

Postdoctoral Researcher in Magnetic Neutron Scattering

Contract Type:
Fixed Term Contract

Duration:

Up to 60 Months



FACULTY OF SCIENCE,
TECHNOLOGY AND
MEDICINE

The Faculty of Science, Technology and Medicine (FSTM) contributes multidisciplinary expertise in the fields of **Mathematics, Physics, Engineering, Computer Science, Life Sciences** and **Medicine**. Through its dual mission of teaching and research, the FSTM seeks to generate and disseminate knowledge and train new generations of responsible citizens, in order to better understand, explain and advance society and environment we live in.

The Postdoc will be a member of the **Nanomagnetism Group**, which is led by Associate Prof. Dr. Andreas Michels. The group carries out theoretical and simulation work to understand and develop the fundamentals of the **magnetic small-angle neutron scattering** (SANS) technique. More specifically, we use the continuum theory of **micromagnetics** for computing the magnetic SANS cross section of real materials, which is determined by microstructural-defect-induced spin disorder. Based on the theory work, we employ SANS for experimentally studying the **mesoscopic spin structures of magnetic materials**. Examples include Nd-Fe-B-based and rare-earth-free Mn-Bi permanent magnets, Heusler-type alloys, steels, or magnetic nanoparticles and ferrofluids.

Your Role...

This Postdoc position can be extended up to five years; initial employment is foreseen for 24 months. We therefore seek an individual with the will and ability to develop and establish his/her own research activity in the field of magnetic neutron scattering on magnetic materials. Suggestions for a possible research topic should be outlined in a two-page research statement (to be included in the application documents). Topics different from the above mentioned ones (e.g., Weyl physics and topological spin structures) are explicitly welcomed.

The candidate is expected to perform the following tasks:

- Developing your own research activity in magnetic neutron scattering
- Carrying out of neutron-scattering experiments (mainly small-angle neutron scattering) at large-scale neutron facilities worldwide, data reduction and analysis
- Micromagnetic simulations of magnetic neutron scattering
- Sample characterization (e.g., magnetometry, specific heat, XRD, TEM/SEM, arc melting, alloy synthesis, annealing)
- Presentation of scientific results at international conferences, publications in high-impact journals
- Participation in bachelor and/or master teaching activities; providing assistance in the supervision of PhD students
- Participation in grant writing (e.g., neutron beamtime proposals) and reporting
- Participation in outreach activities (e.g., university open days, science festivals)

What we expect from you...

- PhD degree in physics, chemistry, or material science (or similar) together with experience in magnetic neutron scattering techniques; SANS is an asset
- Strong drive and motivation towards developing scientific independence
- Strong programming and data-analysis skills (e.g., C++, Python, Mathematica, Matlab)
- Experience with atomistic and/or micromagnetic computations (e.g., MuMax3, OOMMF) is an asset
- Excellent written and verbal communication skills in English

In Short...

- Contract type: Fixed term contract for initially 24 months (which may be extended up to 60 months)
- Work hours: Full time 40.0 hours per week
- Foreseen starting date: May 2023
- Location: Luxembourg City/Belval
- Job reference: UOL05241 (DPHYMS)

The yearly gross salary for every Postdoctoral Researcher at the UL is EUR 77.167,08 (full time).

How to apply...

Applications in English should include (one single pdf file):

- Cover letter (maximum one page)
- Curriculum Vitae including list of publications
- Research proposal (maximum two pages)
- Name, affiliation and contact details of up to three referees

Early application is highly encouraged, as the applications will be processed upon reception.

Please apply **ONLINE** formally through the HR system. Applications by email will not be considered.

The University of Luxembourg embraces inclusion and diversity as key values. We are fully committed to removing any discriminatory barrier related to gender, and not only, in recruitment and career progression of our staff.

In return you will get...

- **Multilingual and international character.** Modern institution with a personal atmosphere. Staff coming from 90 countries. Member of the "University of the Greater Region" (UniGR).
- **A modern and dynamic university.** High-quality equipment. Close ties to the business world and to the Luxembourg labour market. A unique urban site with excellent infrastructure.
- **A partner for society and industry.** Cooperation with European institutions, innovative companies, the Financial Centre and with numerous non-academic partners such as ministries, local governments, associations, NGOs ...
- [Find out more about the University](#)
- [Addresses, maps & routes to the various sites of the University](#)

Further information...

The **University of Luxembourg** is an **international research** university with a distinctly **multilingual** and **interdisciplinary** character. The University was founded in 2003 and counts more than 6,700 students and more than 2,000 employees from around the world. The University's faculties and interdisciplinary centres focus on research in the areas of Computer Science and ICT Security, Materials Science, European and International Law, Finance and Financial Innovation, Education, Contemporary and Digital History. In addition, the University focuses on cross-disciplinary research in the areas of Data Modelling and Simulation as well as Health and System Biomedicine. Times Higher Education ranks the University of Luxembourg #3 worldwide for its "international outlook," #20 in the Young University Ranking 2021 and among the top 250 universities worldwide.