

Seminar Notice

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Title:	Frustration induced quasi-many-body localization without disorder
Speaker:	Sayan Choudhury, Purdue University, USA
Date:	November 30, 2018 (Friday)
Time:	4:00 p.m.
Venue:	Seminar Room - C404, 3rd Floor, Centenary Building, IACS
Abstract:	Motivated by the question of whether disorder is a prerequisite for localization to occur in quantum many-body systems, we study a frustrated one-dimensional spin chain, which supports localized many-body eigenstates in the absence of disorder. When the system is prepared in an initial state with one domain wall, it exhibits characteristic signatures of quasi-many-body localization (quasi- MBL), including initial state memory retention, an exponentially increasing lifetime with enlarging the size of the system, a logarithmic growth of entanglement entropy, and a logarithmic light cone of an out-of-time-ordered correlator. We further show that the localized many-body eigenstates can be manipulated as pseudospin-1/2s and thus could potentially serve as qubits. Our findings suggest a new route of using frustration to access quasi-MBL and preserve quantum coherence.

All are cordially invited to attend the seminar