

FACULTY RECRUITMENT PROFILE
Assistant Professor
(Group of Electrical Engineering of Paris/ GeePs and Electric Energy Faculty)

Title: Assistant Professor.

Position: Assistant Professor in Electrical Power Engineering, at Electrical Energy Faculty at CentraleSupélec, Paris-Saclay Campus / Group of Electrical Engineering of Paris Laboratory GeePs UMR8507 CNRS/ CentraleSupélec / ParisSaclay Univ./ Sorbonne Univ.

CNU Section: 63.

Domain:

Teaching of electrical energy systems at engineer level at CentraleSupélec and master, with electronic energy conversion and electromechanical conversion and applications for the integration of renewable energies into the grid.

Research in the design of energy systems taking into account technical, economic, societal, and environmental aspects.

Keywords:

Energy systems, Renewable energies, Modelling, Optimization, System approach, Interdisciplinary, Socio-economic and environmental aspects, Data collection, and management.

CentraleSupélec is a public scientific, cultural and professional institution (EPSCP in French) under the authority of the Ministry of Higher Education and Scientific Research and the Ministry of the Economy, Industry, and Digital Technology. Its primary missions are the training of high-level scientific general engineers, research in engineering and systems sciences, and executive education.

The *Electrical Energy* Faculty is an academic department at CentraleSupélec whose educational scope covers the fields of Power Electrical Engineering, Electrical Machines, Power Electronics, and Electric Grid Operation for the 3-year CentraleSupélec Engineering Program. The department also manages the Major Operation of Nuclear Energy Master and PIE Master in Electrical Engineering for Université Paris Saclay / and Specialized Masters for CentraleSupélec.

The *Group of Electrical Engineering of Paris Laboratory - GeePs* is a joint CNRS-CentraleSupélec unit. The main areas of research include Electronics, Energy Systems, and Materials for Electrical Engineering. These activities are organized around *five* targeted themes: (i) *Materials Physics*, (ii) *Components*, (iii) *Electromagnetism and Wave Propagation*, (iv) *Energy Conversion*, and (v) *Systems*.

Academic profile:

The candidate will be part of the *Electrical Energy* Faculty. He/she will engage with courses on Electrical Energy, Renewable Energies, Energy Conversion, Smart Grids that form part of the CentraleSupélec engineering program. He/she will be particularly involved in academic terms, engineering challenge terms, electives, practice sessions, lab sessions organized in the Major Energy and others, and in the concentrations Grids and Energy Efficiency. He/she will also participate in the supervision of student projects and in workshops on Modelling Magnetic Structures, Operating condition identification by signal analysis, Control for Energy conversion systems, Electromagnetic Systems Optimization, Electric Vehicles.

In addition, involvement in lectures, applications, or lab sessions on topics listed above will also be proposed in different continuing education programs organized by the Electrical Energy Faculty.

As some of these courses are taught in English, the ability to teach in English is expected.

Research profile:

The candidate will join the Energy (Components, Conversion, and Systems) division of the GeePs Laboratory, whose research includes interdisciplinary activities on energy systems and energy pathways/networks. In the context of energy transition in developed countries and electrification in developing countries, the design and optimization of reliable energy systems requires taking into account their technical characteristics and constraints (intermittency of the resource, stability of operation), but also the following transversal dimensions:

- Economic e.g., energy cost, investment, financing mechanisms,
- Societal e.g., social acceptability, improvement of living conditions,
- Environmental e.g., greenhouse gas emissions, protection of natural resources.

The candidate will be expected to develop methods to quantify the economic, societal, and environmental impacts of energy systems and to take them into account in the design process. In order to apply and validate the proposed models, it is also necessary to build up a knowledge base of practices and realities in the energy field (technical, socio-economic and environmental aspects) and to develop methods for managing the data collected. These activities are related to several societal issues that are at the heart of research and training at CentraleSupélec, such as energy, environment, and data science.

In order to strengthen the GeePs' Energy division on this theme, CentraleSupélec is recruiting a lecturer-researcher with skills in energy system modeling and optimization, life cycle analysis, and the consideration of economic, societal and environmental aspects. In addition, these skills may be oriented towards the implementation of pilot systems in the laboratory and/or in real conditions and towards the collection of experimental data on these systems. Finally, the teacher-researcher will have an increased capacity to interact with researchers from different disciplines such as physics, systems and natural resource engineering, environmental assessment, econometrics, political science, and to integrate their expertise to carry out a systemic and interdisciplinary approach.

The candidate must demonstrate the ability to collaborate and lead research activities, by participating in the supervision of student work, and should be able to establish academic and industrial partnerships on this activity, at the national and international level.

Recruitment interview:

For the candidates selected for the audition, the audition will take place in three stages:

- A presentation of the candidate's background and integration project;
- An illustration of a 5-minute lesson, given in English, on a problem, whose subject is identical for all candidates, will be specified on the invitation;
- An exchange with the members of the committee.

The duration of the three parts of the audition will be specified in the invitation letter.

Contacts:

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Emmanuel Odic, Head of the Energy Division of GeePs Laboratory: emmanuel.odic@geeps.centralesupelec.fr

For all administrative information, please contact the Department of Human Resources:

Lorraine Maret: lorraine.maret@centralesupelec.fr

Marion Taupin: marion.taupin@centralesupelec.fr

Documents to be provided: (all documents must be uploaded to Galaxie no later than the closing date for

registration, please refer to the ANTEE module user guide):

- a copy of a photo ID;
- a document proving possession of one of the documents mentioned in 1° of article 46 of the above-mentioned decree of 6 June 1984;
- a curriculum vitae giving an analytical presentation of their work, works, articles, achievements and activities, specifying those attached;
- a copy of at least one of the works, works, articles and achievements among those mentioned in the curriculum vitae;
- a copy of the defense report of the diploma held, if applicable.

Administrative documents in a foreign language must be translated into French.

GALAXIE portal link:

https://www.galaxie.enseignementsup-recherche.gouv.fr/ensup/cand_postes_GALAXIE.htm