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Ultra-sensitive force sensing with optically levitated nanospheres<sup>1</sup> KIRSTEN CASEY, GAMBHIR RANJIT, MARK CUNNINGHAM, ANDREW GERACI, University of Nevada, Reno — According to many theories beyond the Standard Model, Yukawa-type corrections to Newtonian gravity may be present at short length scales. I will discuss our experiment dedicated to searching for these forces at the micron length scale using laser-cooled silica nanospheres in an optical standing-wave trap. The nanospheres have achieved sub-attonewton force sensitivity in high vacuum, and can act as a sensor for short-range Yukawa-forces when levitated near a microfabricated source mass.

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