OUR PLATFORMS

PLATFORM
ROTATING MACHINES

Numerical simulations and validation tests on prototypes of complex structures:

> Prediction, analysis of performances and integrity of turbomachines, rotors, gears, wind turbines, etc.
> Optimisation, stability, fatigue, noise emissions, induced vibration, etc.
> Multiscale experiments, multiphysic modelling and numerical simulations.

PLATFORM
TRIBOLOGY, SURFACES & INTERFACES

> Experimental and numerical modelling of fluid third body mechanics.
> Identification of reactional mechanisms under contact stress.
> Technological solutions for squeal and wear problems.
> Tribometry platform for improving the control of tribological surfaces.
> Microtechnologies, thin layers and coatings.

PLATFORM
MATERIALS & PROCESSES

Engineering for all types of materials:

> Calculations, numerical simulation and modelling: relations between microstructures and properties.
> Design, formulation, functionalisation, forming of metals, polymers, ceramics, composites and biomaterials.
> Mechanical, thermomechanical, electric and chemical characterisations.

PLATFORM
ROBUST DESIGN

> Robust optimisation of multiphysics systems integrating uncertainties on fabrication and use.
> Evaluation of damage to and the longevity of products.
> Comparisons between calculations/tests.
> Modelling of forming processes, and the properties of parts in use, in normal operation and subject to extreme stress.

PLATFORM
ACOUSTICS & VIBRATIONS

> Characterisation of the vibratory and acoustic behaviour of coupled complex systems.
> Design and optimisation of acoustic and vibration treatments.
> Dynamics of combustion engines and electric motors.
> Non-linear dynamic friction systems.
> Analysis and characterisation of acoustic and aero-acoustic materials.
> Psychoacoustics and sensorial studies.

PLATFORM
ENERGY & ENVIRONMENT

Experimental chambers and numerical simulations dedicated to improving energy management:

> Analysis and measures of flows, dispersion of pollutants, thermal phenomena.
> EMC characterisation benches, energy harvesting systems, mechatronics.

PLATFORM
BIO-ENGINEERING

> Tissue engineering (hard and soft) of biomaterials, exploration of the mechanical properties of skin.
> Development of imaging and medical monitoring solutions, medical robotics such as medical simulators, implants and diagnostics.
> Studies of the encapsulation of active ingredients for targeting cells, formulation of active cosmetic agents targeting skin, formulation, physicochemical characterisation, biopharmaceutical evaluation.

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In synergy with

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