**Tata Institute of Fundamental Research**
Survey No. 36/P, Gopanpally Village, Serilingampally, Ranga Reddy Dist., Hyderabad – 500 046

# Seminar

## Fluctuations, correlations, and stability in crystalline and amorphous packings

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### TIFR, Hyderabad

In this talk, I will discuss theoretical as well as numerical results related to correlations, fluctuations, and stability in athermal systems. I will focus on jammed near-crystalline packings composed of frictionless particles interacting through short-ranged Harmonic as well as long-ranged Lennard-Jones interactions in both two and three dimensions. I will describe exact results related to position and force fluctuations as well as correlations in local stresses induced by microscopic disorder in such near-crystalline systems. I will also characterise the stability of these systems through their vibrational density of states, as well as the distribution of first contact breaking events when subjected to strain. Finally, I will present a universal characterisation of stress correlations in such systems, spanning an entire range of disorder from crystalline to fully amorphous packings.

***Monday, Oct 21st 2024***

***14:30 Hrs (Tea / Coffee 14:15 Hrs)***

***Auditorium, TIFR-H***