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Joseph Ford

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The 1995 Otto Schott Research Award, sponsored by the Carl-Zeiss-Stiftung, was presented in May to **David L. Griscom** of the Naval Research Laboratory in Washington, DC. Griscom was cited in part for applying electron spin resonance spectroscopy to glass materials and for applying the lattice defect concepts of solid state physics to the amorphous state.

The Overseas Chinese Physics Association has announced the winners of its two awards for 1995. The Achievement in Asia Award–Tan Kah Kee Prize went to **Lin I** of the National Central University in Chungli, Taiwan, who was cited for his "experimental discovery of Coulomb crystals and Coulomb liquids in strongly coupled dusty plasma, and the phase transitions between them." OCPA gave its Outstanding Young Researcher Award to **Wai-Mo Suen** of Washington University, in St. Louis, Missouri. The citation praises Suen for his "innovative investigations in general relativity using numerical techniques, for the discovery and analysis of novel solitonic solutions of Einstein's equations, and for the development of powerful new methods for studying the dynamics of the event horizons of black holes."

Calvin F. Quate has been dubbed "Scientist of the Year" by *R&D Magazine*. The publication's editorial board and editors called Quate, who is professor of applied physics at Stanford University, "the genius behind acoustic and atomic force microscopy and the inspiration for a $100 million instrument industry."

OBITUARIES

Joseph Ford

Chaotic dynamics lost one of its founders with the untimely death of Joseph Ford on 26 April, after a short struggle with cancer. He was known not only for his innovative research but also for his personal flair and sense of style. His influence will be felt for many years through his deep and original insights into a field he pioneered for three decades.

Joe Ford was born in Buncombe County, North Carolina, on 18 December 1927. He received his BS degree from the Georgia Institute of Technology in 1952 and his PhD in physics from Johns Hopkins University in 1956, specializing in statistical mechanics. After two years as a research physicist at Union Carbide Corp, in Niagara Falls, NY, he launched his academic career at the University of Miami in 1958. He returned to Georgia Tech as associate professor in 1961 and rose through the ranks to become Regents' Professor of Physics in 1978, a post he held until his death.

Joe came to the field of chaotic dynamics after having been diverted from traditional statistical mechanics by his curiosity in the Fermi–Pasta–Ulam paradox. As early as 1963 he discovered a new phenomenon, a transition from regular motion to what was later to be called dynamical chaos. In those pioneering days Joe realized, more than anyone else did, the profundity and importance of this phenomenon.

In the 1970s Joe conceived the idea of disseminating "Nonlinear Science Abstracts." He personally collected, organized, typed, copied and distributed volumes of abstracts of dynamics papers, and thereby forged a global, interdisciplinary community. His deep and warm personal friendships with many scientists date back to those heroic days. Eventually Joe's tireless efforts resulted in the foundation in 1980 of the first journal devoted to nonlinear dynamics, *Physica D*.

JOSEPH FORD

Joe's deep physical intuition suggested to him very early on that the exponential instability of motion was the most important property of the new dynamics. He isolated it from many other (and often confusing) characteristics of nonlinear phenomena, thereby establishing an empirical criterion for chaos that has since become standard. Joe himself applied it to the famous Toda lattice, a highly nonlinear, multidimensional model. He gave a computer proof of its integrability, a surprising development that stimulated intensive investigations of integrable nonlinear systems.

Joe explored the deeper consequences of deterministic chaos and again found himself in the role of pioneer. Gödel and Turing supplanted Poincaré in his daily thinking. He realized that the concept of chaos transcends the domains of mappings and differential equations, and he repeatedly drew attention to "algorithmic complexity" as a means of defining and assessing the fundamental limits of human ability to deal with chaotic systems. Using this tool, Joe demonstrated, first on the Arnol'd cat mapping and later on a general bounded autonomous quantum system, that dynamical chaos as it is understood in classical mechanics (and implemented in ergodic theory in mathematics) does not exist in quantum mechanics. Joe did not flinch: He courageously proceeded to challenge the very basis of quantum mechanics by questioning the assumption that chaos should enter microscopic descriptions of nature. Sadly, this work was cut short by his death.

His personality was reflected in his work to an unusual degree. In issues of integrity and quality Joe was particularly uncompromising. At the same time, his generosity and kindness to his friends, old or young, eminent or humble, knew no bounds. His marked anti-authoritarian streak undoubtedly contributed to the originality of his work. He was a passionate man whose zest for living was surpassed only by his passion for his work. He had a remarkable ability to put his views and insights into lapidary form, and his speech owed much to the Southern Evangelists whom he heard when growing up in the rural South during the Depression.

One of Ibsen's characters said: "What's a man's first duty? The answer's brief: To be himself." We are sure that we speak for all his friends when we say that Joe Ford enriched our lives immensely by doing just that.

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