

UMR 5271 - USMB / CNRS

Faculty: Polytech Annecy-Chambéry

PhD school: Science and Engineering of Systems, of Environment and of Organisation (SISEO)

FIELDS OF TRANSVERSAL SKILLS

- *Technologies: Mechatronics, Energy conservation-Civil Engineering, Digital technologies*
- *Fundamental Science, Earth sciences and Environment*

KEY WORDS

- *Thermal performance of building • Solar energy*
- *Performance of buildings • Energy Systems*
- *Mechanics and Structure • Energy storage • Coupled Transfers • Chemical Engineering*

SECTORS

- *Office building study*
- *Energy systems*
- *Environment*

PRESENTATION

The LOEC is a joint research unit of the Université Savoie Mont Blanc and CNRS working in engineering sciences and systems. Its activities are strongly oriented towards application domains with high technological and societal challenges: building and sustainable energy. The LOEC is also a basic research laboratory of the National Institute of Solar Energy located on the campus of Savoie Technolac.

RESEARCH THEMES

LOCIE's researches are articulated around 4 themes:

- **Local energy conversion**
 - Microbial fuel cells
 - Organic PV
 - Thermo electricity
- **Solar thermal systems and storage**
 - Absorption systems
 - Sensitive heat storage
 - Multi-source and / or multi-system coupling
- **Flow control for the indoor quality**
 - Coupled transfers in building envelopes
 - Methods for purifying air
- **Characterization of building, assessment and improvement of performances**
 - Structural mechanic of buildings
 - Energy performance of buildings

KEY DATA*

- **25** researchers and professors
- **6** administrative and technical staff
- **30** PhD students

* Academic year 2014-2015

SPECIFIC EQUIPMENT AND EXPERTISE

- Visualization platform
- Chemical characterization platform
- Structural mechanic Platform
- Privileged access to the INES platforms: INCAS Houses, Passys cells, artificial sunlight, semi-virtual thermal test bench
- Modeling and simulation

PHD STUDENTS SKILLS

- Coupled transfers (Flow – electric load, heat and mass transfer - mechanical properties): experimental studies and modelling.
- Systems analysis: characterization, modelling and optimization
- Buildings performance: characterization and performance simulation

NETWORKS / PARTNERSHIPS

Academic cooperations

- French Solar Energy Federation: FedEsol
- Fresbe: Federation of research on buildings
- University of Carlton (Canada)
- Curitiba Catholic University (PUC-Brazil)
- University of Ho Chi Minh City (Vietnam)
- Active participation in different tasks for the International Energy Agency (AIE)

Institutional cooperations

- Rhone-Alpes Region (Academic Research Community: Energy and Environment)
- Clusters : Tenerrdis, Axelera
- Savoie Assembly
- French Alternative Energies and Atomic Energy Commission (CEA)
- French Scientific and Technical Centre for Building (CSTB)
- French Equipment Technical Centre (CEREMA)

Industrial cooperations

- EDF • GDF • ALPHI • SOLVIRTUS • Parexlanko • Carrier • DCNS
- Pôle Innovation Constructive

INTERNATIONAL RELATIONS

- International Cooperation Programmes (Fapesp / CNRS program, SIAM program)
- Host PhD students and foreign colleagues (University of Aleppo, University of ORAN, University of Tebessa)
- Joint PhD (University of Ho Chi Minh City, PUC-Brésil, Tébessa-Algeria)
- International research program (CAPES COFECUB with Brazil)
- PhD student mobility programme (COOPERA regional program)