A team of nearly 200 professionals

Navier has almost two hundred people working in the fields of mechanics and physics of materials, structures and geomaterials. Its research relates to civil engineering, environment and sustainable development, energy and transport; with applications in particular in eco-design, durability and engineering of materials and structures, geotechnics, geological storage (nuclear waste, CO2, natural gas), petroleum engineering and noise impact control.

The research orientations are both theoretical, numerical (multi-scale approaches, discrete modeling, finite element methods…) and experimental.

Research materials include larges facilities (Nuclear Magnetic Resonance imaging, X-ray microtomograph, annular simple shear apparatus, calibration chamber…) and demonstrators (footbridge in composite materials, grid-shells, wood-concrete composite structures…).

Navier is also heavily involved in the teaching of mechanics, physics and geotechnics.
Six research teams, three technical support teams and an administrative support team

- “Dynamics of structures and identification” Team: issues in the field of mechanics involving fast changes: vibration of structures, initiation and propagation of mechanical or acoustic waves.

- “Geotechnics (CERMES)” Team: geotechnics and geomechanics (soil and rocks), with applications in civil engineering, environmental engineering, offshore petroleum engineering and natural risks.

- “Architected Materials and Structures” Team: mechanics of materials and structures for sustainable construction, assembly of elements with contrasting behaviors, from large to “micro” structures of heterogeneous materials, innovative structural concepts supported by real-scale prototypes.

- “Multiscale modeling and experimentation for heterogeneous solids” Team: determining the behavior laws of solid materials through an analysis of their microstructure, of the elementary physical mechanisms that prevail in these microstructures and of their interactions.

- “Physics of porous media” Team: characterization, understanding or modeling of porous materials common in civil engineering and environmental uses, through the study of the liquid in the pores, which is responsible for the transport of chemical compounds and exchanges with the solid phases, generates chemical reactions and induces large mechanical stresses through its phase changes.

- “Rheophysics” Team: observation, understanding and modeling of the behavior of complex fluids (pastes, granular materials, suspensions, foams…) and determination of the relationship between global properties and phenomena that occur at constituent scale (behavior and interaction).

**Highlights:**

- Navier is one of the main partners in the “Multi-Scale Modeling & Experimentation of Materials for Sustainable Construction” LabEx (Excellence laboratory)

- Conduct of mechanical tests on civil engineering materials and geomaterials at the Soleil synchrotron, within the framework of the NanoImageX EquipEx (Excellence equipment)

- Involvement in six teaching and research chairs

- Involvement in 9 National Research Agency projects

- Development of the microtomography platform within the F2M-msp

- Realization of a gridshell in composite materials for the Solidays festival

- Characterization of Martian soil analogues (collaboration IPGP – InSight mission NASA 2016)

- New materials characterization tools: environmental nano-indentor, NMR minispectrometer, phase contrast microscope, dynamic triaxial cell

For more information:

Navier website
http://navier.enpc.fr/?lang=en