

## ICTS Seminar

Title : Statistical mechanics of granular solids and dense suspensions

Speaker : Kabir Ramola, Brandeis University, USA

Date : Tuesday, March 13, 2018

Time : 11:30 AM

Venue : Madhava Lecture Hall, ICTS Campus, Bangalore

Abstract : The jamming of soft particles has been used as a paradigmatic model of granular and glassy systems, active matter, and biological tissues. The macroscopic nature of these particles renders them robust to thermal agitations, and are hence classified as 'athermal'. Although theoretical models of soft spheres provide the building blocks with which to understand such materials, developing statistical mechanical theories for such systems represents a new challenge. As these materials are driven out of equilibrium, they display several novel transitions such as discontinuous shear thickening, an abrupt change in viscosity with increasing shear rate. In this talk I will outline the extension of statistical mechanics tools to the study of athermal systems such as granular solids and dense non-Brownian suspensions. I will also describe recent results on the rheology of dense suspensions based on correlations in a dual space representing forces.