

Abstract Submitted
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Progress towards cavity-cooling of an optically trapped nanosensor¹ GAMBHIR RANJIT, MARK CUNNINGHAM, KIRSTEN CASEY, ANDREW A. GERACI, University of Nevada, Reno — We have successfully developed a highly sensitive force sensor consisting of an optically levitated dielectric nanoparticle in high vacuum with sensitivity down to the zeptonewton scale [1]. Optically levitated sensors, due to their potential to achieve an excellent mechanical quality factor Q , are especially promising for such small force sensing even at room temperature. Such sensors will be used for the study of measurements of tiny forces like deviations of Newtonian gravity and Casimir forces at short range [2]. Currently, we are working on improving the sensitivity of our nanosensor by using cavity assisted trapping and cooling.

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