



INTERNSHIP IN THE FATE OF METALLIC NANOPARTICLES IN THE BODY – INVESTIGATED BY HIGH RESOLUTION CHEMICAL IMAGING (M/F)

Internship | 6 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 “Materials Research and Technology” (MRT) department, with its 200 researchers and engineers, contributes to the emergence of enabling technologies that underpin the innovation processes of local and international industry. MRT’s activities hinge on four thematic pillars: nanomaterials and nanotechnology, scientific instrumentation and process technology, structural composites, and functional polymers.

The department also includes four high-tech platforms, focusing on composites, prototyping, characterization and testing. These platforms serve both LIST research staff, and other stakeholders in Luxembourg.

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.

What you will be doing

Nanomaterials are quite present in our daily life, they are found in food, cosmetics, textiles, paints, electronic devices, etc. Metallic and metal-oxide particles are the most abundant group containing for example silver, titanium, zinc or gold. Their metrological properties and their respective wanted and unwanted effects in relation to ingestion have to be studied to assess any risks to human and environmental health.

Therefore, it is very important to develop instruments and methodologies for adequate physico-chemical characterisation of nanomaterials. This is done by the AINA group. We develop new tools for chemical imaging at high lateral resolution meaning that single nanoparticles can be addressed. The intern will have the possibility to be part of this project and investigate nanoparticles concerning their shape, chemical composition and fate after incorporation using dedicated model systems and high resolution secondary ion mass spectrometry imaging. This internship is related to the npSCOPE project, further information can be found here: www.npSCOPE.eu.

Job reference: IM-21-18

Start date : February 2021

Application file:

- A CV
- A motivation letter

Your working environment

The research department

<https://www.list.lu/en/mrt/>

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Which profile we are looking for

- Student close to the end of his/her Master studies in the field of natural sciences, biology or medical technology seeking to write a master thesis in an interdisciplinary R&T environment
- English mandatory, German, French or Luxembourgish would be an asset
- Experience in electron microscopy or mass spectrometry is considered a plus

Interested ? Please apply online

<https://www.list.lu/en/jobs/interns/>

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