



OBITUARY

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Chi-Yu Hu (1933-2022)

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Chi-Yu (Sue) Hu, a well-respected colleague of the few-body-physics community, passed away on October 3, 2022. She was well known for her scientific contributions to the nuclear and atomic few-body problems. She was also known for her enthusiasm, optimism, and intense dedication to physics research.

Sue was born on 1933 in Sichuan Province China. She obtained her BS degree at the National Taiwan University in 1955 and earned her PhD at MIT (USA) in 1962 under the supervision of Felix Villars. As a woman scientist in the mid 20th century, Sue was a pioneer in the physics community. In 1963 she joined the faculty at the department of Physics and Astronomy at California State University Long Beach, where she remained until her retirement in 2006. She retired only from teaching and continued her passion, research, until the very end.

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Sue's early work focused on nuclear physics, the connection between the Pauli principle and the moments of inertia of deformed nuclei. She then moved on to variational calculations of three-particle nuclear and quark systems.

It was always in Sue's heart to help mankind solve its energy problem. This led her to study the possibility of muon-catalyzed fusion. In fact, she was one of the pioneers of the theoretical investigations of this important scientific problem. Her analysis of muonic atom scattering processes using the Faddeev equations and of weakly bound states of muonic molecules with variational calculations are highly regarded and have made a significant contribution to the solution of the problem of muon-catalyzed fusion.

The need for high precision calculations led her to adopt the Faddeev-Merkuriev differential equation method for complicated atomic three-body problems. She extended the method to higher angular momenta and more angular momentum channels. These calculations required the use of top-of-the-line supercomputers. Because her research was unique and well respected, Sue secured the necessary funds through grants from NSF and DOE since the early 1970's and on a continuous basis since the 1980's. She obtained access to the top supercomputers of the country. With her unique numerical and computational techniques, she was able to address the toughest problems of atomic physics, like the three body Coulomb scattering problem with attractive Coulomb interaction. She numerically found the theoretically predicted resonances in three-body Coulomb systems lying right above reaction thresholds that resulted in a significant increase of reaction cross sections in a narrow energy interval. This phenomenon kept her attention until her last days.

Her professionalism in organizing research and her everlasting enthusiasm have enabled her to carry out a number of successful international collaborations with scientists from the USA, Eastern Europe and Russia.

Professor Hu was a devoted teacher. She taught classes at all levels and graduated a legion of students. Her career has been remarkable in that in spite of a heavy teaching load, she pursued outstanding research that involved students, funded by grants, with long-lasting national and international collaborations. She will be remembered as a kind, good hearted and strong scientist with unlimited enthusiasm for physics.