



INDIAN INSTITUTE OF TECHNOLOGY INDORE

Department of Mathematics

Lecture Series on

Nonlinear Dynamics and Applications

Sponsored by SERB

February 13-16, 2023



About IIT Indore

IIT Indore, located in Madhya Pradesh, is an institute of national importance established by the Government of India in 2009. IIT Indore has positioned itself as a vibrant centre for outstanding research. Multidisciplinary research at IIT Indore has been recognized internationally with active participation in several international projects and collaborations with foreign institutions. The Department of Mathematics introduced Ph.D. and M.Sc. programmes in 2010 and 2015, respectively. The department has several projects funded by national and international agencies. Well-equipped DST-funded Bhaskaracharya Mathematics Laboratory and Brahmagupta Library play a significant role in teaching and learning. The department is actively conducting several events like weekly seminars, the Ramanujan-Hardy lecture series, and national and international workshops and conferences.

About the Lecture Series

Dynamic equations have become very popular in many areas of science and engineering. Stability, bifurcations, and long-term behaviour of continuous dynamical systems and maps play a crucial role in modeling and interpreting real world problems. In this lecture series, the eminent speakers will talk about the stability of fractional order difference equations with the help of Z-transform, and some application of such equations will be addressed. A detailed discussion of newly emerged border-collision bifurcation arising from piecewise smooth dynamical systems will be discussed. Another important focus will be to implement simple principles of bifurcation theory to interpret ecological data in novel ways. The lectures shall also explore adaptive higher-order coupling interactions among oscillators, which lead to a new era beyond the pairwise interactions of oscillators. The main objective of this event is to showcase the recent developments in the field and highlight possible research directions.

Speakers

- ❖ [Prof. Sachin Bhalekar](#)
(University of Hyderabad)
- ❖ [Prof. Sarika Jalan](#)
(IIT Indore)
- ❖ [Prof. Soumitro Banerjee](#)
(IISER Kolkata)
- ❖ [Prof. Vishweshia Guttal](#)
(IISc Bangalore)

Important Information

Lecture Timings: 6:00PM-7:00PM
(Indian Standard Time)
Registration (Free) Link:
<https://forms.gle/yroiHhBxmVGY4h5D8>
Regn. Deadline: 6th February, 2023
Selection: 7th February, 2023
Event Mode: Online
Contact: Dr. Bapan Ghosh (Convenor)
Department of Mathematics
IIT Indore
Email: keshab.bapan@iiti.ac.in