ICTS | INTERNATIONAL CENTRE for THEORETICAL SCIENCES

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Synopsis Seminar

Title : Gap statistics and density crossovers in confined particles with power-law interactions

Speaker : Saikat Santra (ICTS -TIFR, Bengaluru)

Date : Friday, 28th June 2024

Time : 2:00 PM (IST)

Abstract : Statistical physics is essential in understanding the macroscopic properties of many-particle systems. In this talk, I will discuss density and its fluctuations in the one dimensional Reisz gas consisting of particles interacting with each other via power-law interactions and confined in a harmonic trap. In the first part of my talk, I will discuss fluctuations by examining gap statistics at thermal equilibrium. Often due to screening effects, particles cannot interact with every other particle, which restricts the interaction range to be finite. Next, I will discuss how the density of particles changes as the interaction range is modified. In the final part, I will move to a non-equilibrium setup in which I will consider the well-known Calogero-Moser system subjected to active noises. I will discuss the effect of activity on the density profiles of the particles.

Venue : Feynman Lecture Hall
Zoom link: https://icts-res-in.zoom.us/j/93582017406?pwd=rk0eW7WLwR5lRjyLIDhj0LGgiMxpgM.1
Meeting ID: 935 8201 7406
Passcode: 282829