



Dennis Gabor

Born 5 June [Budapest, Hungary](#)

Died 9 February 1979 (aged 78) [London, England](#)

Fields [Electrical engineering](#)

Institutions [Imperial College London](#) [British Thomson-Houston](#) [Alma mater](#)

[Technical University of Berlin](#)

[Technical University of Budapest](#)

Known for Invention of [holography](#)

Notable awards [Nobel Prize in Physics](#) (1971) [IEEE Medal of Honor](#) (1970)

Dennis Gabor studied at the Technical University of Budapest. Dénes studied in Germany, at the Charlottenburg Technical University in Berlin. His career started when , he analyzed the properties of high voltage electric transmission Studying the fundamental processes of the oscillograph, Gabor was led to other electron-beam devices such as electron microscopes and TV tubes. He eventually wrote his Ph.D. thesis concerning the cathode ray tube in 1927, and worked on plasma lamps.

Having fled from Nazi Germany in 1933, Gabor was invited to Britain to work at the development department of the British Thomson-Houston company in Rugby, Warwickshire. During his time in Rugby, he met Marjorie Butler, and they married in 1936. It was while working at British Thomson-Houston that he invented holography, in 1947.

Gabor's research focused on electron optics, which led him to the invention of holography. The basic idea was that for perfect optical imaging, the total of all the information has to be used; not only the amplitude, as in usual optical imaging, but also the phase. In this manner a complete holo-spatial picture can be obtained. Gabor published his theories of optical imaging and holography in a series of papers between 1946 and 1951.

Gabor also researched how human beings communicate and hear; the result of his investigations was the theory of "granular synthesis", although Greek composer Iannis Xenakis claimed that he was actually the first inventor of this synthesis technique.

At the time Gabor developed holography, coherent light sources were not available, so the theory had to wait more than a decade until its first practical applications were realized, though he experimented with a heavily filtered mercury arc light source. The invention in 1960 of the laser, the first coherent light source, was followed by the first hologram, in 1963, after which holography became commercially available.

In 1948 Gabor moved from Rugby to Imperial College London, and in 1958 became professor of Applied Physics until his retirement in 1967. While spending much of his retirement in Italy, he remained connected with Imperial College as a Senior Research Fellow and also became Staff Scientist of CBS Laboratories, in Stamford, Connecticut; there, he collaborated with his life-long friend, CBS Labs' president Dr. Peter C. Goldmark in many new schemes of communication and display. He developed an interest in social analysis and published *The Mature Society: a view of the future* in 1972. Gabor wrote, "The best way to predict the future is to invent it."^[citation needed]

Following the rapid development of lasers and a wide variety of holographic applications , Gabor achieved acknowledged success and worldwide attention during his lifetime. He received numerous awards besides the Nobel Prize.

The International Society for Optical Engineering (SPIE) presents its Dennis Gabor award annually, "in recognition of outstanding accomplishments in diffractive wavefront technologies, especially those which further the development of holography and metrology applications."

The NOVOFER Foundation of the Hungarian Academy of Sciences annually presents its International Dennis Gabor Award, for young scientists researching in the fields of physics and applied technology.