

Abstract Submitted
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Precision Space-Based Atom Interferometry using NASA's Cold Atom Laboratory¹ JASON WILLIAMS, DAVID AVELINE, ETHAN ELLIOTT, VLADIMIR SCHKOLNIK, NAN YU, ROBERT THOMPSON, Jet Propulsion Laboratory — Precision atom interferometers (AI) in space are expected to become an enabling technology for future fundamental physics research, with proposals including unprecedented tests of the validity of the weak equivalence principle, measurements of the fine structure and gravitational constants, and detection of gravity waves and dark matter/dark energy. We will discuss our efforts at JPL to equip NASA's Cold Atom Lab facility (CAL), already operating as a multi-user facility onboard the International Space Station, to enable precision dual-species AI studies in space. The impact from this work will also be reviewed in the context of future space-based fundamental physics missions.

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