

Precision atom interferometry

Mark Kasevich

Department of Physics, Stanford University, Stanford, California 94305, USA

This talk will summarize recent experimental and theoretical progress in the development of atom de Broglie wave sensors and methods for applications in navigation, geodesy and fundamental physics. Navigation and geodetic sensors include gyroscopes, accelerometers and gravity gradiometers. Fundamental physics sensors include a 10 m fountain apparatus for tests of the Equivalence Principle and post-Newtonian gravitation, and proposals for terrestrial and space-based gravity wave detectors. Finally, recent progress toward implementation of sub-shot noise atom interferometry methods will be discussed.