CANDIDATE FOR MARIE CURIE FELLOWSHIP (M/F)
SPECIALIZED IN NUMERICAL SIMULATIONS APPLIED TO PARTICLE-MATTER INTERACTIONS

Fixed term contract (24 months) | Fulltime/40h | Belvaux

Your work environment

The Luxembourg Institute of Science and Technology (LIST) is a Research and Technology Organization (RTO) active in the fields of materials, environment and IT. By transforming scientific knowledge into technologies, smart data and tools, LIST empowers citizens in their choices, public authorities in their decisions and businesses in their strategies.

https://www.list.lu/

You will be part of the LIST Materials Research and Technology department

Through its research into advanced materials and processes, the department, with over 190 researchers and engineers, contributes to the emergence of enabling technologies that underpin the innovation processes of local and international industry. The department’s activities hinge on four thematic pillars supported by dedicated platform specialists as below:

- Nanomaterials and nanotechnology
- Scientific instrumentation and process technology
- Structural composite materials and manufacturing
- Functional polymer unit

The Advanced Instrumentation for Ion Nano-Analytics (AINA) group within the Scientific Instrumentation and Process Technology (SIPT) unit of MRT is renowned for developing innovative nano-analytical techniques for materials characterisation and life science applications. During the past few years, we have been developing in particular a Secondary Ion Mass Spectrometry (SIMS) add-on system for the Helium Ion Microscope (HIM) and for a Transmission Electron Microscope (TEM), allowing the advantages of high spatial resolution with high sensitivity chemical information to be combined for nano-analytics.

Job reference: MRT-2020-H2020-MC1
Application file:
- A CV
- A motivation letter
- References names of two or three referees

Apply online:

Your working environment

The research department
https://www.list.lu/en/mrt/
https://www.list.lu/en/jobs/researchers/

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
What you will be doing

Nowadays, ion beams play an important role for the development and characterisation of nanomaterials. For the characterisation of the latter by secondary ion mass spectrometry (SIMS) and ion microscopy, it is essential to understand:

- How the shape and surface curvature of nano-objects change during ion irradiation,
- How the substrate might affect analysis results,
- How interfaces influence the formation of sputtered molecular fragments or clusters in order to convert correctly the recorded signals into 3D shape and concentrations.

Understanding the underlying processes is only possible by getting insights into the atomic-scale mechanisms using numerical simulations. The candidate for the Marie Curie Fellowship will have the opportunity to develop a project around the afore-described topic, based on numerical methods, and to contribute to the development ion-beam based nano-analytics. The final project idea will emerge from the complementary backgrounds and expertise of applicant and supervisor.

Which profile we are looking for

- PhD in materials science, physics, chemistry or any related field
- Extensive experience in long timescale simulation of far-from-equilibrium processes and/or time-dependent DFT and/or machine learning applied to numerical simulations
- Demonstrated experience in the use of high performance computers, model development and data analysis
- Excellent writing and publication skills
- Fluent oral and written English is mandatory

Interested ? Please apply online