

Abstract Submitted
for the TSF21 Meeting of
The American Physical Society

A Simple Experiment Testing Quantum Mechanics and Gravity

LOUISE RIOFRIO, Insight Optics, HEATHER SARTAIN, University of Houston Downtown, UNIVERSITY OF HOUSTON DOWNTOWN COLLABORATION, QUANTUM ASTROBIOLOGY CENTER COLLABORATION, INSIGHT OPTICS COLLABORATION — Quantum Astrobiology Center along with University of Houston and another Texas university will perform a novel experiment testing Planck masses and gravity. This research began with cosmology, an expanding Universe of scale $R = ct$, where c is speed of light and t is age of Universe. Gravity would then cause expansion to slow over time. The surprising prediction of the speed of light varying by 0.72 cm/sec/yr has been verified by data from our Lunar Laser Ranging Experiment, and may be further tested by the Atomic Clock Ensemble in Space aboard ISS. In Planck units two equations combine as $M = R = t$, suggesting that these tiny units are fundamental. The Planck mass is an observable quantity similar to a fleas egg. We place two spherical masses on a level low-friction surface, grounded within a vacuum chamber, and observe for gravitational attraction. A negative result suggests that gravitational mass is quantized at the Planck scale. Quantum mechanics has applications for astrobiology and living cells, explaining why most cells are limited by the Planck mass. This continuing research may connect cosmology of the large Universe with the microscopic world.

Louise Riofrio
Insight Optics

Date submitted: 10 Sep 2021

Electronic form version 1.4