BOSE COLLOQUIUM

Friday, 5 September 2014 4:00 pm Fermion

Speaker:

Srikanth Sastry

Professor, Theoretical Sciences Unit, JNCASR, Bangalore

Title:

Jamming in sphere packings

Abstract:

The transition from a fluid to a structurally arrested state, upon changing temperature, pressure or applied external stress, is of interest in a wide range of systems, such as glass forming liquids, driven granular matter near jamming and polymer solutions that undergo gelation. Jamming, a process by which mescoscopic particle assemblies fail to fluidize under applied stress, has been extensively studied, using hard and soft sphere packings as model systems, and corresponding experimental analogs. Among the unresolved aspects of jamming, as well as other structural arrest processes, is the change in structure associated with the dynamical arrest transition and its role. In spite of the extensive study of the statistical geometry of sphere packings, some remarkable aspects of structure near jamming remain incompletely understood. Some of the key themes regarding the geometry of jammed sphere packings will be presented, including new observations and insights from the analysis of void space in a variety of jammed systems including frictionless sphere packings, shear jammed hard sphere packings, jammed configurations in the presence of attractive interactions, etc.
