



Post-doctoral position in ultracold atomic physics

Laboratoire de Physique des Lasers, Université Paris 13

Starting date : flexible, expected 1st of September 2017.

Presently funded until the 30th of June, 2018.

Contacts : Martin Robert-de-Saint-Vincent (martin.rdsv@univ-paris13.fr)

Bruno Laburthe-Tolra (bruno.laburthe-tolra@univ-paris13.fr)

We would like to advertise an experimental postdoc position on our new experiment, which aims at studying quantum magnetism with ultracold strontium atoms. Our group is part of Laboratoire de Physique des Lasers, affiliated to CNRS and Université Paris 13, and located on the Villetaneuse campus of the university. The candidate can contact Martin Robert-de-Saint-Vincent or Bruno Laburthe-Tolra.

Building on the expertise of our group on large spin magnetism driven by dipole-dipole interactions in chromium gases, we envision to study quantum magnetism of large spin fermions using strontium atoms. Our experiment will allow the measurement of each of 10 spin states with single-site resolution in 3D, a unique feature relying on the energy selectivity of the narrow transitions of strontium and inspired from super-resolution and tomography techniques. This measurement protocol will be applied to provide a microscopic description of the original SU(N) magnetic phases arising due to spin-independent interactions.

We are looking for a post-doctoral researcher to finalize the construction of the quantum gas apparatus, to produce the first strontium degenerate Fermi gases at LPL. The candidate should have a strong background in AMO experimental physics, and in cold atom physics. The vacuum system and experimental chamber are built, as well as the broad-line laser cooling system. The first objective of the post-doc will be to study narrow-line cooling of the Fermi isotope, possibly in combination with a bath of a bosonic isotope, to reach temperatures close to the recoil limit and approach degeneracy by pure optical means. The next step will be the production of quantum degenerate gases.

The Magnetic Quantum Gases group at LPL combines two experimental projects studying magnetism on chromium and strontium quantum gases, and a theory activity. Our group hosts three researchers from the Paris 13 University, two CNRS researchers, and one CNRS engineer. At the moment, two post-docs and two PhD students are working on our projects.

Project webpage: <http://www-lpl.univ-paris13.fr:8082/AF/StrontiumProject.htm>