

## ICTS Postdoc/Graduate Student Seminar Series

Title : State Space Reconstruction based on Data – Global and Local Modelling Methods

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Date : Friday, December 9, 2016

Time : 11:15 AM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : Reconstructing a state space of a dynamical system from a finite set of observations of the system is a key area of study in Nonlinear Dynamics. Here, a co-ordinate system is identified from the observed data. Commonly used co-ordinates for embedding are time delays and time derivatives. If the dimension for embedding is sufficiently large, the reconstructed state space has a one-one correspondence with the original state space of the system. Thus the reconstructed state space can be used to analyse the dynamic and geometric features of the system under study. Broadly, these modeling techniques can be classified as global and local methods. Global models focus on finding equations for the global manifold, whereas local models find charts that approximate local neighborhoods of the manifold. I will discuss tools that are used in such modeling and specify a few applications in case of numerical and real data.

Note: This will be an ongoing biweekly seminar series (Fridays, 11:15 am) by the ICTS postdocs and graduate students