LEPMI

Laboratory of Electrochemistry and Physical Chemistry applied to Materials and Interfaces

UMR 5279 - CNRS / USMB / UGA / GRENOBLE-INP

Faculty: University Institute of Technology, Chambéry

PhD school: Engineering - Materials, Mechanics, Environment, Energy, Processes Production (IMEP2)

FIELD OF TRANSVERSAL SKILLS

Technologies: Mechatronics, Energy conservation-Civil Engineering, Digital technologies

KEY WORDS

- Energy
- Environment
- Micro - nano sciences

SECTORS

- Renewable energies
- Functional materials
- Membranes
- Microelectronics

From the basic study on electrolytes to the modeling of an operating generator, the LEPMI teams (including the LMOPS, the Chambery team at Université Savoie Mont Blanc) are aiming to increase knowledge in all fields involving the transport of charged species. The LEPMI is a member of the Labex CEMAM, the Institut Carnot (future energies) and the Plastipolis, Tenerrdis, Minalogic and Axelera competitiveness clusters.

RESEARCH THEMES

LEPMI's research work is focused on 3 themes in which we aim to be a major partner in national and international research:

■ Energy

- Electrochemical storage and energy conversion (batteries, fuel cells, supercapacitors, photovoltaic)
- Design and development of functional materials (electrode, electrolyte) for electrochemical and photovoltaic systems
- Characterisation using hyphenated techniques (physical, electrochemical)
- Modeling, from the material to the system

■ Environment

- Active pollution control methods (bioreactor, molten salt reactors)
- Innovative waste and metal recycling processes
- Recycling processes with a view to reusing electrochemical generators
- Designing and modeling materials for environmental protection, particularly for controlling CO2
- Control methods, mainly through studying ion and gas sensors

■ Micro-nano sciences

- Developing nanostructured materials and nano-controlled surfaces
- Controlling nano-objects using innovative development techniques
- Understanding the influence of nanostructure on a material's properties

KEY DATA*

70 researchers and professors
25 administrative and technical staff
60 PhD students

* Academic year 2014-2015

SPECIFIC EQUIPMENT AND EXPERTISE

- Electrochemistry: catalysis and batteries
- Physical chemistry of materials and interfaces
- Synthetic chemistry
- Modeling and homogenisation
- Determining chemical structure

Full list on the laboratory's website.

PHD STUDENTS SKILLS

- Physical or electrochemical characterisation
- Commercial properties
- Functional properties and durability
- Project management
- Teamwork
- Respecting commitments and time lines

NETWORKS / PARTNERSHIPS

LMOPS, Chambery team (Université Savoie Mont Blanc)

Academic cooperations

- Case Western Reserve University (United States)
- Swiss Federal Institute of Technology in Zurich (Switzerland)
- Institut National Polytechnique de Lorraine (France)
- SINTEF (Norway)
- Twente University (Holland)
- ASTRE and MUST platforms of Université Savoie Mont Blanc

Institutional cooperations

- Assemblée des Pays de Savoie
- The Atomic Energy Commission
- The Savoie Mont Blanc University Businesses Club
- Thésame

Industrial cooperations

- Axane Air-Liquide
- EDF
- Nexans
- CEA
- Metravib
- ARAMCO (Saudi Arabia)

INTERNATIONAL RELATIONS

- Trans-border cooperation with Turin Polytechnico (Master PTA)
- Collaboration with ETH Zurich (joint thesis work)

Mise à jour : février 2018 - Réalisation : direction communication de l'Université Savoie Mont Blanc

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