

Abstract Submitted
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Interferometry with Synthetic Gauge Fields¹ BRANDON ANDERSON, JACOB TAYLOR, VICTOR GALITSKI, University of Maryland and Joint Quantum Institute — We propose a compact atom interferometry scheme for measuring weak, time-dependent accelerations. Our proposal uses an ensemble of dilute trapped bosons with two internal states that couple to a synthetic gauge field with opposite charges. The trapped gauge field couples spin to momentum to allow time dependent accelerations to be continuously imparted on the internal states. We generalize this system to reduce noise and estimate the sensitivity of such a system to be $S \sim 10^{-7} \frac{\text{m/s}^2}{\sqrt{\text{Hz}}}$.

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