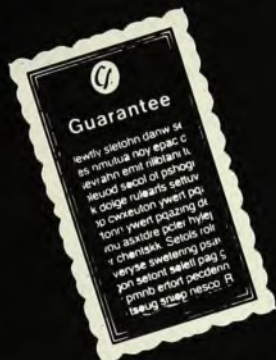


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seminars in French and had a deep interest in old Russian ikons. He loved and understood people of all types.

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Ithaca, New York

ROBERT F. MOZLEY

Stanford University

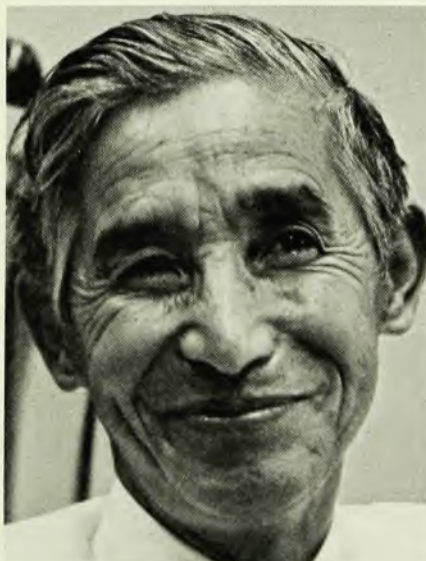
Stanford, California

Masaru Ogawa

Masaru Ogawa, professor of physics at the University of Southern California, died unexpectedly on 23 December at the age of 55. Although he received his formal education in Japan, culminating in his doctoral degree on the analysis of NO emission bands, he did nearly all of his extensive research in vacuum uv spectroscopy after he came to the US in 1956, at the Air Force Cambridge Research Laboratory in Bedford, Mass. and the Aerospace Corp in Los Angeles.

He will be remembered best for his careful work on the absorption cross sections of many gases, and especially for his fairly recent ingenious absorption measurements on O₂ in its metastable state. In addition, he made particularly valuable contributions to the early work on mass spectrometric analysis of photoionization products, on fluorescence from ions produced by photon absorption and on the analysis of absorption spectra of many molecules, including their vibrational and rotational band structures. In this latter connection, Ogawa's most recent work led to a better understanding of the energy states of oxygen and other molecules of the atmospheric gases.

His students, ranging from doctoral candidates to freshmen, as well as his



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obituaries

many friends and colleagues, always found him friendly and ready to help regardless of the time required. Even by Japanese standards, one could not easily find a more self-effacing and modest individual. Aside from his family, a little fishing and the care of his garden, his life centered on his research and his teaching. He will be missed for a long time by all who knew him.

GERHARD L. WEISSLER

*University of Southern California
Los Angeles*

YOSHIO TANAKA

*Air Force Cambridge Research Laboratories
Bedford, Massachusetts*

Guenter Schwarz

Guenter Schwarz, internationally known as an innovator in physics education, died on 17 November at the age of 60. He was a member of the faculty at Florida State University for 25 years and served as head of the department of physics from 1952 until 1956. A native of Cologne, Germany, Schwarz received an engineering degree from the Technische Hochschule, Berlin, in 1938 and the PhD in physics from Johns Hopkins University in 1942.

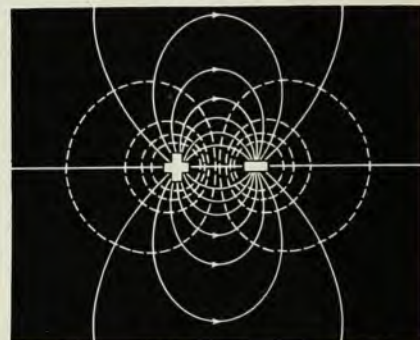
Pursuing an early interest in x-ray spectroscopy, Schwarz spent the war years at the University of Illinois as instructor and assistant professor of physics. In 1946 he returned to Joyce A. Bearden's laboratory at Johns Hopkins as a research physicist and in 1949 moved to Florida State, where he established an x-ray laboratory. That Schwarz would have chosen a research field in which precision almost becomes art was characteristic.

At Florida State Schwarz's interest in physics education gradually began to dominate his professional activity, and by 1958 all of his research was in problems related to physics pedagogy. He spent that year with the physical science study committee at MIT working on the PSSC high-school physics course. After returning to Florida State he joined Stanley Marshall of the department of science education in a program that eventually resulted in the use of the PSSC course by 85% of Florida high schools. Later he also worked with the project physics program.

Schwarz was a member of the panel whose proposals led to the formation of the Commission on College Physics. He was a member of the College Entrance Examination Board's committee of examiners during 1966-69. In 1966 the Center for Research in College Instruction of Science and Mathematics

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