

Carlo Rubbia



Carlo Rubbia was a Professor of Physics at Harvard University. He was born in Gorizia, Italy, in 1934, but his family moved to Venice and then to Udine during the tragic events in his home region during World War II. After high school, he applied to study physics at the Scuola Normale in Pisa but failed the entry exam. He instead started studying engineering at the University of Milan, when a successful normal candidate dropped out and Rubbia was offered his place. He helped develop pulsed gas particle detectors and gained his degree with a thesis on cosmic ray experiments. In 1958, he joined Columbia University in the US as a researcher to gain experience of particle accelerators, and became interested in weak interactions. He returned to Rome in 1959 and rather soon afterwards joined the newly founded European Organization for Nuclear Research (CERN), where he made further progress on the structure of weak interactions, such as the discovery of the beta decay process of the positive pion, and the first observation of muon capture by free hydrogen.

In 1970, he was appointed Higgins Professor of Physics at Harvard University and, with David Cline and Alfred Mann, proposed a major neutrino experiment at the new Fermi National Accelerator Laboratory (Fermilab), which allowed them to observe all-muons events in neutrino interactions, hinting at the existence of the charm quark. Rubbia divided his time between teaching at Harvard, and research at CERN in Geneva, where a new particle beam accelerator used counterrotating beams of protons colliding against each other. In 1976, with Cline and Peter McIntyre, he suggested adapting this machine to collide protons and antiprotons in the search for intermediate vector bosons (roughly 100 times as heavy as the proton). The experiment began in 1981 and, in January 1983, the team succeeded in creating W particles, followed a couple of months later by the even more elusive Z particles. The following year, Rubbia and Simon van der Meer (part of the CERN team who developed the antiproton beam) shared the Nobel Prize in Physics.

Rubbia served as director-general of CERN from 1989–94, as president of ENEA (Italian National Agency for New technologies, Energy and the Environment) until July 2005, and as a professor at the University of Pavia, Italy. From 2010-2015 he was scientific director of the

Institute for Advanced Sustainability Studies (IASS) in Potsdam and later on director of the Chinese University of Mining and Technology's Institute of Sustainable Energy. He is presently professor at the Grans Sasso Science Institute (GSSI) in L'Aquila. He is a member of numerous scientific academies and holds 38 honorary degrees. Rubbia was made a Senator for Life of the Italian Republic in 2013.