

Abstract Submitted
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Short-range **Tests**
of Gravitational Physics¹ CRYSTAL CARDENAS², A. CONRAD HARTER³,
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— Due to the incompatibility of the Standard Model and General Relativity, tests of gravity remain at the forefront of experimental physics research. At Humboldt State University, undergraduates and faculty are developing an experiment that will test gravitational interactions below the 50-micron distance scale. The experiment will measure the twist of a torsion pendulum as an attractor mass is oscillated nearby in a parallel-plate configuration, providing a time varying torque on the pendulum. The size and distance dependence of the torque variation will provide means to determine deviations from accepted models of gravity on untested distance scales. To observe the twist of the pendulum inside the vacuum chamber, an optical system with nano-radian precision is required. This talk will provide a general overview of the experiment as well as address the measurement and characterization of environmental systematic effects which must be understood in order to achieve the required sensitivity.

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