

Topic Page: [Steinberger, Jack \(1921 - \)](#)

Definition: **Steinberger** from *Merriam-Webster's Collegiate(R) Dictionary*

 [pronunciation](#)

Jack Steinberger 1921– Am. (Ger.-born) physicist

Summary Article: **Steinberger, Jack**

From *The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide*

US physicist who, with Melvin Schwartz and Leon Lederman, was awarded the Nobel Prize for Physics in 1988 for the development of the use of neutrinos to study elementary particles and for the discovery of the muon neutrino.

Steinberger, Lederman, and Schwartz produced the world's first beam of neutrinos at the Brookhaven National Laboratory, Long Island, New York, in 1961, using a large proton accelerator as a source of neutrinos. A huge detector weighing 10 tonnes caught a small number of neutrinos out of the 100,000 billion neutrinos that flowed from the accelerator during the experiment. A 13-m-/43-ft- thick steel wall, built from a scrapped battleship, shielded the detector from unwanted particles, such as cosmic rays. Using the neutrino beam produced by this apparatus, Steinberger, Lederman, and Schwartz investigated the weak nuclear force and the quark structure of matter. They also found a new type of neutrino, called the muon neutrino, which is paired with and can be transformed into the muon particle. The other, previously recognized, neutrino is similarly paired with the electron and is called the electron neutrino.

Steinberger was born in Bad Kissingen, Germany. He left Germany in 1934 as a Jewish refugee and later studied chemistry at the University of Chicago. In 1942 he joined the radiation laboratory at the Massachusetts Institute of Technology (MIT). After the war, he studied physics at the University of Chicago under Enrico Fermi, Edward Teller, and others. After brief spells at the Institute for Advanced Study in Princeton, and the University of California at Berkeley, he moved to Columbia University, New York, in 1950. From 1968, Steinberger worked at CERN, the European particle physics laboratory near Geneva, Switzerland. In 1986 he retired from CERN and became part-time professor at the Scuola Normale Superiore in Pisa, Italy.

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