

obituaries

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Stanley Flatté

Physicist Stanley Flatté, whose work in particle physics and wave propagation led to important contributions in hadron spectroscopy and the fields of atmospheric optics, ocean acoustics, and seismology, died on 4 November 2007 at his home in Santa Cruz, California. Flatté, a professor emeritus of physics at the University of California, Santa Cruz (UCSC), had battled illness for many years. Drawing on his technical expertise in physics, he helped to design innovative radiation treatments for his sinus cancer. Throughout that struggle, he maintained an active research program, even after his retirement in 2004.

Born in Los Angeles on 2 December 1940, Flatté earned a BS in physics at Caltech in 1962 and a PhD in physics at UC Berkeley in 1966. He worked as a research physicist at Lawrence Berkeley Laboratory for five years before joining the UCSC faculty in 1971. At UCSC he was affiliated with the Santa Cruz Institute for Particle Physics, the Institute of Marine Sciences, and the Institute of Geophysics and Planetary Physics. Starting in 1970 Flatté also served as a member of JASON, a national scientific advisory group to many government agencies.

Flatté was unique on the Santa Cruz campus, not only for the number of areas in which he was involved, including ocean sciences and Earth sciences in recent years, but also for the level of recognition he received—namely, election to fellowship in several professional societies—for his contributions in different areas. His work with collaborators in various disciplines grew out of his interest in numerical simulation of waves propagating through random media.

In the area of particle physics, Flatté contributed to elucidating the nature of several recently discovered mesons while he was a research physicist at the Berkeley lab in the 1960s. His work in spectroscopy was one of the important pieces of information that led to the discovery of quarks as the underlying con-



Stanley Flatté

stituents of strongly interacting particles. The Flatté parameterization he developed in 1975–76 while on a Guggenheim fellowship at CERN is still used to describe the decay of scalar mesons produced with masses near decay thresholds.

Flatté's work on ocean acoustics began in the mid-1970s and continued for more than two decades. He helped develop a new paradigm for understanding sound transmission in the ocean. Using supercomputer calculations and acoustic data processing, he determined small-scale structures associated with oceanic thermal and salinity heterogeneity that had not been previously measured. In the 1990s he took part in the experiment in acoustic thermometry of ocean climate that aimed to track the ocean's average temperature using repeated long-range recording of sound waves.

In seismology, Flatté contributed to research on the scattering of seismic waves in the deep Earth and the formulation of mathematical methods to determine the distribution and properties of small-scale structures in the lithosphere and near the core–mantle boundary. Geophysicist Ru-Shan Wu came to UCSC in 1986 to work with

Flatté on scattering theory; that work led to the development of important techniques, such as using one-way acoustic and elastic propagators for seismic modeling and migration, now widely common in the oil exploration industry.

In the area of atmospheric optics, Flatté studied the propagation of light waves through atmospheric turbulence. That led to work on adaptive optics for telescopes, where his contributions paralleled those for wave propagation in the ocean as he developed techniques for handling statistical small-scale heterogeneities. Around 2000, he explored forward modeling, inverse modeling, and adaptive optics procedures for statistical heterogeneities.

Flatté's broad interests led him to scientific interactions with an unusually wide-ranging community, and his insightful comments during seminars and discussions will be keenly missed by physicists, oceanographers, atmospheric scientists, and seismologists. We will also miss Flatté's talents as a pianist and classical and flamenco guitarist.

Thorne Lay

Abraham Seiden

University of California, Santa Cruz ■

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