



Indian Institute of Technology Kanpur

Department of Physics

Professor Jagadishwar Mahanty Distinguished Lecture Series in Physics

The Eighth Lecture in the series will be delivered
by
Professor Vinay Ambegaokar

Physics Department
Cornell University, Ithaca, NY

on

" Entropy and Time "

Date: **13.03.2013 (Wednesday)**

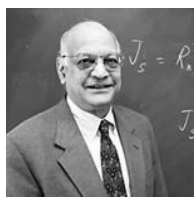
Venue: **Outreach Auditorium**

Time: **05:30 PM** (Tea will be served at 5 PM in the Auditorium foyer)

ABSTRACT

The emergence of a direction of time in elementary statistical mechanics from an underlying motion-reversal invariant dynamics will be discussed in a tutorial way. The urn model of P. and T. Ehrenfest, generalized to finite temperature, will be used to illustrate the main points. The manner in which time-reversal symmetry is preserved and the role of initial conditions will be emphasized. The transformation of the principle of no decrease of entropy for an isolated system to the principle of no increase of free energy for a system at fixed temperature will be demonstrated using simple analytic and numerical methods, including reliable estimates of errors.

About the speaker



Prof. Vinay Ambegaokar is currently the Goldwain Smith Professor of Physics Emeritus, Cornell University. He did his B.S., S.M., 1956, Mechanical Engineering Honors Program, Massachusetts Institute of Technology, Ph.D., 1960, Theoretical Physics, Carnegie Institute of Technology and was a Ford Foundation Research Associate, Bohr Institute, Copenhagen, Denmark, 1960-62.

He was a Professor, Physics, Cornell University, 1962-2007, was Director, Research Institute for Theoretical Physics, University of Helsinki, Finland, 1969-1971 and had visiting appointments at: Bell Laboratories, North American-Rockwell Science Center, Brookhaven National Laboratory, IBM Watson Research Center, Institute of Theoretical Physics, UCSB; College de France; University of Karlsruhe; NORDITA, Copenhagen; University of Florida; All Souls College, Oxford; Bohr Institute, Copenhagen. Awards of Prof. Ambegaokar include Alfred P. Sloan Fellow, 1965-1967; Medal of the University of Helsinki, 1971; Fellow, American Physical Society, 1979; J. S. Guggenheim Fellow, 1983-84; Medal of the College de France, 1986; Humboldt Foundation Senior U. S. Scientist, 1986, 1990.

His general interests are in the area of low temperature and condensed matter physics. Current work focuses on some aspects of disordered metallic conductors, on quantum information and its loss through 'decoherence', and on mathematical ways of describing these phenomena.

Prof. Jagadishwar Mahanty Lecture Series in Physics



Prof. Jagadishwar Mahanty Lecture Series in Physics has been instituted by Dr. Siddharth Mahanty in memory of his father, Prof. Jagdishwar Mahanty, who was a faculty member of the Physics Department at IIT Kanpur from 1961-1972. He made important contributions to Condensed Matter Physics, particularly, to the study of many body physics, lattice dynamics, van-der-Waals interactions and electronic structure of solids.

Prof. Mahanty was born on 20th July 1932 in Puri, Orissa. After his M. Sc. in Physics from Calcutta University, he worked for several years at the National Physical Laboratory. In 1956, he went to the University of Maryland, USA for his doctoral degree. After completing his Ph.D. in 1960 he joined Panjab University, Chandigarh and subsequently joined the Physics department of IIT Kanpur in 1961. He was instrumental in shaping the Physics department during its infancy. He was the Head of the Physics department from 1967 to 1972. In 1971, Prof. Mahanty decided to concentrate on his own research and gave up the administrative responsibility. In 1972, he joined the prestigious Australian National University and superannuated from there in July 1995 due to ill health.

Prof. Mahanty was an excellent physicist with a very modest and kind personality. His helpful nature to both students and colleagues was a great asset of his character. He was a warm and caring person who is greatly missed by his family and friends.