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Novel Tests of Gravity at the Sub-millimeter Scale[1] GABRIELA MARTINEZ, JEREMY JOHNSON, IAN GUERRERO, C.D. HOYLE, Humboldt State Univ — Due to inconsistencies between General Relativity and the Standard Model, tests of gravity remain at the forefront of experimental physics. At Humboldt State University, undergraduates and faculty are designing an experiment sensitive enough to detect gravitational interactions below the 50 micron scale. The experiment measures the twist of a torsion pendulum as an attractor mass is oscillated nearby in a parallel plate configuration, providing time varying gravitational torque on the pendulum. The size and distance dependence of the torque variation will provide a means to determine any deviation from current models of gravity on untested scales. This talk will focus on the implementation of an optical encoder to measure the attractor position as well as a brief overview of other experimental upgrades.

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