

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE

2A & 2B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032,

India

Seminar Notice

Org. by

School of Physical Sciences

Title:	Finite-depth quantum circuits and many-body localization
Speaker:	Arijeet Pal, University College London, U.K.
Date:	December 28, 2018 (Friday)
Time:	4:00 p.m.
Venue:	Physics Seminar Room - C406, 3rd Floor, Centenary Building, IACS
Abstract:	Dynamics of disordered, quantum many-body systems provide a classic physical setting for the breakdown of quantum ergodicity, known as many-body localization (MBL). In this novel out of equilibrium quantum phase, the many-body system acts as a local memory even in highly excited states which is characterized by an emergent integrability. Utilizing the local conservation laws I will present an efficient representation of unitary circuits approximating the full spectrum of MBL eigenstates. I will show how the approximating circuit can be used to construct the algebra of all the exact l-bit operators and probe their behaviour close to the MBL-thermal transition in one dimension. Furthermore, the circuit can be generalized to two dimensions to estimate the location of the "MBL transition" in the Bose-Hubbard model which was putatively observed in recent cold atomic experiments.

All are cordially invited to attend the seminar