

Abstract Submitted
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Novel Tests of Gravity Below Fifty Microns¹ ADAM TURK, ALYSSA JOHNSON, BERLIN DEL AGUILA, DARIAN KARADJOV, EMILY ORD, FRANK TROMBETTA, KASSANDRA WEBER, C.D. HOYLE, Humboldt State University — Attempts to unify the Standard Model and General Relativity often include features that violate the Weak Equivalence Principle (WEP) and/or the gravitational Inverse-Square Law (ISL). A violation of these would question our fundamental understanding of gravity. To further understand nature, undergraduate researchers and faculty at Humboldt State University are using an experiment to measure gravitational interactions below 50 microns. The experiment uses a torsion pendulum with equal masses of two different materials arranged as a composition dipole. The twist of the torsion pendulum is measured as an attractor mass in a parallel-plate configuration is oscillated nearby. This creates a time dependent torque on the pendulum. The magnitude and size of this torque may lead to deviations in the WEP or ISL at this untested scale.

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