PAUL SCHERRER INSTITUT

PSI

CONDENSED MATTER THEORY SEMINAR

Many-body localized phase of bosonic dipoles in a tilted optical lattice

Dr. Anirban Dutta, Indian Institute of Science

Tuesday, Apr 02, 2019, 11:00-12:00

WHGA/121 (PSI-West)

Abstract:

I shall discuss the ground state phase diagram and demonstrate the presence of a many-body localized (MBL) phase for an experimentally realizable one-dimensional (1D) constrained dipole boson model in the presence of an Aubry-André (AA) potential whose strength λ_0 can be tuned to precipitate an ergodic-MBL transition. I shall discuss the signature of such a transition in the quantum dynamics of the model by computing its response subsequent to a sudden quench of λ_0. I shall also show that the MBL and the ergodic phases can be clearly distinguished by the study of post-quench dynamics and provide an estimate for minimal time up to which experiments need to track the response of the system to confirm the onset of the MBL phase. Shall suggest experiments which can test our theory.

Contact: Markus Müller, WHGA/136, Markus.Mueller@psi.ch, tel: 056 310 44 30