

Abstract Submitted
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Experimental Validation of Interferometry Simulations on an Atom Chip VIOLETA PRIETO, JASON ALEXANDER, CHRISTOPHER ROWLETT, WILLIAM GOLDING, PATRICIA LEE, Sensors and Electron Devices Directorate, US Army Research Laboratory, Adelphi, MD — We report on recent experimental progress towards developing a compact atom interferometer on an atom chip using a double-well potential. The interferometer uses ^{87}Rb atoms magnetically confined in an atomic waveguide produced by wires on the surface of a lithographically patterned chip. The double-well potential is created by dynamically changing the current configuration on our atom chip. We use combinations of different current configurations with various external bias fields that can offer the means to coherently split the atomic cloud through dynamically adjusting the currents and bias fields. We consider real-time transformations between different double-well configurations adiabatically and non-adiabatically, and study their effects on the initially trapped atoms.

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