



Grenoble INP - UGA is a member of international engineering and management education and research networks. It is widely recognized in national and international rankings.



8 schools + 39 laboratories

8300 students

1 300 teaching, research, administrative and technical staff

Grenoble INP - UGA is a renowned public institution of higher education and research, and a major player in the Grenoble ecosystem. It is the engineering and management institute of Grenoble Alpes University, and plays a leading role in the scientific and industrial community.

Researcher in Power Electronics

Job reference number	
Research field	Power electronics (residual value, digital twin)
Host laboratory	G2ELab (UMR 5269 Grenoble-INP, UGA et CNRS) https://g2elab.grenoble-inp.fr/
Researcher profile	Recognised researcher (R2)
Location	Grenoble, France
Date of recruitment / contract length	01/06/2024 (18 months)
Contacts	LEMBEYE Yves yves.lembeye@g2elab.grenoble-inp.fr

Grenoble INP - UGA is a leading public institution accredited with the French label "Initiative d'excellence". It offers innovative engineering and management programs, with an increasing internationalization of its course offers. The courses are grounded in sound scientific knowledge and linked to digital, industrial, organizational, environmental and energy transitions. The Engineering and Management Institute of Grenoble Alpes brings together more than 1300 staff members (teacher-researchers, lecturers, administrative and technical staff) and 8300 students, located on 8 sites (Grenoble INP - Ense3, Grenoble INP - Ensimag, Grenoble INP - Esisar, Grenoble INP - Génie industriel GI, Grenoble INP - Pagora, Grenoble INP - Phelma, Polytech Grenoble, Grenoble IAE and the INP Prepa). Grenoble INP is also a highly-ranked institution of higher education and research, leading the way in the fields of engineering and management on an international scale. It is a member of a large number of international academic and research networks. It is part of the European University UNITE!.

As part of Grenoble Alpes University, Grenoble INP has associated guardianship of 39 national and international research laboratories and of technological platforms. The research conducted there benefits both its socio-economic partners and its students. Grenoble INP is at the heart of the following scientific fields: physics, energy, mechanics and materials; digital; micronanoelectronics, embedded systems; industry of the future, production systems, environment; management and business sciences.

Grenoble INP - UGA is an equal opportunity employer committed to sustainability. Grenoble INP-UGA celebrates diversity and equity and is committed to creating an inclusive environment for all employees. All qualified applications will be considered without discrimination of any kind.

Research

Thanks to the flexibility and performance that electricity brings to industrial systems, transport and the home, electrical engineering plays a central and unifying role, reinforced in recent years by the major societal challenge represented by energy in general. In this context, the Grenoble Electrical Engineering Laboratory (G2Elab) covers a scientific spectrum that extends from materials and components to the design and control of electrical energy systems. G2Elab's activities in this field can be summed up by the following keywords: electrical energy, materials for electrical engineering, innovative processes and systems, modeling and design. With around 100 permanent staff, 100 PhD students and more than 70 Masters students, post-doctoral fellows and visiting professors, G2Elab is a major national and international player at the heart of the energy efficiency of components and systems.

Offer description :

The position is available within the Grenoble Electrical Engineering Laboratory (G2Elab), in the Power Electronics team. For several years now, the team has been conducting research to reduce the environmental impact of power electronics technology, in partnership with the G-SCOP laboratory. Following the ANR VIVAE project, the team is involved in setting up new national and international collaborations on this subject. The work to be carried out is directly linked to the ARCHIMEDES European project on the development of more sustainable, reliable and durable power electronics.

You will be involved in the R&D activities on more sustainable power electronics carried out by the G2Elab as part of the ARCHIMEDES European project. You will conduct research to develop methods for characterizing and modeling the residual value of power electronics subsystems and components. In particular, you will develop characterization benches for subsystems and components, and model them using digital twin approaches to monitor their evolution over time. You will implement these methods in prototypes for in-situ monitoring of subsystem and component aging. You will assist the laboratory's researchers in carrying out research projects, contributing to the production/writing of technical project deliverables.

Specific requirements or conditions

Activities :

Design, develop and test automatic characterization methods for power electronics components and subsystems.

Identify changes in the characteristics of components and subsystems as a function of time, and the origins of these changes.

Model changes in characteristics in relation to electro-thermal constraints applied to components and subsystems.

Implement in situ digital twin tracking algorithms

Interact with other laboratory researchers/project teams to develop more durable and reliable converters.

Disseminate and promote work, ensure technology transfer

Write and present scientific articles, popularization documents and educational content.

Participate in the production and drafting of deliverables for European projects.

Interact with European project partners as part of research work, follow-up and reporting meetings.

Participate in project-related meetings and events.

Skills

Mastery of the fundamentals of electronics and/or power electronics (PE)

Knowledge of instrumentation and modeling of power electronics components and subsystems

Knowledge of microcontrollers and digital converter control tools

Knowledge of power electronics prototype development (power modules and modular converters)

Practical experience in conducting power electronics tests.

Perfect mastery of English (read, spoken and written)

Proficiency in standard office software

Proficiency in bibliographic and data research

Manage priorities and prioritize urgent matters (calendar constraints)

Know the rules of good oral and written expression

Teamwork and communication skills

Previous involvement in a European project is a plus (even more so if you're in charge of the partner organization).

Position assigned to a restricted area: YES

(Device for the protection of the scientific and technical potential of the nation, conditioning the appointment of the researcher to the authorization of the Defense Security Officer).

How to apply

Applications must be sent to: adrien.corne@grenoble-inp.fr and yves.lembeye@grenoble-inp.fr

Application deadline : 30/06/2024