INSTITUTE SEMINAR

Friday, 26 September 2014 4:00 pm Fermion

Speaker:

Rajdeep Sensarma
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Title:

Novel Phenomena in Cold Atoms: Ferromagnetic Response of a "High Temperature" Quantum Antiferromagnet

Abstract:

Precise implementation of quantum many-body lattice Hamiltonians with ultracold atoms has provided a novel platform to study strongly interacting many-body physics relevant to condensed matter systems like high temperature superconductors. One of the main goals of cold atom experiments now is to observe antiferromagnetic spin ordering of fermions in a repulsive Hubbard model. In this talk I will show that a closely related system, called the ionic Hubbard model, provides a better chance of observing antiferromagnetic ordering in fermions. I will also discuss a strange phenomenon, that the antiferromagnetically ordered system actually shows a ferromagnetic dynamic response in a wide temperature range.
