School of Nano Science

School of PHYSICS

IPM Condensed Matter & Statistical Physics Group

Weekly Seminar

quantum optomechanics: From gravitational wave detectors to quantum memories

Invited Speaker:

Dr. Sareh Shahidani

school of nano-science, ipm

Abstract:

Cavity optomechanics which is a cross field of quantum optics and nano-science focuses on the radiation pressure interaction between nano-mechanical oscillators and electromagnetic field. This interaction can bring massive mechanical oscillator to remarkable low temperatures, opens up new ways for preparing macroscopic mechanical objects into nearly pure quantum states and testing quantum mechanics on a macroscopic level.

In this presentation after reviewing the basics of cavity optomechanics, I will focus on the enhanced quantum effects (such as cooling of the mechanical oscillator and electromagnetically induced transparency) arises from optomechanical coupling and Kerr-down conversion nonlinearity.

Wednesday, 27th Bahman(1395) (15th February, 2017), 14:00-15:00

Farmaniyeh seminar room