



<https://www.dalembert.upmc.fr>

- 63 senior scientists, scientists, professors, assistant professors
- 18 members of the technical team and administration
- 65 PhD students
- 20 post-doctoral students
- 14 emeritus professors or senior scientists.

- Several high speed cameras photron/phantom for image-based measurements techniques

- Thermal cameras
- Powerful lasers (combustion probing)
- HPC: cluster 696c 4Tflops (in house codes)
- Anechoic Chamber 42m² x10m
- Testing machine
- 3D printer

The Jean Le Rond d'Alembert Institute aims at extending the field of knowledge in all areas of Fluid and Solid Mechanics, Acoustics and Energy. Its fields of study and research objects are at the very heart of human activities (in strong interaction with industry: transport, energy, etc.), and on a human scale (biomechanics, musical instruments, new materials, biomimetic structures, renewable energies etc.). The methods combine theory, modelling, numerical and experimental simulations in a triple approach mixing engineering, physics and applied mathematics.

2 sites

Saint-Cyr campus in St-Cyr l'Ecole near Paris

Acoustic imagery
Combustion
Process engineering

Pierre and Marie Curie campus in Paris

Non-linear acoustics
Multiphase flows, turbulence
Mechanics of solids and structures
Fluid mechanics
Musical acoustics

MISES group (Mécanique et Ingénierie des Solides et des Structures, Mechanics and Engineering of solids and Structures)



The activity in solid mechanics is carried out within the MISES group which has about fifteen permanent members and fifteen PhD or post-doctoral students.

Three themes:

1. Micromechanics (multi-scale approaches, damage, constitutive laws)
2. Fracture Mechanics (brittle, ductile, variational approach, initiation criteria)
3. Structures (optimization, vibrations, stability, nonlinearities, anisotropy)

More precisely, the activity focuses on the following topics: mechanics of heterogeneous materials (polycrystals, geomaterials, concretes, composite materials...) with multiphysics couplings; degradation of materials and structures by damage and crack propagation; thin and slender structures (nonlinearities, vibrations and instabilities) and optimization of functional structures (biological, aeronautical, musical instruments, ...)