

JUNIOR R&T ASSOCIATE IN CORRELATIVE MICROSCOPY ON SOLAR AND OTHER ENERGY MATERIALS

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

Context

As a key player in research and innovation in Luxembourg, the Luxembourg Institute of Science and Technology (LIST) 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 150 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 the LIST is renowned for developing innovative nano-analytical techniques for materials characterization 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) 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. The research activities of the AINA group cover fundamentals, instrument development and applications.

Description

In this context, we are working on the project NACHOS which aims at developing high-resolution high-sensitivity nano-analytical methods for applications in solar and other energy materials. The project is in cooperation with EPFL, Switzerland. The objective of the project is to understand and correlate the nanoscale chemical and structural characteristics with the overall performance of the solar and other energy materials. The work will involve extensive use of Transmission Electron Microscopy (TEM) imaging & diffraction analysis correlated with Secondary Ion Mass Spectrometry (SIMS) imaging.

The post-doctoral researcher will take a main role in developing correlated workflows (involving in particular TEM and SIMS) and in the microstructural, crystallographic and chemical characterization of selected energy materials. In consultation with the project leader, the post-doctoral researcher will design and perform relevant experiments, analyse and interpret the results, write scientific articles and disseminate the results in international conferences.

Profile

Education

- Ph.D. in Materials Science and Engineering or related disciplines

Reference: MRT-2019-061

Application documents:

- CV
- Cover letter

A key player in research and innovation in Luxembourg, the **Luxembourg Institute of Science and Technology (LIST)**, with its 550 employees, is active in the domains of materials, the environment and IT. As an RTO (Research and Technology Organization) and with its interdisciplinary impact-driven approach, **LIST** contributes to the development of Luxembourg's economy and society.

THRIVE IN EUROPE'S
MOST INNOVATIVE COUNTRY!

LUXEMBOURG
INSTITUTE OF SCIENCE
AND TECHNOLOGY



Competencies

- Transmission Electron Microscopy mandatory
- Interest in Si solar cells research and other energy materials is required
- Familiarity with correlative image treatment methods and algorithms
- Experience in FIB and knowledge in Secondary Ion Mass Spectrometry would be a strong advantage
- Excellent communication, flexibility, organizational and interpersonal skills with team-oriented mind-set

Language

- Fluency in English (scientific exchanges) is mandatory

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