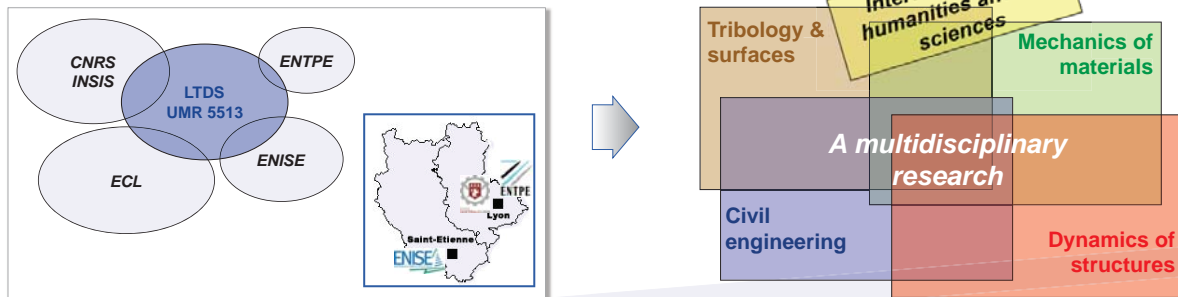
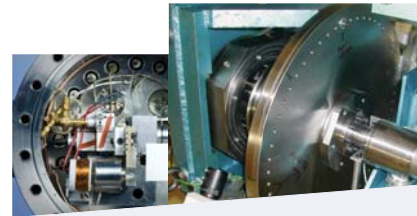


Head: Fabrice THOUVEREZ



## Research and innovation in three major scientific fields

- ▶ Fundamental understanding of contact phenomena, friction, wear, lubrication and induced dynamic effects
- ▶ Multiphysical modelling of materials with high heterogeneity (*bio-materials, geomaterials,...*) and manufacturing processes
- ▶ Prediction of the dynamic behavior of structures including damage physics, non-linear phenomena due to interfaces and materials



## Scientific goals and challenges

- ▶ Multi-physics analysis of the behavior of complex systems in the relevant space and time scales to design and optimize mechanical, chemical or biological assemblies
- ▶ Advanced research in engineering science thanks to a unique scientific environment with researchers having various backgrounds (*mechanics, physics, chemistry*)

## Main skills

- ▶ Tribology, nano-mechanics and surface chemical physics
- ▶ Non-linear dynamics, high and mid-frequency vibroacoustics, active control
- ▶ Multiphysics modeling of manufacturing process
- ▶ Discrete mechanics and granular media
- ▶ Biotribology and biomechanics of living tissues

## A shared scientific approach

- ▶ A multidisciplinary culture for the study of complex systems by accounting for coupled phenomena
- ▶ Development of original devices to maintain a reliable experimental component
- ▶ Coupling of high-level experimentation and modelling to understand physical phenomena

## Four research teams

- ▶ Dynamics of complex systems – Head: M. Collet
- ▶ Geomaterials and sustainable construction – Head: H. Di Benedetto
- ▶ Mechanics of materials and processing – Head: H. Zahouani
- ▶ Tribology, Physico-Chemistry & Dynamics of Interfaces – Head: S. Fouvry

