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TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Condensed Matter and Statistical Physics Seminar

Title : Open system dynamics: Contraction, mixing and information transport

Speaker : Terrence George (TIFR-CAM)

Date : Tuesday, 22 September 2026

Time : 11:30 AM (IST)

Abstract : I will provide an introduction to both the physical and mathematical aspects in open system. I will first introduce the Markovian model for open quantum dynamics, and present an overview of the characterization of their steady-state properties. I will focus on both the case of time-independent as well as the more recently studied time dependent systems. I will then turn to the many-body setting, described by geometrically local Markovian dynamics. I will show how the locality structure can be used to derive precise bounds on both the speed of information transport through these systems, as well as on their circuit complexity. Next, I will turn to their equilibration properties and discuss the landscape of understanding mixing times in many-body models, rapid mixing and its robustness. Finally, I will overview the challenges in understanding open systems beyond the Markov approximation and understand their dynamical and mixing properties.

Venue : Emmy Noether Seminar Room

Zoom Meeting: <https://icts-res-in.zoom.us/j/92573092889?pwd=VUe256bIqObymEvmmiTYqjGgru7psh.1>

Meeting ID: 925 7309 2889

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