



CentraleSupélec

**FACULTY RECRUITMENT PROFILE**  
**JUNIOR CHAIR PROFESSOR CONTRACT**  
**Signals and Systems Laboratory / Control Department**

**Job title:** Position of junior chair professor in *“Management of smart energy networks”***Title:** Chair Professor contract.

**Nature of the position:** Assistant professor in control, modelling, or telecommunication with application to smart energy networks in the Control Department of CentraleSupélec, Paris-Saclay campus / Signals and Systems Laboratory. The position is a 6-year Fixed-Term Contract which provides for a teaching service of 64 hours per year over 6 years. The position comes with a budget allowing the financing of a thesis and a post-doctoral fellow. During this 6 years period, the recruited candidate is intended to be established on a position of University Professor.

**Context:**

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 main missions are: the training of high-level scientific general engineers, research in engineering and systems sciences, and executive education.

The Control Department is an academic department at CentraleSupélec whose educational scope covers the theoretical foundations of control and systems and their implementation in applications, for the 3-year CentraleSupélec Engineering Program. It supervises student projects on various themes, such as those that come under the “Control and Optimization” Project Pole. The department is also involved in the Master in Control, Signal and Image Processing (ATSI) of Université Paris Saclay.

The Signals and Systems Laboratory (L2S) is a joint Université Paris-Saclay-CNRS-CentraleSupélec unit. Research at L2S is organized into three poles: Systems and Control, Signals and Statistics, Telecommunications and Networks. This disciplinary structure is supplemented by 3 transverse axes, including one devoted to energy.

**Section CNU :** 61 and 63

**Short Profile:** *Junior Chair Professor in “Management of smart energy networks”*

**Keywords:** Power systems, electrical systems, cyber-physical systems, multi-agent systems, multi-scale systems, regulation, control systems, communication systems, game theory, optimization, predictive control, multi-agent system control, theory of information and coding, diagnosis and system monitoring.

**Teaching profile:**

The successful candidate will teach in one or more fields such as energy, automation, modelling, signal processing or telecommunications. Depending on his or her background and skills, the candidate may, for example, take part in the Modeling, Optimization, Automation or System monitoring and prognosis for risk management courses, as well as in the associated engineering challenge terms aimed at training students through the resolution of industrial problems with a multidisciplinary scope.

The candidate may also participate in teaching by proposing and supervising student projects within the framework of the "Control and Optimization" Pole in the first and second years of the engineering curriculum, as well as by supervising CEI (industrial study contracts - projects carried out in collaboration with companies) in the third year.

In addition, the candidate is intended to participate in the creation of teaching modules for the CentraleSupélec engineering curriculum and for other curriculum currently being defined by the school (Bachelor, MsC, etc.) as well as for the ATSI master's degree from the Université Paris-Saclay.

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



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### **Research profile:**

The development of renewable energies, storage devices and their inclusion in electrical networks, pose several problems largely related to the management of uncertainty and to the prediction of the future state of the network. The approach to be implemented to manage the networks requires a mastery of the physics of power systems and a systemic vision of their various components (sensors, actuators, communication network, management system) in order to remove the scientific locks linked to the development smart grids.

The topics of interest are numerous and include the problems of control, management, as well as the efficient routing of information in the presence of uncertainty or malicious actions. A common approach looks at the network as a multi-agent system (according to a topological decomposition) by including the associated dynamic and management aspects.

The application objectives and the difficulties to be taken into account are multiple and complex. We can cite, for example, the identification and reconstruction of the state of the electrical network starting from incomplete information, the lack of coordination at different time scales and spatial granularities which requires management of constraints due to both physical aspects and the cyber aspects of modern networks. These themes cover the entire energy chain, from production to transport and distribution, with an interest also for micro-grids.

The candidate must have a PhD in artificial intelligence or a related field. She\He must have demonstrated relevant and original contributions to research, having demonstrated both research skills on models and a strong interest in applications. They will also be asked to be at the initiative of collaborative research projects in the broad sense with the concern of applying the results to data from the socio-economic world. She\He must have proven himself in research and have an excellent publication record and demonstrate his pedagogical qualities through a good teaching activity.

### **Candidate profile:**

The successful candidate must hold a PhD in a field such as control, modelling, or telecommunications in connection with smart energy networks.

The candidate must have demonstrated relevant and original contributions to research, having demonstrated research capacities on methodological aspects and an impact in applications related to the field of smart energy networks. The candidate will also be asked to be at the initiative of collaborative research projects in the broad sense with the objective of applying the results on experimental test beds. The candidate must have proven himself/herself in methodological/fundamental research and have an excellent publication record. The candidate will have a taste for teamwork and the ambition to develop research of high international level.

He/she will also have to demonstrate an ability to transmit, a curiosity about pedagogical modalities, an ease in human relations and an ability to listen and reformulate.

### **Recruitment interview:**

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

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

### **Scientific contacts:**

Antoine Girard, head of the Systems and Control group at L2S: [Antoine.Girard@centralesupelec.fr](mailto:Antoine.Girard@centralesupelec.fr)

Guillaume Sandou, head of the Control department at CentraleSupélec: [Guillaume.Sandou@centralesupelec.fr](mailto:Guillaume.Sandou@centralesupelec.fr)

For all administrative information, contact the Human Resources Department:

[drh.pole-enseignant@centralesupelec](mailto:drh.pole-enseignant@centralesupelec)



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## **CANDIDATURES VIA L'APPLICATION GALAXIE UNIQUEMENT :**

<https://galaxie.enseignementsup-recherche.gouv.fr/antares/can/astree/index.jsp>

Le dossier doit comporter les pièces suivantes :

- Fiche de candidature à télécharger dans Galaxie : [https://www.galaxie.enseignementsup-recherche.gouv.fr/ensup/cand\\_CPJ.htm](https://www.galaxie.enseignementsup-recherche.gouv.fr/ensup/cand_CPJ.htm) et à téléverser dans la section « titres et travaux »
- Une pièce d'identité avec photographie (CNI ou passeport)
- Une copie du doctorat ou une attestation officielle d'obtention d'un doctorat
- Une copie du rapport de soutenance
- Présentation analytique, travaux, ouvrages, réalisations.

Les documents administratifs ainsi que le rapport de soutenance rédigés en tout ou partie en langue étrangère sont accompagnés d'une traduction en langue française dont le candidat atteste la conformité sur l'honneur. A défaut, le dossier est déclaré irrecevable. La traduction de la présentation analytique ainsi que des travaux, ouvrages, articles et réalisations est facultative.