



## **Recruitment Associate/full professors School year 2015-2016**

**Short profile : Dielectric materials for Electrical Engineering**

**Category : Assistant Professor**

**Job number : 0461**

**Field of expertise: Section 1 : 63**

**Section 2 :**

**School to which the position is attached : Grenoble INP Ense3**

**Associate Research lab : G2ELab**

**Location : Grenoble**

**Date de recrutement : 01/09/15**

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Grenoble INP, Grenoble Institute of Technology has been training engineers, and PhDs, and developing outstanding international research for the past hundred years. As a public Higher Education Institution and a leader in innovation, it is one of the preferred partners of the industrial world. As a cofounder of MINATEC, and an active member of Grenoble Innovation University, it is involved in international projects. Grenoble INP, Grenoble Institute of Technology is made up of approximately 1100 staff (administrative and academic), 6 engineering schools, 5400 students and 32 Research labs.

*Site internet : <http://www.grenoble-inp.fr/>*

### **School to which the position is attached**

Ense3 - National School of Energy, Water and Environment - is an engineering school of the Grenoble INP group. It trains engineers in industries to meet the challenges of tomorrow and respond to the major societal challenges of the 21st century. Over 1000 students (engineers and masters) for a total of 100 faculty members - 350 temporary teachers - 50 administrative staff.

The school offers a comprehensive and multidisciplinary training based on a strong interaction with industry and research, particularly through the technological platforms PREDIS (Energy) and M2E (Mechanics, Water and Environment). The number of partnerships with large groups provide a good fit with the training needs of industry. The strong link with the research laboratories of Grenoble internationally recognized allows teaching to be brought in line with the latest technological developments. Ense3 also works towards opening itself to the world and its issues, including the promotion of international mobility of students and by diversifying the public (foreign students, learning).

*Ense<sup>3</sup> website : <http://ense3.grenoble-inp.fr/index.jsp>*

### **Teaching experience :**

The recruited Assistant Professor will teach the disciplines related to electrical engineering in the broad sense, in the first year general curriculum and in the IEE specialization program ( Engineering of Electrical Energy). He (she) will intervene in particular in the second year in the courses on electrical engineering materials, power electronics, as well as on the "Conversion of Electrical Energy " (Practicals and design offices on electrical machines and static converters ). In the first year program, he (she) will be integrated with the electric power teaching team.

A special investment will be expected in the development of pedagogical innovations in courses, in the tutoring of student projects in connection with research and industry, as well as involvement in Continuing Education. The sensitivity and openness to different industrial partnerships are therefore especially sought after. In addition, given the growing internationalization of education, among other via the development of international master programs, the ability to teach in English will be a key asset.

### **Associate Research lab :**

G2Elab (Grenoble Electrical Engineering Lab) is a leading French Electrical Engineering Laboratories in size. With over 100 permanent staff, 120 PhD researchers and 50 post-graduates, G2Elab emerges as a major research institute in Electrical Engineering, both in France and on the international level.

G2Elab is affiliated with the University of Grenoble Alps and CNRS and it earned the highest score in its last evaluation in 2010 by the French agency of evaluation.

G2Elab does basic or generic research in the field of electrical power but is also interested in more applicative research with industry.

A wide variety of projects cover most areas of **electrical energy, materials, novel processes, innovative devices**, as well as **simulation, modeling and design**.

## Research experience :

The researcher will join MDE research team ("Dielectric Materials and Electrostatics") of G2Elab whose activity includes the experimental characterization of materials (charge transport properties, space loads, partial discharges, breakdown ) under different stresses (electrical field, temperature, etc.), the insulation design methods, the processes of aging. The candidate will be more specifically in charge of the development of research in the field of high temperature high field insulation materials (gels, ceramics, polymers) used for the insulation of power electronics components, especially in the context of projects within the Labex LANEF concerning the development of advanced packaging for diamond or GaN semiconductors.

Another scientific challenge is the use of very high DC voltages within the power electronics converters directly connected to HVDC power transmission systems which is the focus of the Supergrid ITE. This new application field leads to fully reconsider the basics of the design of the electrical insulation. Indeed, in this case, the mechanisms of conduction and space charges in the insulating materials take a leading role; the results are therefore very different from conventional design in high voltage 50/60Hz AC systems.

It will be essential to have a good knowledge of the technologies used for the electrical production conversion and distribution. Prior experience in the field of dielectric materials and their applications to insulation would obviously be highly desirable.

## Details of the position, specific requirements and responsibilities

None

## Languages

Ability to teach in French and English

## Skills

<b>General knowledge</b>	Competencies in electrical engineering
<b>Technical knowledge</b>	Approaches at frontiers between scientific fields Open-minded to scientific and technological innovation
<b>Behaviour abilities</b>	Integration and human interaction abilities Supervising ability Team worker open-minded to multi physics

## Keywords :

**Electrical engineering, Dielectric materials**