





IPRA /FR2952

Multidisciplinary Institute for Applied Research in Petroleum Engineering (IPRA) FR2952

The Fédérative structure IPRA (FR CNRS-UPPA 2952) gathers pluridisciplinary competencies in mathematics, engineering and geosciences from four laboratories and one joint service unit located in Pau, Anglet and Tarbes :

- * Laboratory of Complex Fluids and their Reservoirs, UMR 5159 
- * Laboratory of Sciences for the Engineer Applied to Mechanics and Electrical Engineering, EA 4581 
- * Laboratory of Mathematics and its Applications, UMR 5142 
- * Laboratory for Thermal Sciences, Energy and Processes, EA 1932 



Website

Research Themes

- * Thermophysical properties / Interfaces and dispersed systems
- * Geomechanics and Porous media / Characterisation of Geological reservoirs
- * Functional analysis of energy systems / Energy conversion and displacement motors / Energy storage using PCMs / Underground energy storage and distribution
- * Treatment of air and waste gases / Treatment of residual sludges / Thermal treatment of waste
- * Analysis of equations with partial derivatives / Optimisation and dynamic systems
- * Numerical simulation, scientific calculation and HPC / Statistics and applied probabilities
- * Emulsification and low energy mixing / Multiphase flows / Damage, cracking, coupling in geomaterials (concretes and rocks)
- * Power switching, high voltage transient pulse generators / Electric discharges: electrical fracturing, electrofiltration, electroporation
- * High voltage pulse metrology / Aerodynamics and flows of compressible fluids
- * Coastal hydrodynamics, sedimentary transport / Low impact construction materials

Application Sectors

- * Oil and gas exploration-production
- * CO2 / CH4 capture and storage
- * Biomass, Bio-fuels, Bio-Gas
- * Oil, Civil, Coastal, Electrical engineering
- * Aeronautics

- * Environment
- * Dependability
- * Energy production, storage and conversion
- * Industrial cooling and air conditioning
- * Motors, cogeneration

Principal Equipment

- * HP calorimetry, HP phase equilibrium cells, HP Filtration, HP densimeters and viscosimeters, HP quartz microbalance
- * Traction-compression machine, stress permeameter
- * X-ray microtomograph / Porosimetry (MIP and adsorption)
- * Dynamic tensiometer, Langmuir balance, ellipsometer, "Hydrates" HP pilots
- * Laser interferometer, magnetic and acoustic anisotropies
- * Petrographic laboratory (Microscopy, fluid inclusion, RX ...)
- * Computation cluster (3 front-end servers, shared nodes), Pyrene cluster
- * MAVERIC test bench: Model for validation and experimentation on cooling by controlled injection,
- * IPRA library shared with the IPRA units.
- * Hydraulic presses / Furnaces, climatic chambers / Marx generators / Energy benches
- * Emulsifiers / Wave recorder / Current meter
- * Special operational units: filter press, tangential filtration, crystallisation units, reactive absorption, reactive distillation...
- * Cold storage system with encapsulated phase change materials
- * Mechanical dehydration tools (electro-dehydration, belt press filter, press filter, filtration-compression cells)

Partnerships

Industrial

TOTAL, EDF, ENGIE, STATOIL, BP, TIGF, PETROBRAS, SINTEF, ABB, ALSTOM, ITHPP, EFFITECH, SNCF TURBOMECA, AIR LIQUIDE, ARAMCO, AREVA, ARKEMA, CIAT, CETIAT, EADS, EUROPLASMA, VEOLIA, FONROCHE GEOTHERMIE, FRANCE TELECOM, GERG, PROSIM, THERMYA

Institutional

ESA, EUROPE (ERC, Marie Curie), IFP-EN, CEA, DGA, ANR, C.S.T.B., CEOS, IFREMER, ONERA, IRSN, ADEME, BRGM, IRSTEA

European and International Projects

- * SCCO-SJ10 (CHN, SP, UK, ESA-TOTAL)
- * ENERBIOALGAE: Interreg Sudoe
- * FAILFLOW: FP7 ERC Advanced Grant
- * PRE2PLA: Interreg Spain France Andorra
- * MAGIC: FP7 People - ITN
- * IMPACT AE: FP7 Collaborative projects
- * TEXT: FP7/Combination of Collaborative Project and Coordination and Support Action
- * FORGE: FP7 Collaborative projects
- * KIAI: FP7 Collaborative projects
- * EELIAD: FP7 Collaborative projects
- * Ecometals (France, Germany, Poland)
- * ETS Montréal (Canada)
- * CREVER Taragonne (Spain)

Staff

- * 45 Full Professors
- * 105 Assistant/Associate Professors
- * 26 Post-Docs
- * 70 PhD students
- * 15 Research & Technical Staff
- * 8 Administrative Staff

Contact

UFR Sciences et Techniques

Avenue de l'Université - BP 1155

64 013 PAU Cedex

Laurent BORDES

Tel +33 (0)5 59 40 75 38