



Post-doctoral research position available Starting end of 2008

Laboratoire Léon Brillouin CEA-CNRS (CEA Saclay)
FRANCE

Description of the project

The Laboratoire Léon Brillouin (LLB) is seeking candidates for a 2-year post-doctoral position to undertake studies of nanometric magnetic wires using neutron scattering techniques and magnetometry. The project is part of a wider program to (1) develop high coercivity permanent magnets and (2) investigate spin dynamics in Ferromagnetic nanowires [1]. The material synthesis (organo-metallic route) is made in close collaboration with chemistry groups in Paris and Toulouse. The LLB will provide expertise and support for the magnetic characterizations (magnetization at high temperature, SANS Small Angle Neutron Scattering, MFM, modelling) and the polymer chemistry required for the dispersion of the particles in a polymer matrix.

This project is a genuine trans-disciplinary work: from very fundamental chemistry process (complex process of nanowires formations), advanced magnetic characterization (SANS scattering, magnetic electron microscopy imaging) and material science.

The successful applicant will work closely with the LLB material sciences and soft matter groups. Research activities will focus on characterizing the magnetic properties of newly synthesized nanowires, develop new ways of controlling their arrangement and organization in non-magnetic matrices and develop theoretical/modeling tools. Depending on the applicant profile and interests, the work program will be focused on one or more of these various aspects after discussion with the different partners. A substantial scientific background in solid-state physics and magnetism is nevertheless highly desirable.

The duration of the project is 2 years under the ANR (*Agence Nationale de la Recherche*) contract "MAGAFIL". **Start of the contract: November 2008 – January 2009.**

Candidate profile

The ideal candidate must have a PhD in chemistry, physics or materials sciences. Strong interest in magnetism will be an advantage. Experience in neutron scattering or nonstructured material synthesis is welcome. The successful candidate will be employed by CEA and will benefit from the advantages allocated to its staff. **Applications with curriculum vitae, a list of publications, the names of two academic references and, possibly, letters of recommendation should be sent to Frédéric Ott before : 1st October 2008.**

The Laboratory

The Laboratoire Léon Brillouin (LLB) is a joint research institute established by the *Commissariat à l'Energie Atomique* (CEA) and the *Centre National de la Recherche Scientifique* (CNRS) to promote the use of neutron scattering as a major research tool in condensed-matter physics, physical-chemistry, material science, and biology. The LLB is part of the Saclay CEA center, south of Paris. The center is situated near facilities such as the new synchrotron source SOLEIL and the Orsay University. At LLB, over 400 experiments are performed each year on one of the 22 spectrometers. In addition to the development of its own research programs, the LLB is in charge of planning and realizing the instrumentation for Orphée, a modern medium-flux neutron reactor with 14 MW thermal power. Its staff members (about one hundred scientists and technicians) are also committed to providing support and advice to numerous visiting teams from French and foreign universities and research institutions.

[1] T. Maurer et al, "Magnetic nanowires as permanent magnet materials", *Appl. Phys. Letters* **91**, 172501 (2007)

Contact

Further information can be obtained by contacting Grégory Chaboussant or Frédéric Ott.

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Experimental suite: <http://www-llb.cea.fr/spectros/spectros.html>

Details of this job offer: http://www-llb.cea.fr/postes-llb/index_p.php