



## Ernest Walton: Nobel Prize in Physics 1951



Ernest Walton



Ernest Walton was born at Dungarvan, on the south coast of Ireland on October 6th, 1903. In 1915 he began studying at the Methodist College, Belfast, where he excelled in mathematics and science, and in 1922 he entered [Trinity College, Dublin](#). He graduated in 1926 with first class honours in mathematics and physics. He went on to receive his M.Sc. degree in 1927, and in the same year, he received a scholarship to work in the [Cavendish Laboratory](#), Cambridge, for [Lord Rutherford](#). He studied indirect methods for producing fast particles, working on the linear accelerator and on what was later to become known as the betatron.

He worked on the direct method of producing fast particles by the use of high voltages, in collaboration with [Sir John Cockcroft](#). This was the turning point in his life. They built an apparatus, known as the Cockcroft-Walton Machine, which could show that various light elements could be disintegrated by bombardment with fast protons. This made it possible to disintegrate the nucleus of the lithium atom by bombardment with accelerated protons, and identify the products as helium nuclei. Their pioneering work on nuclei earned Walton the Nobel Prize in Physics 1951 (together with Cockcroft), "for their pioneer work on the transmutation of atomic nuclei by artificially accelerated atomic particles".

Walton was Clerk Maxwell Scholar at Cambridge from 1932 to 1934 when he returned to Trinity College, Dublin as a Fellow. He was appointed Erasmus Smith's Professor of Natural and Experimental Philosophy in 1946, and in 1960 he was elected Senior Fellow of Trinity College, Dublin. He was awarded the Hughes Medal, jointly with Sir John Cockcroft, by the Royal Society of London in 1938.

Walton married Freda Wilson in 1934 and they had two sons and two daughters, Alan, Marian, Philip, and Jean. He died in 1995. His son Alan is currently working in the Physics and Chemistry of Solids Group at the Cavendish Laboratory.