

# Center for Quantum Science and Engineering (CQSE)

**Weekly Seminar**  
**Jun. 17, 2011 (Friday)**

**TIME** Jun. 17, 14:30 ~ 15:30  
**TITLE** Quantum optical control and measurement in optomechanics  
**SPEAKER** Dr. Gerard Milburn  
Centre for Engineered Quantum Systems,  
University of Queensland  
**PLACE** Rm716, CCMS & New Physics Building, NTU

## Abstract

A number of schemes have been proposed for coupling one or more optical modes to a mechanical resonator. In the simplest case a constant force, proportional to the photon number in a single cavity mode, can be exerted on the mechanical system. I will review recent progress and describe schemes that create entanglement between photons and phonons in an optomechanical system. One scheme enables single photon control and novel optomechanical nonlinearities. Another scheme enables quantum-limited readout of phonon jumps.

