Quantum many body scars : a new route to break ergodicity

Dr. Bhaskar Mukherjee

S. N. Bose National Centre for Basic Sciences, Kolkata, India

Abstract

Ergodicity or chaos is ubiquitous in nature with very few interesting exceptions when a system exhibits periodic motion. One of the major goals of physics is to find such harmonies in the middle of utter chaos. In this seminar, I will talk about quantum many body scars (QMBS) which caused periodic revivals and absence of thermalization in a groundbreaking experiment recently. Since then, it has been one of the most active fields of research in non-equilibrium quantum matter. Ironically, the exact mechanism of scarring in the original Rydberg quantum simulator experiment has remained unclear. Is kinetic constraint (implemented via the Rydberg blockade mechanism) sufficient to generate QMBS, as thought initially ? In this talk, we will find an answer to this question. I will also discuss a richer class of non-ergodic phenomena induced by Floquet QMBS

Venue

PAMU Seminar Room

A.N. Kolmogorov Building, ISI, Kolkata

Date & Time

11th December, 2024
03:00 PM

Everyone is invited to attend