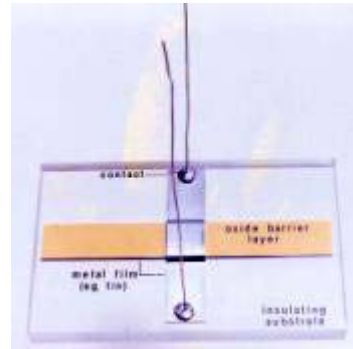




Brian Josephson: Nobel Prize in Physics 1973



Brian Josephson



Brian Josephson was born in Cardiff, Wales, on January 4th, 1940. He grew up in Cardiff and attended Cardiff High School. In 1957 he entered [Trinity College, Cambridge](#), specialising in physics. He received his BSc in 1960 and became a research student at the [Cavendish Laboratory](#), receiving his Ph.D. in 1964, publishing his first work while still an undergraduate.

While still an undergraduate, Josephson became interested in superconductivity, and he explored the properties of a junction between two superconductors that later came to be known as a Josephson junction. Josephson extended the earlier work of Esaki and Giaever in tunneling, the phenomenon by which electrons functioning as radiated waves can penetrate solids. He showed theoretically that tunneling between two superconductors could have very special characteristics, for example, flowing across an insulating layer without the application of a voltage. If a voltage is applied, the current stops flowing and oscillates at high frequency. This is now known as the Josephson effect. Experimentation confirmed Josephson's theory, and its confirmation in turn reinforced the earlier theories of superconductor behaviour. He received the Nobel Prize in Physics 1973, "for his theoretical predictions of the properties of a super-current through a tunnel barrier, in particular those phenomena which are generally known as the Josephson effects"

By 1980, researchers at IBM had assembled an experimental computer switch structure applying Josephson's discoveries with superconductors. This improved switching speeds from 10 to 100 times faster than those of conventional silicon-based chips, increasing data processing capabilities by a vast amount.

Josephson was elected a fellow of Trinity College in 1962. He was a visiting professor at the University of Illinois in 1965-66. In 1967 he returned to Cambridge as an assistant director of research. He became a Professor of Physics in 1974. Eventually Josephson grew interested in the discovery of the cross-relevance between Eastern mysticism and scientific understanding. Over the past 20 years, he has published many papers about Mind-Matter relationships. Currently, he is working at the Cavendish Laboratory, Cambridge, and he is the director of the [Mind-Matter Unification Project](#).