

# Colloquium Notice

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*Observing quantum effects in a millimeter-sized object*

One of the major challenges in physics is to understand how the classical behavior of macroscopic objects emerges in a universe whose laws are fundamentally quantum mechanical. The field of optomechanics attempts to address this issue by studying the quantum behavior of devices in which a macroscopic object's motion is coupled to individual photons. In the past few years, experiments have demonstrated a number of quantum effects in these devices, including ground-state cooling, entanglement, and the quantum back-action of displacement measurements. I will give an overview of our group's work on these topics. I will also discuss designs for substantially improved optomechanical devices that consist entirely of superfluid helium.

Monday

**April 28, 2014**

Starts at 12:15 PM

Coffee at 12:00 PM

Physics Conference Room, SB B326