

Professor Helen Quinn

Helen Quinn was born in Australia and grew up in the Melbourne suburbs of Blackburn and Mitcham. She attended Tintern Girls Grammar School in Ringwood East. She matriculated successfully and obtained a cadetship from the Australian Department of Meteorology to fund her studies at the University of Melbourne. After beginning her undergraduate studies at the University, her family migrated to San Francisco in the early 1960s. Professor Quinn finished her undergraduate, and eventually graduate education at Stanford University. After receiving her doctorate from Stanford in 1967, she held a postdoctoral position at Deutsches Elektronen Synchrotron in Hamburg, Germany, then served as a research fellow at Harvard in 1971, joining the faculty there in 1972. She returned to Stanford in 1976 as a visitor on a Sloan Fellowship and joined the staff at the Stanford Linear Accelerator Centre (SLAC) in 1977.

In her current position as a theoretical physicist at the Stanford Linear Accelerator Center (SLAC), Professor Quinn has made important contributions towards unifying the strong, weak and electromagnetic interactions into a single coherent model of particle physics. In 2000 she was awarded the Dirac Medal and Prize for pioneering contributions to the quest for a unified theory of quarks and leptons and of the strong, weak, and electromagnetic interactions. The award, shared with Professors Howard Georgi of Harvard and Jogesh Pati of the University of Maryland, recognized Professor Quinn for her work on the unification of the three interactions, and for fundamental insights about charge-parity conservation. She has also recently developed basic analysis methods used to search for the origin of particle-antiparticle asymmetry in nature.

Professor Quinn is considered by many to be one of an elite group of twentieth century women who have made original and important contributions to physics. Some of her contributions have been:

- Co-authored the first paper (with Howard Georgi and Steven Weinberg) to discuss how the strong, weak, and electromagnetic coupling constants can merge to a single coupling constant in a grand unified theory.
- Suggested (with Roberto Peccei) a possible near symmetry of the universe (now known as Peccei-Quinn symmetry) to explain how strong interactions can maintain the symmetry between particles and antiparticles (CP symmetry) when weak interactions do not.
- Showed (with Enrico Poggio and Steven Weinberg) how physics of quarks can be used to predict some properties of the physics of hadrons (which are particles made from quarks). This is now known as quark-hadron duality.
- Made phenomenological analyses of CP violation in B meson decays – searching for the tiny difference between matter and antimatter

Professor Helen Quinn is truly a leading research scientist in the field of particle physics, having reached the top in a totally male dominated field, and proof of this is on her many awards and honours. She was elected to Fellow of the American Academy of Arts and Sciences in 2003 and is currently President of the American Physical Society (APS). A driving force in developing education and outreach programs for the public and science teachers, Professor Quinn played a key role in the development of an interactive web-based explanation of particle physics, "The Particle Physics Adventure"¹. She is an exceptional Physicist, research leader and role model whose contribution is recognised by the Faculty of Science through the award of a DSc (honoris causa).

¹ <http://particleadventure.org/particleadventure/>