
Seminar

Synthetic quantum matter under a microscope

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Cold atomic systems are versatile tools to experimentally investigate strongly correlated quantum many body systems at extreme low temperatures. Using our bosonic quantum gas microscope set up we create arbitrary optical potentials to manipulate coherent dynamics, and perform atom number and site resolved detection in a gas of Rb-87 atoms in an optical lattice. I will be discussing some of our recent experiments where we build a few body system one atom at a time, and directly observe some of the building blocks of the physics of strongly correlated matter, such as correlated quantum walks on a lattice, fermionization of strongly interacting bosons in one dimension, and real space Bloch oscillations of a pair of atoms bound by strong repulsive interaction.

Thursday, July 10th 2014

11:30 AM (Tea/Coffee at 11:15 AM)

Seminar Hall, TCIS