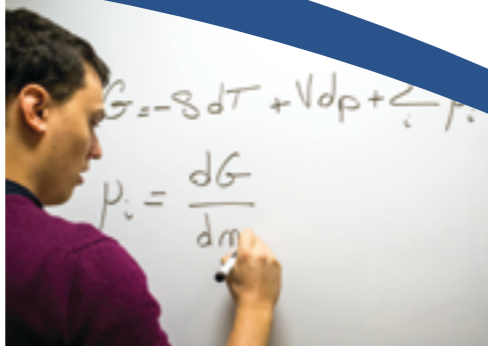
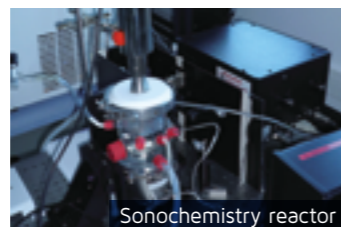
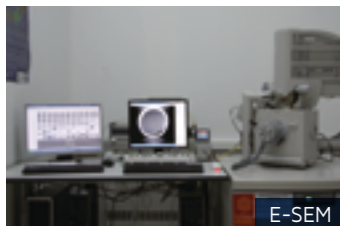


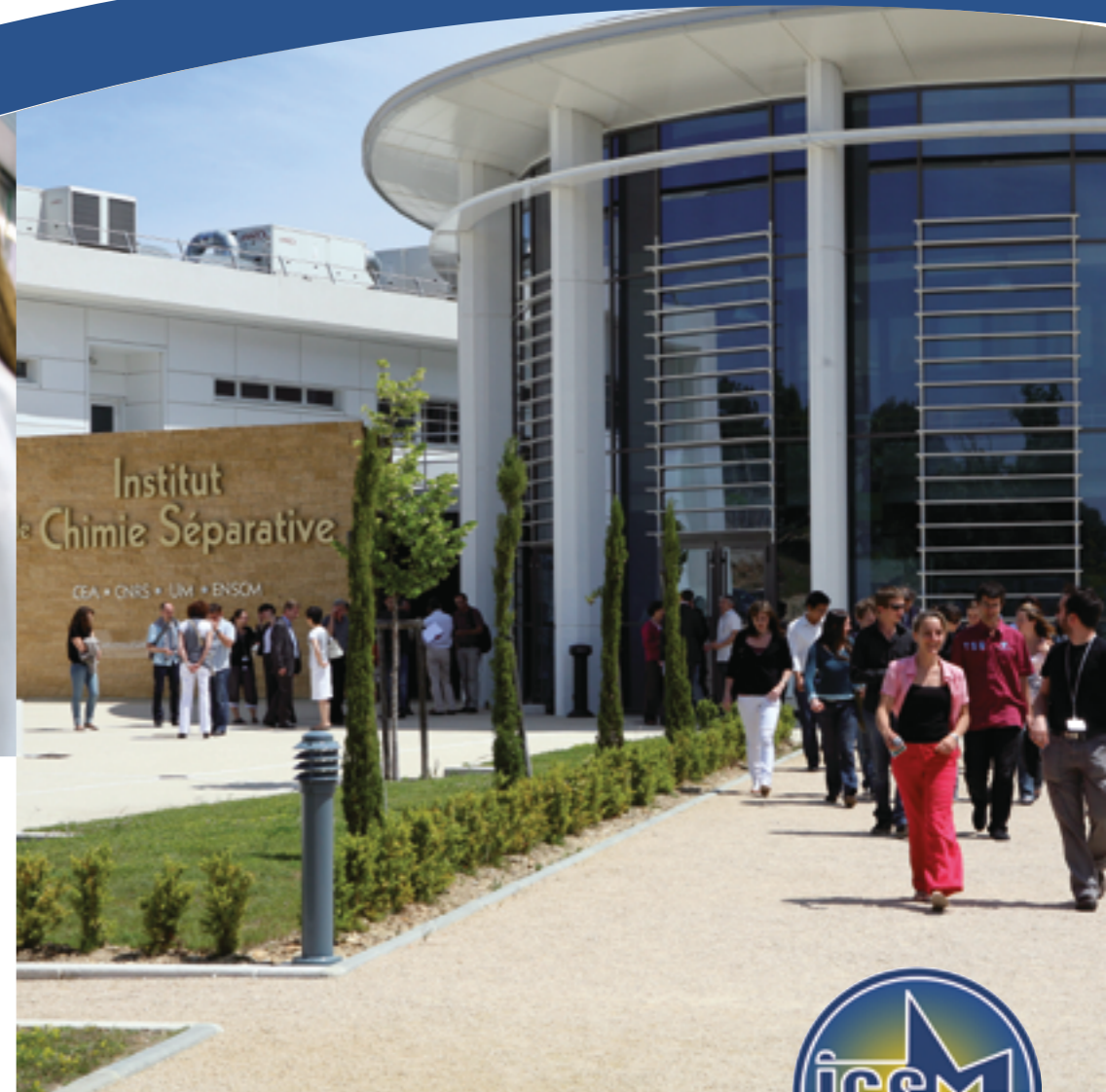
> A variety of services
in a unique place ...



... suitable
equipments



ICSM > Marcoule Institute
for Separation Chemistry



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> Innovative chemistry applied to energy issues



> A joint research laboratory with a strong regional base

Member of the MUSE chemistry cluster gathering the Occitanie-Est chemistry community, the "Marcoule Institute for Separation Chemistry" is a joint research unit involving the CEA, the CNRS, the University of Montpellier and the National Graduate School in Chemistry of Montpellier.

A hundred collaborators



- ICSM employees
- PhDs
- Post Docs
- Trainees and apprentices

> Missions to meet energy challenges

Develop a fundamental research in chemistry and physico-chemistry needed for the development of low-carbon energies, in order to save resources and to recycle recoverable materials.

Train and support through research (ED SCB Doctoral School) to provide students with a high level scientific and technological environment.

Innovate through valorisation and technology transfer activities.

A few key figures

2007
creation of UMR 5257

2009
ICSM laboratories opened

4 600 m²
building including
- 900 m² of laboratories
- 350 m² of classrooms
- A 250-seat amphitheatre
- A reception area for **researchers**

80 industrial and academic collaborations/year

A teaching centre

- National with among others the CSMP master, the CPAC2N Pro license
- International with teaching at IFCEN, SPOC "Recycling chemistry, from theory to applications"

6.5 millions euros
annual budget



international collaborations

UNITED STATES : LOS ALAMOS, BOSTON, PULLMAN, STANFORD, BERKELEY, DAVIS, SOUTH BEND, CHICAGO, EVANSTON
| **AUSTRALIA** : CANBERRA, MELBOURNE, SYDNEY | **EUROPE** : KARLSRUHE, REGENSBURG, JÜLICH, BERLIN, POTSDAM, AACHEN, BARCELONA, MADRID, LJUBLJANA, COPENHAGEN, AMSTERDAM, MESSINA, DELFT, LONDON, CAMBRIDGE, BRISTOL | **RUSSIA** : MOSCOW | **CHINA** : GUANGZHOU | **SINGAPORE** | **LEBANON** : BEYROUTH
| **INDIA** : BANGALORE, PUNE | **JAPAN** : TOKYO, KYOTO | **TUNISIA** : MONASTIR | **ALGERIA** : ALGIERS, ORAN, TIZI OUZOU
| **SOUTH AFRICA** : JOHANNESBURG | **CYPRUS** : NICOSIA | **ARGENTINA** : BUENOS AIRES

and industrial collaborations

VEOLIA | ORANO | EDF | TORSKAL | TND | EXTRACTHIVE | NEWTEC SCIENTIFIC | OCP | TATA | SKB
ARCELOR MITTAL | MORPHOSIS | SOVAMEP | BRGM | SAINT-GOBAIN | CISBIO | CTI

> Research themes

INNOVATE TO SEPARATE, SORT AND RECYCLE

INNOVATION IN EXTRACTION AND RECYCLING

From the knowledge of molecular, supramolecular and colloidal mechanisms, the design and the purposive synthesis of chemical systems are devoted to the nuclear fuel cycle and extended to the recycling of strategic metal by taking into account the principles of eco-friendly processes.

METHODOLOGIES AND THEORIES IN SEPARATION CHEMISTRY

by the use of tools and methodologies already mastered (light reflection, X-ray and neutron scattering, neutrons) or innovative (nonlinear optics, electro-acoustic, advanced electron microscopy), as well as based on statistical physical chemistry.

OPTIMIZATION OF MATERIALS LIFE-CYCLE FOR ENERGY

by studying the cycle of chemical and/or physico-chemical processes related to the life of materials and associated fluids. It involves understanding and establishing relationships between the structure (nano-organization, microstructure, electronics, composition...) and the reactivity (dissolution, physical stress, irradiation...) of solid compounds and related.

> Multi-discipline high level scientific skills

Methodologies for synthesis

- Materials: oxides, carbides, phosphates...
- Materials with controlled porosity
- Organometallic chemistry, metallo-assembly
- Molecular extractants and self-assemblies
- Sintering

Physics and physical chemistry

- Molecular and ionic aggregation
- Liquid/liquid and solid/liquid interfaces
- Dissolution
- Irradiation

Separation chemistry techniques

- Liquid/liquid & solid/liquid
- Precipitation
- Membrane filtration
- Flotation

Methodology development

- Mesoscopic modeling
- Electronic microscopy
- Non-linear optics
- Neutron and X-ray scattering/diffraction