

2015 Bardeen Prize awarded to Vinay Ambegaokar

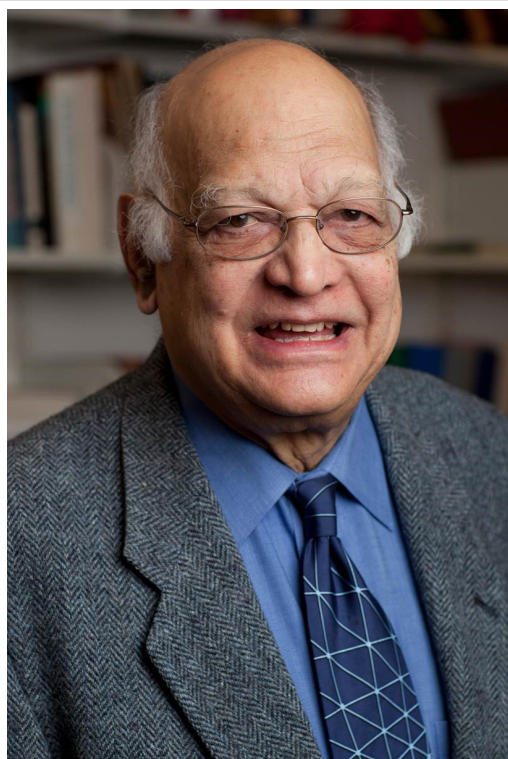
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Dr. Vinay Ambegaokar, Goldwin Smith Professor of Physics Emeritus at Cornell University's Laboratory of Atomic and Solid State Physics in Ithaca New York, is the 2015 John Bardeen Prize recipient. Ambegaokar will accept the award on August 24 during the 11th International Conference on Materials and Mechanisms of Superconductivity, to be held in Geneva, Switzerland.

Theoretical condensed-matter physicist Vinay Ambegaokar has been selected for the 2015 John Bardeen Prize, in recognition of his theoretical research that substantially advanced our understanding of certain unique and fundamental features of superconductivity. Ambegaokar is Goldwin Smith Professor of Physics Emeritus at Cornell University's Laboratory of Atomic and Solid State Physics (LASSP) in Ithaca New York.

The award citation reads "for his contributions to the statics, dynamics and kinetics of Josephson junctions and nanowires."

The prize will be presented to Ambegaokar on August 24 during the 11th International Conference on Materials and Mechanisms of Superconductivity (M2S), in Geneva, Switzerland.

Ambegaokar received his bachelor of science and master of science degrees in mechanical engineering from the Massachusetts Institute of Technology in 1956 and his doctoral degree in theoretical physics from the Carnegie Institute of Technology in 1960. He completed a postdoctoral research appointment at the Bohr Institute in Copenhagen, Denmark prior to joining the faculty at Cornell University in 1962.

In June 1963, just a year after Brian Josephson—then a Cambridge graduate student—applied the BCS theory of superconductivity to predict a phenomenon that would come to be known as the Josephson current, Ambegaokar, with his student Alexis Baratoff, published the first calculation of the temperature dependence of the Josephson current. Interestingly, Ambegaokar had originally set out to disprove Josephson's calculations—after learning of John Bardeen's skepticism over the same—but Ambegaokar's calculations agreed with Josephson's. Prior to publishing what he found, Ambegaokar corresponded with Bardeen about this finding, and received a letter from Bardeen that called his calculation elegant but incorrect. The Josephson current was experimentally detected later that summer, and Bardeen conceded.

In his long career, Ambegaokar produced seminal theoretical work in condensed matter and low temperature physics, studying homogenous films and wires, metallic films, and quantum dots. Prior to his retirement in July 2007, Ambegaokar enjoyed several visiting appointments, including at Bell Laboratories; North American-Rockwell Science Center; Brookhaven National Laboratory; IBM Watson Research Center; Institute for Theoretical Physics at University of California, Santa Barbara; Collège de France; University of Karlsruhe; NORDITA, Copenhagen; University of Florida; All Souls College, Oxford; Bohr Institute, Copenhagen; and Raman Research Institute, Bangalore.

Among his professional honors, Ambegaokar was selected an Alfred P. Sloan Fellow from 1965 to 1967. In 1971, he received the medal of the University of Helsinki, Finland, after serving as the director of the Research Institute for Theoretical Physics at the university from 1969 to 1971. He was elected a Fellow of the American Physical Society in 1979 and a J. S. Guggenheim Fellow in 1983/84. In 1986, he received the Medal of the Collège de France. He served as a Humboldt Foundation Senior U.S. Scientist in 1986 and 1990.

The John Bardeen Prize was established in 1991 by the organizers of the M2S Conference, in honor of Dr. John Bardeen, the only person to have won the Nobel Prize in Physics twice, first for his part in the invention of the transistor, then for his part in developing the theory of superconductivity. The prize is presented triennially at the conference to a member of the international superconductivity research community for theoretical work that has provided significant insights on the nature of superconductivity and has led to verifiable predictions.

The list of previous distinguished winners includes four Nobel laureates: the late Vitaly L. Ginzburg of the Moscow Technical Institute of Physics; Alexei A. Abrikosov of Argonne National Laboratory; Anthony J. Leggett, the John D. and Catherine T. MacArthur Professor of Physics at the University of Illinois at Urbana-Champaign; and Philip Anderson, the Joseph Henry Professor of Physics, Emeritus, at Princeton University.

The award is sponsored by the Department of Physics of the University of Illinois at Urbana-Champaign and by the Friends of Bardeen.

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