

Nobel Prize in Physics 1965

Nobel Foundation



Photo: Tomonaga Memorial Room, University of Tsukuba

Theoretical Physics

Awarded for

the fundamental work in quantum electrodynamics, with deep-ploughing consequences for the physics of elementary particles

Sin-itiro Tomonaga [1906 - 1979]

Doctor of Science
Professor Emeritus, Tokyo University of Education

Achievements

In 1943, Professor Tomonaga formulated the theory of quantum fields in a relativistically covariant form to establish the “super-many-time theory,” completing the quantum field theory. In the 1930s to 1940s, researchers of the quantum mechanics of fields faced a serious problem: Theoretical calculation of the electron mass gave infinity, inconsistent with the measurement. In 1946, Tomonaga solved this problem by the “renormalization theory.”

Profile

Sin-itiro Tomonaga was a classmate of Hideki Yukawa (see p.9) at Kyoto Imperial University and he stayed on as an assistant for three years at the University, upon completion of his bachelor’s degree. In 1965, Tomonaga was awarded the Nobel Prize in Physics for his fundamental work in quantum electrodynamics, which greatly enhanced understanding of the physics of elementary particles.

Timeline

1929	Graduated from Kyoto Imperial University Faculty of Science
1937	Studied in Leipzig, Germany
1939	Received Doctor of Science from Tokyo Imperial University
1941	Professor, Tokyo University of Arts and Science
1951	Professor, Tokyo University of Education (-1969)
1951	Visited the Institute of Advanced Study, USA
1955	Established the Institute of Particle and Nuclear Studies at the University of Tokyo
1956	President, Tokyo University of Education (-1961)
1963	President, Science Council of Japan (-1969)
1969	Retired from Tokyo University of Education and entitled Professor Emeritus

Other Awards and Prizes (selected)

1948	Japan Academy Prize, the Japan Academy, Japan
1952	Order of Culture, Japan
1964	Lomonosov Gold Medal, Russian Academy of Sciences, Russia
1976	Grand Cordon of the Order of the Rising Sun, Japan

Sin-itiro Tomonaga