Abstract Submitted
for the DAMOP14 Meeting of
The American Physical Society

Force detection with an optically levitated microsphere in vacuum[1] G. RANJIT, D. ATHERTON, J. STUTZ, M. CUNNINGHAM, D. KARR, A.A. GERACI, University of Nevada, Reno — A microsphere levitated using purely optical forces in vacuum has a high quality factor and can be used as a micro-mechanical sensor for the precise measurements of small forces such as non-Newtonian gravity in the nanoscale regime and Casimir forces [1]. In this talk, I will discuss the progress on our experiment towards the cooling of the center-of-mass motion of a dielectric microsphere trapped in an optical cavity. I will also discuss the calibration of the force sensitivity using known modulated electric fields.

[1] Andrew A. Geraci, Scott B. Papp, and John Kitching, Phys. Rev. Lett. 102, 101101 (2010)

[1]NSF grant PHY-1205994

Gambhir Ranjit
University of Nevada, Reno

Date submitted: 30 Jan 2014 Electronic form version 1.4