

## **ICTS Seminar**

**Title** : Light-cone spreading of perturbations and the butterfly effect in a classical Heisenberg chain and block analysis to calculate length-scales in super-cooled liquids

**Speaker** : Saurish Chakrabarty, ICTS-TIFR, Bangalore

**Date** : Wednesday, December 13, 2017

**Time** : 3:00 PM

**Venue** : Emmy Noether Seminar Room, ICTS Campus, Bangalore

**Abstract** : I will present two of the problems I have worked on during my stay here in ICTS. First, we study the Heisenberg spin chain and find that localized perturbations spread ballistically even though the local spin dynamics is diffusive. We quantify the growth of these perturbations using the Lyapunov exponent and its spread using the butterfly speed. These features have been of recent interest in some quantum systems and we show that many of the results which have been discussed for quantum systems hold for classical systems as well. In the second part of my talk, I will talk about the block analysis technique to obtain static and dynamic length scales in super-cooled liquids. This method is useful in obtaining length-scales in super-cooled liquids using simulation data at one system size. It can also be used for the analysis of experimental data.