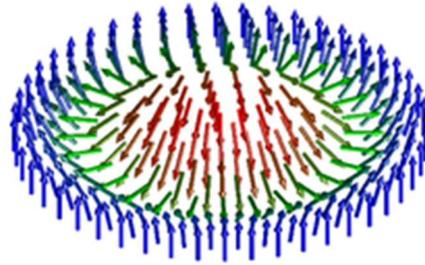


Open post-doc position in Grenoble : Spintronics with skyrmions



Context

Skyrmions are topological solitons localized in space and which present particles-like properties. In ferromagnets, skyrmions used to be called two-dimensional (2D) topological solitons or magnetic vortices and their existence has been predicted more than 40 years ago. However, due to several factors, their experimental observation is much more recent. The potentialities of these magnetic solitons to serve as information carriers in future technologies has driven a strong recent development of experimental and theoretical studies in this field. In the Micro and Nanomagnetism Group from Institut Néel, we are specialized in experimental characterization of magnetic nanostructures. We have developed in the past few years a strong expertise in the field of skyrmionics which makes us part of the world's few physics groups specialized in this subject as attested by our participation to several national and international research grants and conferences. In particular we have developed techniques to observe and control magnetic skyrmions[1,2] and we are using and developing numerical simulations based on micromagnetic and analytical theoretical models for skyrmions. In this context, we have been recently awarded by the Defense Advanced Research Projects Agency (DARPA), to conduct an application oriented project on skyrmions, together with the SPINTEC laboratory (coordinator, Grenoble), the UMPPhy laboratory (Palaiseau) and ForschungZentrum (Jülich).

[1] Room-temperature chiral magnetic skyrmions, [Nature Nanotechnology \(2015\)](#)

[2] The skyrmion switch, [Nanoletters \(2017\)](#)

Methodology

The project objective is to obtain room temperature stable skyrmions with low radius and control their propagation with electric current/field. The skyrmion hosting material will be provided by collaborators. The post doc will focus on techniques to observe and control skyrmions using MFM, and magneto-transport setups.

Candidate profile

- PhD in condensed matter physics
- Experience in AFM/MFM characterization is an advantage
- English speaking, reading and writing is mandatory
- Good communication skills and ability to work in a team.

Interested candidates (Please use subject line PostDocSkyrmions in your message)

Send to both anne.bernand-mantel@neel.cnrs.fr and jan.vogel@neel.cnrs.fr

- Detailed CV
- Motivation letter (1/2 page maximum)