

ICTS Seminar

- Title : Frenetic aspects of nonlinear response: theory and experiment
- Speaker : Urna Basu, International School for Advanced Studies, Italy
- Date : Monday, July 24, 2017
- Time : 4:00 PM
- Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore
- Abstract : Away from thermal equilibrium, the response of a statistical mechanical system to an external stimulus is not only governed by dissipation and depends explicitly on dynamical details of the system. We illustrate this so called frenetic contribution in second order around equilibrium in different physical examples. We also specifically discuss the example of a colloidal particle being subjected to an anharmonic potential where the nonlinear response theory is experimentally verified. However, the explicit dependence on the dynamical details makes application to complex systems difficult. We show that this shortcoming can be overcome using a coarse-graining approach where near-equilibrium measurements can be used to predict far from equilibrium properties (i.e., second order responses) for a small number of tractable degrees of freedom