

LFCR LABORATORY OF COMPLEX FLUIDS AND THEIR RESERVOIRS

LFCR/UMR 5150
TOTAL CNRS UPPA

Fields of application
Oil & gas exploration and
production
CO₂ capture and storage
Biofuels

Research themes

THERMOPHYSICAL PROPERTIES

Phase equilibrium and transport
properties in reservoir conditions
Transport in microporous media
Complex fluids (gassed, pre-salt,
CO₂, WAX, asphaltenes)

INTERFACES AND DISPERSED SYSTEMS

Quantification of interfacial
properties
CO₂ capture and storage
Gas clathrates

GEOMECHANICS AND POROUS MEDIA

Coupled degradation-transport
model
Fluid behavior in very confined
spaces
Heat diffusion

GEOLOGICAL RESERVOIR CHARACTERIZATION

Multimethod and experimental
geophysics
Fluid-rock interactions,
diagenesis-deformation coupling
Orogenic belt and foreland
dynamics

Know-how

Measurements, modeling and simulation of the thermophysical properties of petroleum fluids

Characterization of complex and dispersed systems (hydrates, asphaltenes, waxes, etc.)

Petrophysical and mechanical properties of porous media

Characterization and modeling of petroleum reservoirs

<p>Main equipment</p>	<p>THERMOPHYSICAL PROPERTIES Calorimeters and HP phase equilibrium cells HP density and viscosity meters HP quartz crystal microbalance / HP microscopy / HP sound velocity</p>	<p>INTERFACES AND DISPERSED SYSTEMS Dynamic tensiometer Langmuir's film balance Ellipsometer, zeta-meter HP reactors and microreactors HPHT capillary sample stage for optical microscopy</p>	<p>GEOMECHANICS AND POROUS MEDIA Tension-compression machine, triaxial cells X-ray micro-tomography Porosimetry (PIM and adsorption)</p>	<p>GEOLOGICAL RESERVOIR CHARACTERIZATION Fluid inclusion stage, cathodoluminescence HR seismic and radar imaging, electromagnetic imaging Laser Doppler vibrometer, ablation laser</p>
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Partnerships

Industrial partnerships: ARKEMA, BP, C2M, EDF, ORANO, PETROBRAS, STORENGY, TEREGA, TOTAL E&P, TOTAL M&S, TOTAL R&C, TOTAL R&D, STATOIL

Institutional partnerships: ANR, CCL, CDAPB, CRWA, CNES, ESA, EUROPE

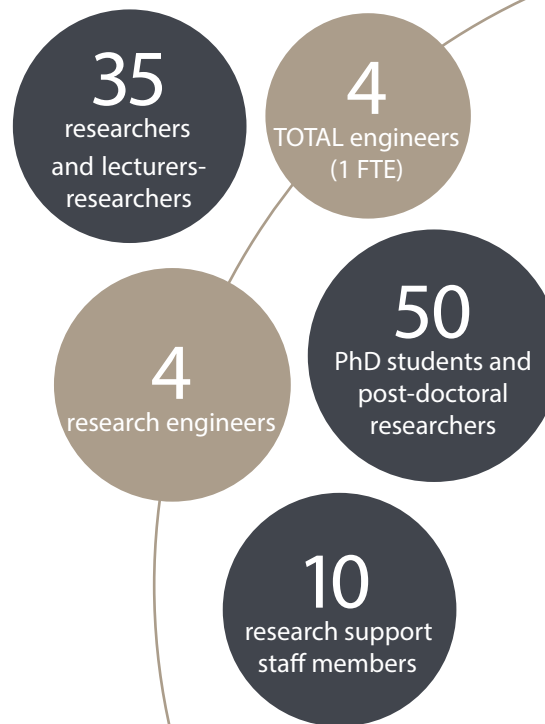
Spearheaded by



European and international projects

- DCMIX (D, BE, FR, SP)
- GIANT FLUCTUATIONS (CHN, D, FR, IT, SP, New-York NY)
- HYDROFLUCTERM (FR, SP)
- KET4F-GAS (Interreg Sudoe)
- SCCO-SJ10 (CHN, SP, UK, ESA-TOTAL)

LFCR in figures



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