Post-Doctoral Position Opening at the "Laboratoire de Physique des Lasers"

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Magnetism with dipolar quantum gases

The Laboratoire de Physique des Lasers offers an 18 months postdoctoral experimental position in the field of quantum dipolar gases. The candidate will work on an experimental setup which produces both Bose Einstein Condensates and Fermi seas made of chromium atoms.

The main objective is to explore quantum magnetism with dipolar gases, where exchange processes are directly due to spin-spin dipolar interactions. After first recent results which have demonstrated many-body spin exchange dynamics in a 3D lattice, the goal of laboratory is now to study the many-particle entanglement which should emerge as spin dynamics occurs between the atoms. The laboratory plans to reveal entanglement through measurements of global spin fluctuations using an entanglement witness. Bipartite entanglement will also be explored using local measurements of spin fluctuations.

The candidate will be in charge of running the experiment together with one PhD student. The focus of his research will be the control and the measurement of the spin degrees of freedom of bosonic $^{52}$Cr and fermionic $^{53}$Cr atoms, and the study of quantum correlations in lattice dipolar quantum gases. Research will be performed in strong collaboration with theoreticians from our group and collaborators of Laboratory MPQ of Paris Diderot University.

Applicants:

- Should have a PhD in experimental physics, with skills in laser physics, electronics, and atomic physics. They should have experience in cold atom physics and quantum gases.

Salary:

- 2400€ per month (net salary)

Start date:

- September 2015 or later

The Laboratory (Laboratoire de Physique des Lasers) is located in close North Suburbs of Paris, on the campus of Université P13 (30 min commuting from Paris centre). It hosts five different experimental projects on cold atoms and quantum degenerate gases (Rb, Na, Ar*, Sr, Cr). Our group is a member of the IFRAF.
Paris network on cold atoms.

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Dipolar Quantum Gases Group