

Abstract Submitted
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Simultaneous Dual Species Matter Wave Interferometry DENNIS SCHLIPPERT, HENNING ALBERS, LOGAN RICHARDSON, CHRISTIAN MEINERS, JONAS HARTWIG, WOLFGANG ERTMER, ERNST RASEL, Institut fuer Quantenoptik, Leibniz Universitaet Hannover — We report on the first realization of a simultaneous ^{39}K - ^{87}Rb -dual species matter wave interferometer measuring gravitational acceleration with the aim to test Einstein's Equivalence Principle (EEP). Compared to classical tests such as torsion pendulum experiments and Lunar Laser Ranging, chemical elements suitable for performing matter wave interferometry can provide complementary information. We show the performance of our apparatus and discuss current limitations and future improvements towards highly sensitive matter wave tests of EEP.

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