

Brian David Josephson Biography

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Biography

Josephson was born in Cardiff, Wales, on January 4, 1940. He received his bachelor's degree (1960) and master's and doctoral degrees (both in 1964) from Trinity College, Cambridge. After graduation, he remained at Trinity as a research fellow until 1969. He became a reader in physics (1972) and finally, professor at Cambridge in 1974. During the 1965-1966 academic year, Josephson was assistant professor at the University of Illinois.

Josephson's earliest work involved a study of the Mössbauer effect. He predicted that temperature changes would affect the frequency of a Mössbauer line. His prediction was confirmed in experiments being conducted on Albert Einstein's red shift prediction.

In 1962, while still a graduate student, Josephson made the discovery for which he received the 1973 Nobel Prize for physics (along with Leo Esaki and Ivar Giaever). Josephson's work involved the process of electron tunneling at the junction of two superconducting materials. He tried to calculate what the behavior of electrons in the two materials would be. He found that, even in the absence of any voltage drop between the two materials, some flow of electrical current should occur across the junction. His calculations also suggested that this phenomenon should be affected by the presence of an external magnetic field.

The predicted effect was soon detected for DC current by P. W. Anderson and J. M. Rowell and for AC current by S. Shapiro. An arrangement of this type--two superconducting materials separated by a thin layer of insulating material--has become known as a *Josephson junction*. It has found extensive use in many solid state devices.

In the late 1960s, Josephson's interests shifted to an entirely new topic: the mind. He began to explore the question of how mystical and scientific views of the mind can be integrated with each other. He has said that he believes "the most basic concepts underlying intelligence were discovered in ancient times." He has followed the teachings of the Maharishi Mahesh Yogi in these studies. One product of this research was the book *Consciousness and the Physical World*, written in 1979, with V. S. Ramachandran.

Hubel continues to diverge from traditional physics, incorporating a large element of the paranormal and other unconventional studies in his research. Josephson remains at Cambridge University, although he is now a member of the Mind-Matter Unification Project within the Cavendish Laboratory's Theory of Condensed Matter Group.