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Towards guided ultracold atom interferometers: NPL's approach

Atom interferometry constitutes nowadays one of the most promising and realistic forefronts in the accomplishment of quantum-based technologies. Parallel to the evolution of free-falling atom interferometers, new concepts with trapped and guided atoms have been developed in the last few years. Due to the large control over the atomic wavefunction and to the long interrogation times, an outstanding combination of high sensitivity and spatial resolution is expected to be achieved in compact and, ideally, portable devices. In this talk I will present our all-optical approach towards the realization of BEC-based guided interferometers. In particular I will discuss the recent results on the realization of a continuous Bragg splitter generated by the interference of two atomic waveguides. Progress towards the implementation on a miniaturized light chip will be finally reported.