



## Academic Chairs

### Chair for Geomechanics

UPPA-CNRS / 2010-2015

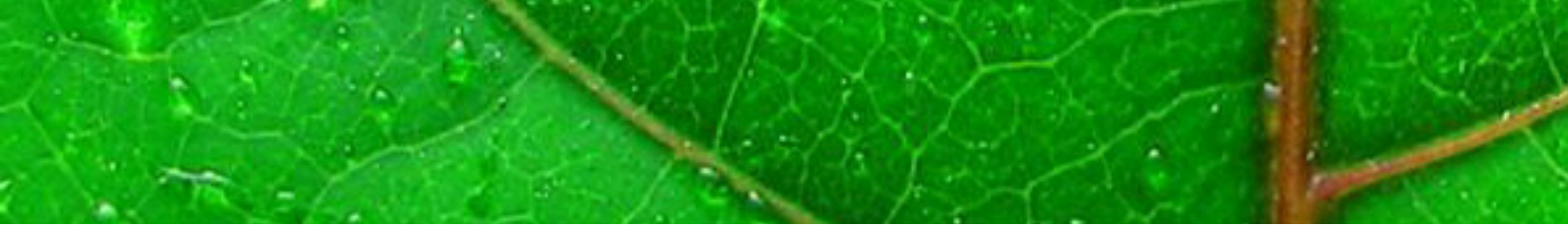


The geomechanics chair is focused on porous materials and particularly on the multi-physics couplings appearing at the small scale, but with significant consequences at the large scale of a structure or a reservoir. This encompasses damage, failure and transport couplings in mesoporous materials and adsorption-induced swelling in microporous materials. Experimental tests, modelling and numerical simulations have been performed to characterise materials, to build databases, to enhance existing models and propose new ones, to validate and compare results at the material scale and the structural scale.

### Chair for Characterization of petroleum systems

UPPA-CNRS / 2012-2017

The chair aims to investigate mineralogical and geoche

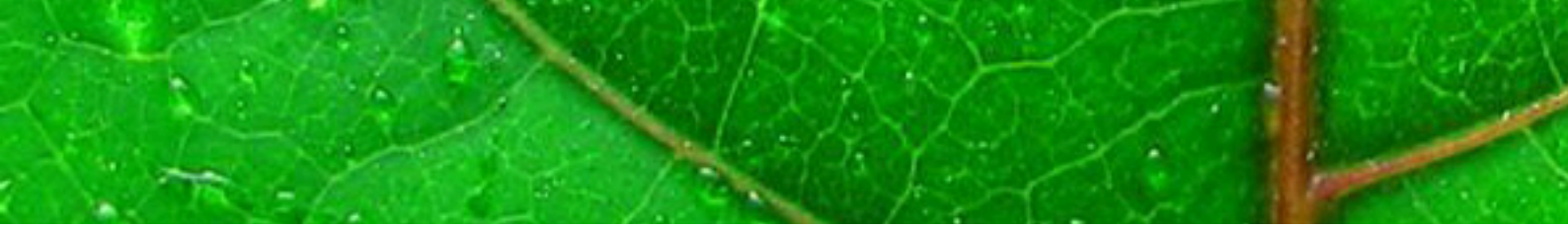


chemical modifications of reservoir rock during the geological history of sedimentary basins. This topic underlies geoscience applications oriented towards the characterization of conventional and unconventional oil and gas reservoirs. It aims at enhancing our understanding of reservoir evolution, which depends on several parameters such as temperature, pressure, sedimentation rate, tectonics, or fluid flow. The final purpose is to be able to predict the conditions necessary for a good preservation of reservoir properties during burial (porosity, permeability). To tackle such challenges, several approaches are followed. They include direct examination of rocks in the field or on drilling cores, but also optical and electronic microscopy (Cathodoluminescence, Secondary Electron Microscopy), geochemistry (stable and radiogenic isotopes, electron microprobe), fluid inclusion microthermometry, and fluid-rock interaction modelling.

Since its integration in the LCFR, Guilhem Hoareau has co-supervised 4 PhD students, including three sponsored by Total SA. He has set up a microscopy lab including optical microscopes, cathodoluminescence and fluid inclusion microthermometry stages, and raised about 410 k€ through public tenders and industrial collaborations, in addition to the chair-related budget (50 k€). He has established collaborations in several public and industrial research labs in France and elsewhere (Univ. Montpellier, Paris, Kansas State University, British Geological Survey, BRGM, IFPEN, Total...)

## Chair for Numerical Analysis

UPPA-Inria / 2010-2015



Sébastien Tordeux was recruited in 2010 for a period of five years as the holder of the Chair of Excellence INRIA-UPPA for Numerical Analysis. He is part of the Laboratory of Mathematics and the Inria project team [Magique 3D](#) led by H el ene Barucq. S ebastien Tordeux's research program consists in developing, analyzing and validating innovative numerical methods with a low computational burden to predict the impact of very small details on wave propagation phenomena.