



भारतीय प्रौद्योगिकी संस्थान मंडी

INDIAN INSTITUTE OF TECHNOLOGY MANDI

Institute Colloquium

“Harnessing Chaos”



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05:00PM



**Auditorium, North
Campus**

Harnessing Chaos

Prof. Sudeshna Sinha

Indian Institute of Science Education and Research Mohali

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.

Biosketch:

Prof. Sudeshna Sinha obtained her undergraduate degree from IIT Kanpur and then went on to do her PhD from TIFR, Mumbai. She has been in the faculty of Indian Institute of Astrophysics, The Institute of Mathematical Sciences, and is currently a professor at the Indian Institute of Science Education and Research Mohali, where she has also served as the Deputy Director. She works in the field of nonlinear science, chaos and complex systems. Her large body of work, spanning over a hundred papers and several patents, has been highlighted in news features ranging from Nature News & 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. She serves in the Editorial Boards of several leading journals, including Chaos (AIP), Communications in Nonlinear Science and Numerical Simulation (Elsevier) and Proceedings of the Royal Society A (Royal Society, UK).