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1924-1995

By Chang-Lin Tien

Shiro Kobayashi, professor emeritus of mechanical engineering at the University of California, Berkeley, died on December 20, 1995, in Berkeley at the age of seventy-one.

Shiro was born on February 21, 1924, in Gotsu, Japan. He received his undergraduate education at Tokyo University, where he completed his B.S. degree in mechanical engineering in 1946, a year after the end of World War II. Following graduation, he taught in high schools in Japan for seven years. In 1953 he was appointed assistant professor at Doshisha University, where he taught for three years before coming to the United States to further his studies.

Shiro came to Berkeley from Japan in 1956 to pursue his M.S. and Ph.D. degrees in mechanical engineering. He completed his master's degree in 1957 and his doctorate in 1960. Shiro started as assistant research engineer in the College of Engineering's Office of Research Services in 1958 while still working on his dissertation research and Shiro was hired as a lecturer in Berkeley's mechanical engineering department upon completion of his Ph.D. In 1961 he was appointed assistant professor in the Department of Industrial Engineering, where he taught for three years until his 1964 appointment as assistant professor in the Department of Mechanical Engineering. Shiro quickly rose through the ranks, achieving full professorship in 1968. After a productive and influential career

of more than thirty years, he retired from active teaching in 1991. At the time of his death, he held the FANUC chair of mechanical systems at Berkeley, a position endowed in 1989 by a grant from FANUC Ltd., a Japanese maker of factory automation machines.

Elected to the National Academy of Engineering in 1980, Shiro was widely recognized for his work in manufacturing systems and metal forming. Particularly notable were his studies in numerical analysis of rigid-plastic deformation processes using the finite-element method, plastic deformation behavior of rate-sensitive materials, ductile fracture in metalworking processes, metal flow analysis at elevated temperatures, die design, and die manufacturing in metalworking.

Shiro's two books, *Mechanics of Plastic Deformation in Metal Processing* and *Metal Forming and the Finite-Element Method*, stand as testaments to his significant contribution to the field. Throughout his professional career, Shiro was recognized and honored for his contributions. In 1963 the American Society of Mechanical Engineers (ASME) awarded him the ASME Blackall Machine Tool and Gage Award. He was honored as the Battelle visiting professor in the Department of Metallurgical Engineering at Ohio State University from 1967 to 1968. The University of Birmingham, in England, was his home in 1970 during his term as the E. A. Taylor visiting professor in the Department of Mechanical Engineering. In 1976 the Japan Society for Technology of Plasticity awarded him the Aida Engineering Award, and in 1983 the Society of Manufacturing Engineering bestowed on him the Gold Medal.

Shiro's consistent service to ASME included serving as a member of the Honors Committee, a member of the Material Processing Field Committee on Production Engineering, and a member and chairman of the Joint Committee of the Materials Division and the Production Engineering Division. His notable editorial activities include serving as counseling editor for the *International Journal of Machine Tool Design and Research*, published in England, deputy technical editor, then associate editor of the *Journal of Engineering Materials and Technology*, editorial board member of England's *International*

Journal of Mechanics and the Japan Society for Technology of Plasticity, and editorial advisory board member for *the Journal of Engineering Production of India*.

Other professional service includes his membership on the scientific committee of the North American Metalworking Research Conference from 1973 to 1979. From 1983 to 1986 he was a member of the North American Manufacturing Research Institution of the Society of Manufacturing Engineers board of directors.