



Universität
Basel

Research Project

Quantum Interferometry with Bose-Einstein Condensates

Third-party funded project

Project title Quantum Interferometry with Bose-Einstein Condensates

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Organisation / Research unit

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Department

Project Website <http://atom.physik.unibas.ch>

Project start 01.11.2011

Probable end 31.10.2014

Status Completed

We propose to realize of a new class of interferometers based on entangled states of atomic Bose-Einstein condensates. These will have sensitivities beyond the shot-noise limit, potentially approaching the ultimate Heisenberg limit dictated by quantum mechanics. Our goal is to achieve an optimal control of the entanglement by means of novel experimental and theoretical tools to fully exploit its capabilities in precision measurements of time, forces and accelerations. A successful completion of this project will disclose a new generation of quantum-enhanced sensors for applications and fundamental physics, and also lead to a better control and exploitation of quantum entanglement for ICT purposes.

Financed by

Commission of the European Union

Add publication

Add documents

Specify cooperation partners