Chien-Shiung Wu (1912-1997)

Chien-Shiung Wu, one of the giants of modern experimental physics, died of a stroke in New York City on February 16. Born on May 31, 1912 in Liuhe, a small town near Shanghai, Wu received a BS degree from National Central University in Nanjing in 1934. She came to the US in 1936 and received her PhD from the University of California, Berkeley in 1940.

She taught at Smith College and Princeton University prior to joining Columbia University in 1944, where she spent 37 years doing research and teaching. Forty years ago on February 15, 1957, Wu and her colleagues E. Ambler, R.W. Hayward, D.D. Hoppes and R.P. Hudson of the National Bureau of Standards published their historic paper, "Experimental Test of Parity Conservation in Beta Decay" which established for the first time the non-conservation of parity (P) and the violation of particle-antiparticle conjugation symmetry (C) in physics, both of which had been taken for granted as basic laws of nature. This revolutionary overthrow of the conservation laws of P and C in the weak interactions opened up a vast new vista, dominated by the search for the origin and manifestation of symmetry violations.

The study of nuclear beta decay was a central focus of Wu's research. After Fermi's theory of beta decay was proposed in 1934, there were serious discrepancies between experiment and theory. Then, in 1949 and 1950, through a series of beautiful experiments Wu measured the allowed and forbidden beta spectra, corrected many previous mistakes, disproved the Konopinski-Uhlenbeck formulation and firmly established Fermi's theory. Almost single-handedly she cleared up the confusion in beta decay that had existed for one-and-a-half decades. In 1963, she and her collaborators observed the weak magnetism, thereby confirming the symmetry between the weak and the electromagnetic currents, setting the cornerstone for the later unification of these two basic forces into a single one, the electroweak force.

Wu's attitude towards physics was that of a serious, deeply committed and most enthusiastic scholar, in her case particularly of nuclear beta decay. Her experimental work was characterized by painstaking care, thoroughness and an uncompromising honesty, as well as by great skill and creativity. At various times in her career her active interests included positronium, muon physics, especially the spectra of muonic atoms and muon capture, and also biophysics problems.

Wu's personal warmth and deep concern for others will be sorely missed by her many friends and colleagues. When Madame Curie passed away, Einstein wrote, "At a time when a towering personality has come to the end of her life, let us not merely rest content with recalling what she has given to mankind in the fruits of her work. It is the moral qualities of its leading personalities that are perhaps of even greater significance for a generation and for the course of history than purely intellectual accomplishments. Her strength, her purity of will, her objectivity, her incorruptible judgement, all these were of a kind seldom found joined in a single individual. Once she had recognized a certain way as the right one, she pursued it without compromise and with extreme tenacity." All these words of Einstein about Madame Curie apply equally well to Chien-Shiung Wu. Chien-Shiung Wu is survived by Luke C.L. Yuan, her husband of 55 years, her son Vincent Yuan of Los Alamos who is a research scientist at Los Alamos National Laboratory and her granddaughter Jada Yuan who is a student at Yale College.