

Energy



The energy challenge concerns many industrial sectors, ranging from renewable energies to electro-mobility. The Chimie Balard Cirimat Carnot Institute research groups help companies meet this challenge through the development of new materials and devices for the production and storage of energy.



Research skills and areas:

- ▶ Materials and devices for energy conversion and storage
- ▶ Lithium and sodium batteries
- ▶ Supercondensers
- ▶ Fuel cells
- ▶ Photovoltaic cells and light-absorbing semi-conductors
- ▶ Thermoelectricity and piezoelectricity
- ▶ New solid, liquid and polymer electrolytes
- ▶ Hydrogen production
- ▶ Hydrogen sensors
- ▶ New fuels
- ▶ Development of selective multifunctional catalysts

Targeted industries

- Automotive industry
- Aeronautics
- Defence
- Energy



Services we offer

- Patents/Licenses
- Studies and Engineering
- Technology Platforms
- Advising
- Technical Services



Industrial innovations and projects:

- ▶ Catalysts with hierarchical porosity for applications in refining and organic synthesis
- ▶ Fuels obtained by oligomerisation of light olefins and by hydrocracking of alkanes
- ▶ Li-ion batteries operating at high temperature (60-80°C)
- ▶ Surface fluorination for electrode protection
- ▶ Na-ion battery prototypes
- ▶ Membranes and assemblies for fuel cells operating at intermediate temperatures of 100 to 200° C
- ▶ Stabilisation of non-noble metal catalysts
- ▶ Materials, modules and pilot plants for the production, extraction and purification of H₂
- ▶ Polymer/oxide thermoelectric composites

Our partners

Total • Solvay • IFPEN • EDF • Hutchinson • Airbus Defense and Space • Thales • Imerys • Hotlock Onboard • Kemet • SAFT • Nanomakers • Varta • Johnson Matthey • Umicore • Bulane • Arkema • BMW • ITM Power • Air Liquide • Saint Gobain CREE • CTI • Safran • SME • Snecma • Fumatech • Nedstack • SymbioFCcell • EADS • Areva • Astrium

Contact us

Frédéric Favier

frederic.favier@umontpellier.fr

Pierre-Louis Taberna

taberna@chimie.ups-tlse.fr

ENSCM
240, av. du Professeur Emile Jeanbrau
34296 Montpellier Cedex 5
FRANCE

-
CIRIMAT
118, route de Narbonne
31062 Toulouse Cedex 9
FRANCE



IBMM
Institut des
Biomolécules
Max Mousseron



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Européen des
Membranes

