



## IN MEMORIAM

Alan M. Portis  
Professor of Physics, Emeritus  
UC Berkeley  
1926 – 2010

Alan M. Portis, professor of physics, emeritus, passed away after a long illness in Berkeley, California, on September 6, 2010, at the age of 84.

Alan Portis was born in Chicago, Illinois, on July 17, 1926. He attended the University of Chicago, obtaining the degree of Ph.B. in physics and general studies in June 1948. After this he studied at the University of California, Berkeley, earning the B.A. in physics in June 1949 and the Ph.D. in physics in 1953. After three years in the physics department of the University of Pittsburgh he was invited back to Berkeley to join the UC physics faculty in 1957. During the 39 years before his retirement in 1995 he acquired an extraordinary record of outstanding service to the University in a variety of important categories. To his great credit, with unstinted generosity he took on many duties of University administration and committees, and yet continued to make significant contributions in research and teaching. He was a director of the Lawrence Hall of Science; twice department vice chair; assistant to the chancellor; twice an Academic Senate ombudsman; and he served three times as associate dean (once of the Graduate Division and twice of the College of Engineering). University officials referred to his working hard, as ombudsman, “to defuse difficult situations — remaining calm when problems became overcharged — and then would start to deal with them at points where others have failed.”

Early in his research career Portis solved the mystery of an anomalous electron spin signal response in alkali halides by proposing the concept of “inhomogeneous (field) broadening” due to neighboring nuclear moments. This concept caught the eye of investigators as new and important, and now it is a commonly invoked condition in many spin resonance experiments. He was the first to anticipate and measure the magnetic resonance of nuclei polarized in strong internal hyperfine fields of ferromagnetic metals such as iron and cobalt. This discovery shattered theoretical predictions that nuclear magnetic resonance would be suppressed in electron- spin ordered matter.

In a series of electron- spin resonance experiments with his students, he conducted studies of luminescence and other properties induced in crystals by radiation. By a double nuclear- anti- ferromagnetic resonance technique, he showed the first evidence of nuclear magnons in antiferromagnetics. In collaboration with Ken Crowe he monitored the radioactive decay of muonium as it diffuses in the local magnetic fields of metals, crystals, and magnetic materials. Here a technique was introduced that could measure new properties of matter, inaccessible to measurement by ordinary resonance methods.

The last phase of his research career was carried out in several international collaborations with others, concerning the analysis of microwave absorption by thin film, wire, and ceramic high critical temperature ( $T_c$ ) superconductors. His first collaboration began with 1987 Nobel Prize recipient Alexander Müller, the discoverer of high  $T_c$  superconductivity at IBM Zurich. There Portis devised a model that explained unusual features of microwave electron- spin absorption signals, leading to a novel method for measuring critical fields in superconductors.

Portis was very involved with teaching. He devoted much time and energy to the improvement of student-faculty relations and to expanding the educational opportunities available to students. He directed the theses of 34 graduate students. Among them was Alan Heeger, now a Nobel laureate. He was noted for his effectiveness in explaining difficult concepts to students and his ability to inspire the interest of others. He developed entirely new teaching manuals for a revised physics laboratory course and a course in solid-state physics. He was awarded the 1966 Millikan Medal of the American Association of Physics Teachers for his voluminous text *Electromagnetic Fields, Sources and Media*; and he also published *Electrodynamics of High Temperature Superconductors*.

Attesting to his distinguished and extraordinary service to the University, he was honored by the prestigious UC Berkeley Citation. He was a Fulbright and Guggenheim fellow, a fellow of the Swiss Institute for Nuclear Research, and a fellow of the American Physical Society and the American Association for the Advancement of Science.

We used to see Professor Portis running around the campus in his shorts. As he kept himself in good physical condition, he participated in competitive marathons and won a number of trophies. He adopted running wholeheartedly as an enjoyable activity. Similarly, he was motivated by conscientious scholarship with no preoccupation to push for credit. Many will always remember him with fondness for his cheerful demeanor, and because he was always ready to help others beyond the call of duty. He is survived by his wife Beverly Portis; three sons, Jon, Stephen, and Eli; one daughter, Sara; and 13 grandchildren.

Erwin L. Hahn  
2010