

Post-doctoral position

Structural and magnetic investigation of Low-D Magnets for enhanced Magneto-Electric properties

Context: The control of electron spin and charge in materials is one major scientific quest due to increasing needs for data storage densities. For instance, Giant Magneto Resistance materials have application in magnetic hard disk drives that profoundly changed modern electronics. In the last years, multiferroic systems have attracted considerable attention due to the possibility of (cross-) controlling magnetization via the electric field (and reciprocally) with quite low power dissipation. However while multiferroics are often considered as the next breakthrough in spintronic technologies, it is admitted that all kinds of magneto-electric (ME) couplings are generally weak and exploitable multiferroic compounds are still rare. We started a collaborative ANR project entitled "LOVE-ME" within the UCCS (Lille), CRISMAT (Caen) and Ins. Néel (Grenoble), funded between 2017 and 2020. LOVE-ME concerns an original approach for designing efficient multiferroic inorganic compounds associated with strong ME effects due to their unique topologies. Based on the concept of sub-units or building blocks association, the UCCS designed a wealth of compounds with scarce magnetic topologies.

Objectives and means available: The goal of the project is to establish a complete structural and magneto-structural characterization of selected LOVE-ME compounds by advanced diffraction and Raman experiments. Raman spectroscopy and neutron and x-ray diffraction investigations will be carried out as function of temperature, pressure, electric and magnetic field using laboratory and large scale facility instruments (e.g. ILL neutron reactor, ESRF synchrotron, depending on availability).

Interaction and collaboration: Institut NEEL is a laboratory for fundamental research in condensed matter, it has a well-recognized expertise in fine and cutting edge structural characterization, using laboratory and large scale facilities. The post-doctoral fellow will work in the Materials-Radiations-Structure team of the Institut Néel and in partnership within the LOVE-ME collaborative ANR project. Thanks to its location in Grenoble, a unique international research site, she/he will benefit from the strong local links with the large European neutron and X-Ray facilities: ILL and ESRF.

Skills and training: The candidate should hold a PhD and have a solid background in solid state/condensed matter physics or chemistry. Knowledge of crystallography and prior experience with X-Ray and/or neutron diffraction would be an asset.

Foreseen start for the position: Fall 2019

Salary: from 2617,05 € and 3017,31 € before taxes, depending on experience.

Duration: 12 months

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Applications : via Portail Emploi CNRS <http://bit.ly/2JEsND1>