연사: 석효준 교수 (공주대학교 물리교육학과)

Title: Atom-based coherent quantum-noise cancellation in optomechanics

Abstract

We analyze a coherent quantum-noise cancellation scheme for an hybrid atomic-optomechanical

system comprising two coupled cavities: the rst cavity is a standard optomechanical cavity, the

second one contains an atomic ensemble subject to external pumping. We show that such a scheme

allows for a continuos, broad-band, and extremely sensitive force sensing via the cancellation of

the back-action of the light measurement on the mechanical resonator. The present technique may

be used in combination with atom-mediated cooling of the mechanical motion in order to increase

further the sensitivity.