

Professor Jagadishwar Mahanty Distinguished Lecture Series in Physics

Date: 18th April, 2019

Time: 5.30 pm (Tea at 5.00 pm)

Venue: Outreach Auditorium, IIT Kanpur

Title: Harnessing Chaos

Abstract: We discuss how understanding the nature of chaotic dynamics allows us to control and manipulate these complex systems. A controlled chaotic system can then serve as a versatile pattern generator that can be used for a range of applications. Specifically we will discuss the application of controlled chaos to the design of novel computational paradigms. Further we indicate how one can exploit the interplay of nonlinearity and noise to obtain more consistent and robust logic operations. We also suggest how these concepts may be applied to systems ranging from electronic circuits to Nanomechanical oscillators.



Prof. Jagadishwar Mahanty (1932-1995)

Prof. Jagadishwar Mahanty Lecture Series in Physics has been instituted by Dr. Siddharth Mahanty in memory of his father, Prof. Jagadishwar Mahanty, who was a faculty member of the Physics Department at IIT Kanpur from 1961-1972. Prof. Mahanty 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 in 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 Physics department from 1967 to 1972.

In 1971, Prof. Mahanty decided to concentrate on his own research and gave up 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.



Speaker:

Prof. Sudeshna Sinha

Dept of Physics, IISER Mohali

Prof. Sudeshna Sinha obtained her integrated 5-years Masters degree in Chemistry from IIT Kanpur and was awarded the departmental General Proficiency Prize. She went on to do her PhD at the Tata Institute of Fundamental Research, Mumbai, followed by post-doctoral work at the International Centre for Theoretical Physics, Trieste. On her return to India, she was a faculty member at the Indian Institute of Astrophysics, Bangalore and then at the Institute of Mathematical Sciences, Chennai, and is currently a Professor at the Indian Institute of Science Education and Research, Mohali. She works in the field of nonlinear science, chaos and complex systems, and her large body of work has been highlighted in news features ranging from Nature News and Views and Scientific American, to the Economist and MIT's Technology Review. She is a recipient of the Birla Award for Physics and was conferred the J.C. Bose National Fellowship. She has been elected a Fellow of the Indian Academy of Sciences (IAS), Bangalore, the Indian National Science Academy (INSA), New Delhi and The World Academy of Sciences (TWAS), Trieste.



Organized by
Department of Physics
IIT Kanpur