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

Seminar

Non-equilibrium Quantum Matter: Aspects of Transport and Dynamics

Sourav Nandy

University of Regensburg, Germany

In this talk, I plan to discuss some recent progress in understanding certain aspects of quantum transport and dynamics of driven quantum systems.

The first part of the talk will focus on high-temperature spin transport in a near-integrable quantum spin chain. In particular, I shall present two striking examples of anomalous (non-diffusive) transport, namely super diffusion and sub diffusion. The overarching goal of this part is to provide insights into the robustness, emergence, and crossover of anomalous transport phenomena in quantum spin chains.

In the second part of the talk, I will turn to periodically driven (Floquet) systems as a representative example of continually driven quantum matter. Specifically, I plan to address the following three themes: i) application of machine learning in understanding Floquet system in both prethermal and heating regime, ii) fate of weak ergodicity breaking in Rydberg atom chains arising from quantum many-body scars under periodic driving.

Tuesday, Feb 10th 2026

16:00 Hrs (Tea / Coffee 15:45 Hrs)

Seminar Hall, TIFRH