

Biography

After graduation, Shank joined the staff of the Bell Laboratories as a researcher. He would remain there for 20 years, becoming head of its Quantum Physics and Electronic Research Department in 1976, and director of its Electronics Research Laboratory in 1983. Shank introduced the use of short laser pulses to study ultrafast events, ones that take place in a femtosecond, and is considered to be the founder of ultrafast science. He pioneered the field of femtochemistry, developing its techniques and technologies, and laser communications, and is the co-inventor of the distributed feedback laser He studied the femtochemistry of rhodopsin, a photosensitive pigment found in the eye that is an important component of the mechanism of human vision. But since many chemical reactions take place in femtoseconds, ultrafast science found uses in chemistry, biology, physics, materials science, medicine, meteorology and manufacturing.

Shank became the director of the Lawrence Berkeley National Laboratory in 1989. Under his directorship, the laboratory pursued a diverse range of initiatives, usually in cooperation with other agencies. Through the National Energy Research Scientific Computing Center, he made the laboratory a locus for supercomputing. Working with the Lawrence Livermore National Laboratory and the Los Alamos National Laboratory, he helped create the Joint Genome Institute to work on the Human Genome Project. Through this joint effort the complete sequences of Chromosomes 5, 16 and 19 were mapped. The Laboratory's SuperNova Acceleration Probe (SNAP) formed part of the Joint Dark Energy Mission to explore dark energy in collaboration with NASA, and it worked with the University of California, San Francisco's Comprehensive Cancer Center to study the disease. He strongly supported nanoscience, and was co-author of *Complex Systems: Science for the 21st Century* (1999), in which it was an important theme.

In 1989 Shank was a member of the California Council on Science and Technology. The following year he was a member of the National Critical Technologies Panel in the Office of Science and Technology. In this role he helped identify the most critical technologies required to advance the United States' national security and economic prosperity. He chaired the National Research Council's Committee on Optical Science and Engineering, and was the co-author of *Harnessing Light: Optical Science and Engineering for the 21st Century* (1998). He was a member of the National Academy of Sciences' Air Force Studies Board, and of the Central Intelligence Agency's Intelligence Science Board. Shank retired from the Lawrence Berkeley Laboratory in 2004, and became a professor of Chemistry, Physics, Electrical Engineering, and Computer Science at the University of California, Berkeley.[2] As of 2015, he is a member of the Advisory Board of the Lawrence Berkeley Laboratory. He remains a professor emeritus at the University of California, Berkeley, and is a member of campus advisory boards. He is also a Senior Fellow at the Howard Hughes Medical Institute's Janelia Research Campus.