

Abstract Submitted
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Current Advancements on Short-range Tests of Gravity at Humboldt State University¹ EMILY ORD, KYLE GALAZ, MICHAEL GENGO, ALYSSA JOHNSON, FRANK TROMBETTA, KASSANDRA WEBER, C.D. HOYLE, Humboldt State University, HUMBOLDT STATE UNIVERSITY TEAM — As a result of discrepancies between the Standard Model and General Relativity, gravitational experiments have remained at the forefront of experimental physics research in an effort to unify these models. Theories which attempt this unification often include features that violate the Weak Equivalence Principle (WEP) and/or the gravitational Inverse-Square Law (ISL), potentially bringing our fundamental understanding of gravity into question. Therefore, students, faculty and Humboldt State University have constructed an apparatus that will measure the effects of gravity at a submillimeter scale. This experiment measures the twist of a torsion pendulum as an attractor mass is oscillated nearby, providing a time-varying torque on the pendulum. In the experiment, the size and distance dependence of the torque are measured, thereby providing means to determine deviations from accepted models of gravity on untested distance scales. This talk will focus on the new features implemented in our data analysis of the motion of the pendulum. In addition, we will provide updates on the project and how the lab has adjusted to research under the Covid-19 pandemic restrictions.

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