



KEY TECHNOLOGIES

Catalysis

Manmade catalysts play a key role in oil refining, petrochemistry, polymer science, and, increasingly, in pollution abatement. Characterising the 'working' catalysts (catalysts studied at reaction temperatures and pressures and with a flow of reactants) is critical for gaining a better understanding of the basic phenomena involved during catalysis. The Caen laboratory (LCS) is a leading centre in the field of *in situ* IR and NMR spectroscopy. Detailed kinetic analysis of catalytic processes also yields models valuable to industry for process scale-up. Its internationally renowned research is valuable for the chemical and petrochemical industries, and for the manufacturers of spectroscopic equipment.

THE TEAMS

A team of 50 people (including 25 permanent scientists and technicians) work at the LCS. The non-permanent staff is mainly sponsored by short-term contracts with the Ministry of Science, the CNRS, and private companies.

The high-level research sponsored by industry and the long-term relations with many French and international groups underscores the laboratory understanding of, and commitment to its customers' concerns for intellectual property and confidential research. The high quality research always focuses on understanding the detailed mode of action of model or industrial catalysts.

SPECIAL EQUIPMENT

Test-benches for characterisations

- ▶ under pressure
- ▶ under corrosive atmosphere

IR spectrometers (11)

Nuclear Magnetic Resonance (one solid state spectrometer [400 MHz])

APPLICATIONS

The applications for heterogeneous catalysis are mainly in:

- ▶ Pollution abatement: refineries, petrochemistry, and automobiles (catalytic converter)
- ▶ Polymerisation
- ▶ corrosion
- ▶ Composite materials

COMMITTED COMPANIES

- ▶ IFP (Rueil, Solaise)
- ▶ Rhodia (Lyon, Paris, and La Rochelle)
- ▶ IMRA, automotive equipment manufacturer
- ▶ Exxon - Mobil (USA)
- ▶ Grace (USA)
- ▶ Bruker (NLR and IR spectroscopy)
- ▶ Nicolet (IR spectroscopy)

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SUPPORT TO BUSINESS SET-UP PROJECTS IN BASSE-NORMANDIE

The Basse Normandie Region has rolled out all its resources to support business projects in the following areas:

- ▶ General funding
- ▶ Business project support
- ▶ Training programs
- ▶ Corporate user services at operations site
- ▶ Technology transfer to companies:
www.gravir.org and www.ismra.fr

CONTACTS

For general technological or scientific information

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For further information:

Browse our website to find out all about the many opportunities in Normandy, at www.normandydev.com or send an email to ndcaen@normandydev.com or ndrouen@normandydev.com

