

Testing Gravity with Muonium

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Recently a new technique for the production of muon (μ^+) and muonium (μ^+e^-) beams of unprecedented brightness has been proposed. As one consequence a measurement of the gravitational acceleration of muonium atoms at the few percent level of precision appears feasible within 100 days of running time. The inertial mass of muonium is dominated by the mass of the positively charged - antimatter - muon. The measurement would be the first direct laboratory test of the gravitational interaction of antimatter, of leptons, and of particles of the second generation.