

Joint CQSE and CASTS Seminar

Weekly Seminar
Dec. 14, 2012 (Friday)

TIME Dec. 14, 14:30 ~ 15:30
TITLE Exploring Universal Quantum Physics with few- and many-body atomic systems
SPEAKER Prof. Cheng Chin
James Franck institute and Department of Physics, University of Chicago
PLACE Rm716, CCMS & New Physics Building, NTU

Abstract

Recent cold atom researches are reaching out far beyond the realm that was conventionally viewed as atomic physics. Many long standing issues in other physics disciplines or in Gedanken-experiments are nowadays common targets of cold atom physicists. Two prominent examples will be outlined in this talk: BEC-BCS crossover and Efimov physics. Here, cold atoms are employed to emulate electrons in superconductors, and nucleons in nuclear reactions, respectively.

The ability to emulate exotic or thought systems using cold atoms stems from the precisely determined, simple, and tunable interaction properties of cold atoms. New experimental tools have also been devised toward an ultimate goal: a complete control and a complete characterization of a few- or many-body quantum system. We are tantalizingly close to this major milestone, and will soon open new venues to explore new quantum phenomena that may (or may not!) exist in scientists' dreams.

