SuperGrid Institute recruits 1 Intern F/M

«Formulation of thermosets for High Voltage insulation»

The Institute for Energy Transition (ITE) Supergrid is a collaborative research platform in the field of low-carbon energy, bringing together the expertise of industry and public research in the logic of public-private co-investment and close cooperation between all stakeholders of the sector.

The institute aims to develop technologies for the Supergrid that is the future electricity transmission network, using direct current (DC) and alternating current (AC) at very high voltages (in the order of one million volts), designed to transport large-scale energy from renewable sources remote from load centers, a significant portion of which are offshore, which will be in connection with flexible storage resources; to manage the intermittent nature of renewable energy; and also, to ensure the stability and security of the network.

General context

Composite materials based on thermoset matrices are used in connection systems that link the cables with the other components of the high voltage network. They ensure, in combination with other materials, the electrical insulation between the metallic conductors and the ground. With the increase of the voltage values in the HVDC network, these materials are subjected to increasing constraints and must adapt to new issues.

Main objectives

New formulation strategies, that take into account the specific constraints of High Voltage networks (HV), have been developed. The objective of this internship is to characterize these formulations with regard to ageing and mechanical properties in order to select the most suitable formulas. Conduction phenomena in a dielectric material will be studied as well as their evolution under thermoelectric stress.

Missions

- Thermoset samples manufacturing
- Electrical (HV) and dielectric characterizations
- Mechanical characterization

Profile of candidates

- Field: Materials Sciences, Materials Chemistry, Polymers, Composites
- Level: Master, last year of engineering school, gap year
- Taste for research and experimentation
- Self-discipline and ability to synthesize
- Autonomy