



(JUNIOR) R&T ASSOCIATE – ELECTROCHEMICAL APPLICATIONS OF NANOMATERIALS (M/F)

Permanent contract | 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

Aiming to improve the impact in the strategic area of electrochemical and photo-electrochemical technological applications, the TOT group of the MRT department of LIST is seeking a highly motivated young scientist with experimental background.

What you will be doing

Referring to MRT Core-Technologies “PGM-less fuel cells enabling hydrogen-based energy” and “Energy efficient water-splitting for hydrogen”, the new profile will particularly contribute to group's commitments to the development of new materials and nanostructures with catalytic properties for advanced fuel cells and electrolyzers, within the framework of either funded competitive projects or collaborative projects.

Such development will exploit wet-chemistry approach, vacuum-based methods (e.g. CVD), and combination of both. In order to comply with “PGM-less” philosophy, the materials of interest will be mainly metal oxides, carbon-based nanostructures, and their combination into complex nanocomposites. Suitable solutions for the integration of the new materials/nanocomposites into application-oriented electrodes will be addressed. A remarkable part of the job will regard the characterization of the produced materials by electron microscopy (SEM) and spectroscopy (XPS), x-ray diffraction (XRD), and optical spectroscopies (UV-Vis, Raman). Electrochemical characterizations (e.g. cyclic-voltammetry) are also included.

Teamwork supported by original contribution is expected for the planning of the experimental work as well as for the analysis of the results. Independence / very-limited supervision is nevertheless expected for the lab work mentioned above.

Job reference: MRT-2020-047

Application file:

- A CV
- A motivation letter
- References names of two or three referees

Apply online:

<https://www.list.lu/en/jobs/materials-job-opportunities/job-offer/mrt-2020-047/>

Your working environment

The research department

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

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

Essential duties and responsibilities

- Collaboration with PhD students, Engineering staff, R&D Associates at all levels, and/or external projects partners in conducting research work.
- Conduction of the research work in effective and professional manner by keeping prompt and accurate records of experiments and analyses performed through the personal Lab-Book.
- Maintaining of an up-to-date knowledge of the scientific literature on the research subject, the related findings and experimental methods.
- Contribution to the elaboration of new project proposals to be granted by funding agencies (e.g. FNR, EU, ESA) through competitive calls, as well as to be funded by private partners as collaborative business.
- Contribution to the dissemination of the knowledge generated by the research, through publications on international journals and presentations at scientific conferences or meetings with partners.
- Development and maintaining of a professional behavior with PhD students, colleagues, and management. Develops and maintain professional competences as well as transversal soft skills through dedicated trainings.

Which profile we are looking for

Educational background

- PhD in Physics, Material Science, Physical-Chemistry or similar, experimental

Required seniority

- A minimum of 2 years on Postdoc / Junior Researcher positions in Research Institutes, Universities, or Companies on R&D functions. In any case, the PhD earning should not be older than 10 years
- Knowledge of RTO environment
- Balanced Track record in publications, patents, academic and industry projects collaboration

Technical skills

- Wet-chemistry synthesis of organic and inorganic nanostructures, in particular oxides and carbon-based materials. Vacuum-based methods for thin films deposition (e.g. CVD, PVD). Characterization of thin films (e.g. SEM, AFM, XPS, 4-probes) and nanoparticles in liquid solution (e.g. DLS)
- Applications of complex nanomaterials towards catalytic / electrocatalytic / photocatalysis shall be known
- Knowledge in Energy systems like Fuel Cells, Electrolysers, Catalytic transformation is a strong plus

Language skills

- English (spoken and written)
- French is considered as an asset

Interested ? Please apply online

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