Laboratoire Kastler Brossel
Physique quantique et applications
UNITE MIXTE DE RECHERCHE UMR 8552

ECOLE NORMALE SUPERIEURE
UNIVERSITE PIERRE ET MARIE CURIE
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE
COLLEGE DE FRANCE

Post-Doctoral position

Atom interferometry using a Bose-Einstein condensate

We have recently built a new experimental setup where we produce an all optical Bose-Einstein condensate. The setup is dedicated to study different interferometric schemes that could be used for a recoil measurement, gravimetry or gradiometry.

Several projects are under consideration:

- Using the ultracold source of atoms to realize a large momentum beamsplitter by combining Raman pulses with Bloch oscillations
- Studying the phase shift in the interferometer induced by interactions. We have recently published a model that we want to test on the experiment
- Reaching the quantum projection noise and seeing how one can use interactions to reduce further reduce the noise, keeping the accuracy of the measurement.

The selected candidate will first use the new setup to study the systematic effect due to atom-atom interactions in a Ramsey-Bordé atom interferometer. He (or she) will implement an atomic interferometer based on large momentum beamsplitters. He (or She) will investigate its ultimate sensitivity.

Skills of the applicant

We are looking for outstanding candidates, preferably with experience in any of the following fields: ultra-cold atoms; atom interferometry; quantum optics, quantum metrology. Fluent in English, knowledge of French would be an asset. Used to autonomous work as well as part of a team, with analytical and interdisciplinary thinking.

The position is based on a full-time employment at laboratoire Kastler Brossel. The interested candidate should address a CV and a motivation letter to Saida Guellati (mailto:saida.guellati@lkb.upmc.fr)

Application deadline: September 30, 2016

Job starting date: as soon as possible