



# LABORATORY OF COMPLEX FLUIDS AND THEIR RESERVOIRS

## APPLICATION SECTORS

- Oil and gas exploration-production
- CO<sub>2</sub> capture and storage
- Bio-fuels

## PARTNERSHIPS

### INDUSTRIAL

TOTAL, EDF SA and GDF SUEZ, STATOIL, BP, PETROBRAS, SINTEF, TIGF

### INSTITUTIONAL

ESA, EUROPE (ERC, Marie Curie), IFP-EN

## EUROPEAN AND INTERNATIONAL PROJECTS

- **SCCO-SJ10** (CHN, SP, UK, ESA-TOTAL)
- **ENERBIOALGAE**: Interreg Sudoe
- **FAILFLOW**: FP7 ERC Advanced Grant

## STAFF

- 30 researchers and professors-researchers and 3 temporary teaching and research attachés (ATER)
- 3 professors and 1 research director emeritus
- 23 PhD students and 8 post PhDs
- 6 TOTAL engineers and 3 research engineers
- 10 research support personnel

## RESEARCH THEMES

- Behaviour of phases
  - Measurement and modelling of phase equilibrium properties
  - Phase behaviour of difficult fluids (heavy crudes)
  - Flow assurance
- Transport properties
  - Measurement, modelling and simulation of viscosity
  - Simulation and modelling of transport in nanoporous medium
- Colloids and interfaces
  - Measurement and modelling of interfacial properties and dispersed systems
  - Gas hydrates: promotion, prevention, separation and storage of gases
- Porous media
  - Damage coupling – transport properties
  - Behaviour of fluids in highly confined medium
- Geological reservoirs
  - Characterisation of reservoirs. Field work, measurements and modelling
  - Microstructures, fluid rock interactions, analysis of the basin, and deformation

## KNOW-HOW

- Measurement, modelling and simulation of thermophysical properties of petroleum fluids under reservoir conditions.
- Characterisation of dispersed systems (hydrates, emulsions, asphaltenes, paraffins, etc.)
- Petrophysical and mechanical properties of porous media
- Description and modelling of petroleum reservoirs

## MAIN EQUIPMENT

- HP calorimetry, HP phase equilibrium cells
- HP phase equilibrium cells
- HP densimeters and viscosimeters
- High pressure filtration
- Traction-compression machine, stress permeameter
- HP quartz microbalance
- X-ray microtomograph
- Porosimetry (MIP and adsorption)
- Dynamic tensiometer, Langmuir balance, ellipsometer, "Hydrates" HP pilots
- Laser interferometer, magnetic and acoustic anisotropies

### ( CONTACT LFCR )

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