

Ivar Giaever

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Ivar Giaever (Norwegian: *Giaever*, IPA: [ˈiːvar ˈjeːvər]; born April 5, 1929) is a Norwegian-American physicist who shared the Nobel Prize in Physics in 1973 with Leo Esaki and Brian Josephson "for their discoveries regarding tunnelling phenomena in solids".^[1] Giaever's share of the prize was specifically for his "experimental discoveries regarding tunnelling phenomena in superconductors".^[2] Giaever is an institute professor emeritus at the Rensselaer Polytechnic Institute, a professor-at-large at the University of Oslo, and the president of Applied Biophysics.^[3]

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Early life

Giaever earned a degree in mechanical engineering from the Norwegian Institute of Technology in Trondheim in 1952. In 1954, he emigrated from Norway to Canada, where he was employed by the Canadian division of General Electric. He moved to the United States four years later, joining General Electric's Corporate Research and Development Center in Schenectady, New York, in 1958. He has lived in Niskayuna, New York, since then, taking up US citizenship in 1964. While working for General Electric, Giaever earned a Ph.D. degree at the Rensselaer Polytechnic Institute in 1964.^[4]

The Nobel Prize

The work that led to Giaever's Nobel Prize was performed at General Electric in 1960. Following on Esaki's discovery of electron tunnelling in semiconductors in 1958, Giaever showed that tunnelling also took place in superconductors, demonstrating tunnelling through a very thin layer of oxide surrounded on both sides by metal in a superconducting or normal state.^[5] Giaever's experiments demonstrated the existence of an energy gap in superconductors, one of the most important predictions of the BCS theory of superconductivity, which had been developed in 1957.^[6] Giaever's experimental demonstration of tunnelling in superconductors stimulated the theoretical physicist Brian Josephson to work on the phenomenon, leading to his prediction of the Josephson effect in 1962. Esaki and Giaever shared half of the 1973 Nobel Prize, and Josephson received the other half.^[1]

Giaever's research later in his career was mainly in the field of biophysics. In 1969, he researched Biophysics for a year as a fellow at Clare Hall, University of Cambridge, through a Guggenheim Fellowship, and he continued to work in this area after he returned to the US.^[4]

Ivar Giaever	
 	
Born	April 5, 1929 Bergen, Norway
Nationality	Norway, United States (1964)
Fields	Physics
Alma mater	Norwegian University of Science and Technology, Rensselaer Polytechnic Institute
Known for	Solid-state physics
Notable awards	Oliver E. Buckley Condensed Matter Prize (1965) Nobel Prize in Physics (1973)

He has co-signed a letter from over 70 Nobel laureate scientists to the Louisiana Legislature supporting the repeal of Louisiana's Louisiana Science Education Act.^[7]

Other prizes

In addition to the Nobel Prize, he has also been awarded the Oliver E. Buckley Prize by the American Physical Society in 1965, and the Zworykin Award by the National Academy of Engineering in 1974.^[3]

In 1985 he was awarded an honorary degree, doctor honoris causa, at the Norwegian Institute of Technology, later part of Norwegian University of Science and Technology.^[8]

He is a member of the Norwegian Academy of Science and Letters.^[9]

Global warming

Giaever has repeatedly professed skepticism of global warming, calling it a "new religion."^{[10][11][11][12]}

In a featured story in Norway's largest newspaper, *Aftenposten*, 26 June 2011, Giaever stated, "It is amazing how stable temperature has been over the last 150 years."^[13]

On 13 September 2011, Giaever resigned from the American Physical Society over its official position. The APS Fellow noted: "In the APS it is ok to discuss whether the mass of the proton changes over time and how a multi-universe behaves, but the evidence of global warming is incontrovertible?"^[14]

As part of the 62nd Lindau Nobel Laureate Meeting, Giaever commented on the significance of the apparent rise in temperature when he stated, "What does it mean that the temperature has gone up 0.8 degrees Kelvin: probably nothing." Referring to the selection of evidence in his presentation, Giaever stated "I pick and choose when I give this talk just the way the previous speaker (Mario Molina) picked and chose when he gave his talk." Giaever concluded his presentation with a pronouncement: "Is climate change pseudoscience? If I'm going to answer the question, the answer is: absolutely."^{[15][16]}

Giaever repeated his claims in a speech at the same place in 2015,^[17] referring to data on global average temperature (GISTEMP) published amongst others by NASA^[18] that show global average surface temperature has risen less than 1 K in 140 years,^[19] and not risen at all for the years from 2000 - 2014.^[20] A main point of Giaever's speech was discussing reliability of the statistical calculation of this temperature with respect to the quite inhomogeneous spatial distribution of measurement locations over the globe, especially the poor coverage in the southern hemisphere.^[21]

Giaever is currently a science advisor with the American, conservative, and libertarian think tank The Heartland Institute.^[22]

Personal life

Giaever married his childhood sweetheart Inger Skramstad in 1952. They have four children: John, Anne, Guri and Trine. Giaever is an atheist.^[23]

Selected publications

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External links

- Interview with Professor Ivar Giaever (<http://nobelprize.org/mediaplayer/index.php?id=713>), from the Official Nobel Prize Website (<http://www.nobelprize.org>)
- Biography and Bibliographic Resources (<http://www.osti.gov/accomplishments/giaever.html>), from the Office of Scientific and Technical Information, United States Department of Energy
- University of Oslo website about Ivar Giaever (<https://www.uio.no/english/about/facts/nobel-prize/ivar-giaever.html>)
- Family genealogy (<http://vestraat.net/TNG/getperson.php?personID=I100547&tree=IEA>)

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