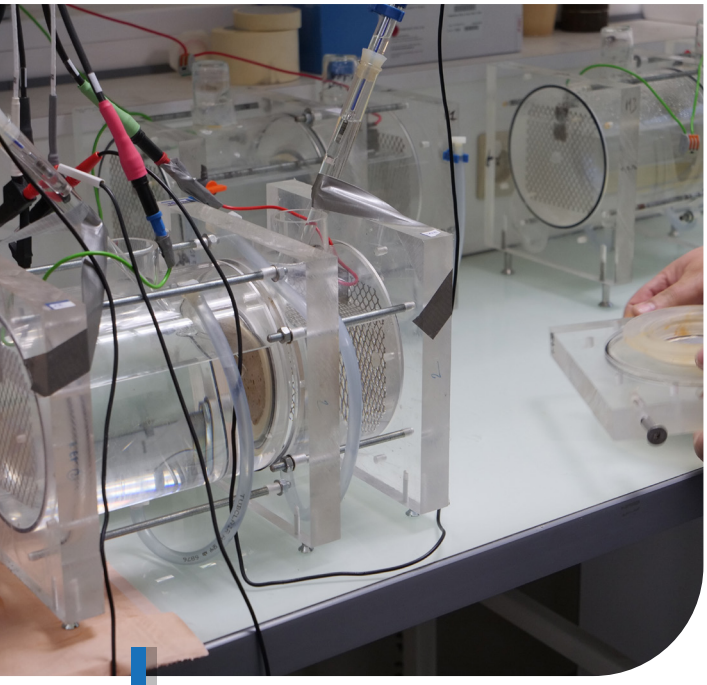
Environmental Engineering /Civil Engineering / Modeling in mechanics and transfer phenomena / Material Design and behavior /Corrosion

Laboratoire des Sciences de l'Ingénieur pour l'Environnement (LaSIE)



Bringing together a wide range of skills in the field of environmental engineering, LaSIE is interested in the sustainability and protection of materials subject to the constraints of the environment.

The Laboratory also works to improve the comfort and quality of indoor air in inhabited spaces.

His research also concerns the study of manufacturing processes and the energy recovery of resources of biological origin.

Director — **Xavier Feaugas**

Permanent research staff — **58**

Phd students — **72**

Permanent technical assistant staff — **17**

Staff on research project — **16**

— 4 teams

- Mathematical and numerical methods for transfer phenomena
- Sustainable buildings and cities: energy and quality of environments
- Transfers, degradation and recovery of materials
- Durability, Microstructure, protection and coatings

Discipline — Engineering

Societal challenges

Eco-design

Inclusion of environmental impacts in the design and development of a product by integrating them throughout its life cycle.

Durability

Study of the mechanical and environmental constraints related to wet, saline and aggressive environments in research on materials and coatings reinforced by the geographical proximity of the maritime environment.

Energy of nuildings and quality of indoor air

Study of energy of buildings and systems, the improvement of the quality of indoor air in inhabited spaces and the energy transition in buildings (renewable energies and positive energy buildings).

Bioenergy

Research about the alternatives to fossil fuels relying on the exploitation of plant biomass and the development of available plant resources (oleaginous plants, microscopic algae, etc.).

Global approach

LaSIE is as interested in the atom as in the material. In the same way, it does not conceive the building without its environment and takes into account the different scales of time and space. The Laboratory's work ranges from the development of mathematical tools to patent applications and patenting, as well as numerical and experimental simulations.

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Research Network

With microscopic techniques (scanning electron microscopy, environmental microscopy, optics, etc.), advanced analytical platforms (X-ray crystallography, aging chambers, spectroscopy, etc.) and the innovative modeling tools at its disposal; LaSIE is a service provider to several research centers and companies in the region.

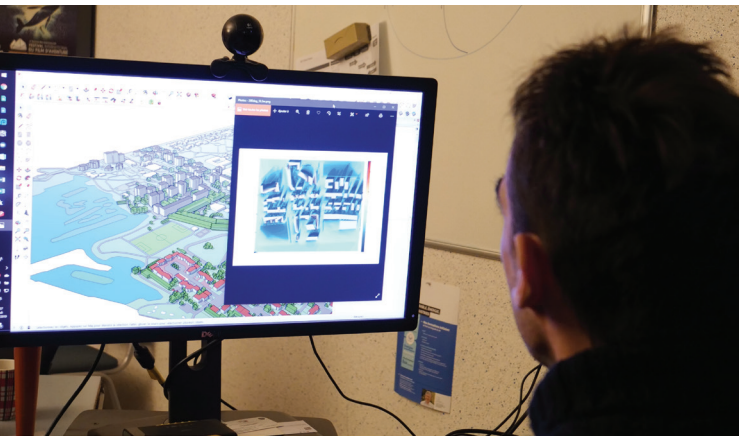
The Laboratory is also the French referent of the European project HealthVent. Bringing together public health, engineering and energy experts from 11 different countries, HealthVent is dedicated to improving the indoor air quality of private and public buildings in accordance with the highest energy standards.

Expertise Achievements

The Laboratory is currently coordinating the implementation of the La Rochelle Sustainable Building Platform (Tipee).

This inter-regional technological structure bringing together 15 partners through a public-private consortium is born on the former Lagord military site.

LaSIE is also involved in the Ecocorail project funded by the National Agency for Research. It aims to study the reinforcement of the sea protection dikes by a process manufacturer in situ rock conglomerates by electrolysis of seawater. This project should contribute to the emergence of new means of action against erosion coastline that particularly affects the Atlantic coast.



Training

MASTER IN **CIVIL ENGINEERING**

- **programme Building Engineering: Management and Integration of Energy Efficiency and Renewable Energies (GI3ER)**
- **programme Building Engineering: New Techniques for Construction and Renovation (TNCR)**

MASTER **IN MATERIALS SCIENCE AND ENGINEERING**

- **programme Materials and structures durability** (jointly accreddited with Universities of Poitiers and Limoges)
- **programme Materials for renewable energies**

Partenariats Collaborations

LaSIE's work is conducted in partnership with several national public institutions (including the Scientific and Technical Center for Building Construction, ADEME, the National Institute of Agronomy, CEA, ANDRA, IFSTTAR) and regional (of which the Jules Verne Technological Research Institute of Nantes).

Collaborating with nearly twenty major French groups (including Lafarge, GDF Suez, EDF, Areva, Airbus), the Laboratory also maintains close ties with companies in the region (including CRITT Agribusiness La Rochelle, Exoson , Galva Atlantic).

LaSIE finally joins the research of several French universities (including the Compiegne University of Technology) and foreign ones (the Royal Military School of Brussels, the National Autonomous University of Mexico...).

CONTACT

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