



EXPERIENCED RESEARCHER FOCUSING ON THE DEVELOPMENT OF INNOVATIVE NANO-ANALYTICAL TECHNIQUES BASED ON LASER TECHNOLOGIES (M/F)

Permanent contract | Fulltime/40h | Belvaux

Context

As a key player in research and innovation in Luxembourg, the Luxembourg Institute of Science and Technology (LIST), with its employees, is active in the domains of materials, the environment and IT. As an RTO (Research and Technology Organisation) and with its interdisciplinary impact-driven approach, LIST contributes to the development of Luxembourg's economy and society.

The Materials Research and Technology Department (MRT) translates cutting-edge materials research into applicable technology, with about 180 collaborators. For this, the department cultivates close relationships and joint projects with both academic and industrial partners, and contributes to Luxembourg's and Europe's innovation agenda in Materials Research and Technology.

The Advanced Instrumentation for Ion Nano-Analytics (AINA) group of the MRT department at LIST focuses on the development of scientific instruments based on charged particle beams for nano-imaging and nano-analysis and correlative workflows taking advantage of these instruments. We are a multi-disciplinary team giving the group the complete spectrum of know-how that is required to convert innovative ideas and concepts into prototype instruments. During the past few years we have been developing in particular a Secondary Ion Mass Spectrometry (SIMS) add-on system for DualBeam Instruments (FIB-SEM), the Helium Ion Microscope (HIM) and for a Transmission Electron Microscope (TEM) as well as an Atomic Force Microscopy (AFM) system that we integrated into our NanoSIMS, allowing the advantages of high spatial resolution and high sensitivity chemical information to be combined in a single instrument.

We are currently extending our field of activities beyond charged particle beams to explore new ideas and concepts for local probing of matter, such as near field methods, for nano-analytical purposes. Non-destructive techniques will be of particular relevance, but without being a limiting factor. These new concepts can include standalone probing methods but can also be used in combination with electron and/or ion beams.

Description

In this context, we have an opening for a permanent position for an experienced R&T Associate specialised in laser-matter interactions and/or manipulation of atoms/ions/electrons with laser beams and/or tip enhanced/near field laser concepts. The responsibilities of the candidate will include:

- elaborating and testing novel concepts for nano-analytical techniques based on laser technologies, possibly including near field concepts
- defining and leading new project activities in this field, including writing and submitting proposals for competitive funding and collaborating with industrial partners such as instrument manufacturers
- supervising post-doc researchers and PhD students participating in these projects
- disseminating, valorising and transferring RDI results (patents, licenses, prototypes, publications, technical reports, participation in conferences, etc.)

Reference: MRT-2019-009

Application documents:

- CV
- Cover letter

Apply online: [MRT-Job offer](#)

Contact: jobs@list.lu

Your working environment

The research department

Through its research into advanced materials and processes, the "Materials Research and Technology" (MRT) Department with its 170 researchers and engineers, to the emergence of enabling technologies that underpin the innovation processes of local and international industry. MRT's activities hinge on three thematic pillars: nanomaterials and nanotechnology, sustainable composite materials and manufacturing and process technologies, including scientific instrumentation.

> [LIST.lu/MRT](#)

The Luxembourg Institute of Science and Technology (LIST) is a mission-driven Research and Technology Organisation (RTO) that develops advanced technologies and delivers innovative products and services to industry and society. Located at the heart of Luxembourg's vibrant Research and Innovation Campus in Esch-Belval, LIST can ideally connect its over 500 specialists in materials, the environment and IT with virtually all of Luxembourg's other main research players such as the University of Luxembourg, LIH, LISER, Technoport, Luxinnovation and the National Research Fund. **LIST.lu**

The LIST is committed with equality of opportunities and gender balance

- participating in the management of the group's laboratories and taking charge of some of the group's instrument, including fulfilling the equipment quality and compliance follow-up and training the users
- reporting to the group leader

Profile

Education

- Hold a PhD in physics or a related field

Required seniority

- Have a proven track record of relevant professional experience. The positioning within LIST's grid will be based upon this experience

Competencies

- Strong background with proven track record in laser-matter interactions and/or manipulation of atoms/ions/electrons with laser and/or tip enhanced laser concepts
- Experience in setting-up new academic and industrial collaborations
- Experience in grant writing
- Possess a sound experience in valorising scientific and technological results, including knowledge in the field of intellectual property management (patent writing, valorisation of patents, etc.)
- Experience in prototype instrumentation (operation and RDI cycle related to instrument development) will be an asset
- Excellent communication, flexibility, organizational and interpersonal skills with team-oriented mind-set

Language

- Be fluent in English (both oral and written)
- Knowledge of Luxembourgish, French or German will be an asset