



Post-doctoral position in Electrical Engineering

Starting date: September 2016 (can be negotiated)

Duration: 1 year

Location: IREENA, CRTT, 37 Boulevard de l'Université, BP406 44602 St-Nazaire cedex, France

Job description :

A 1-year post-doctoral position is available at the *Institut de Recherche en Energie Electrique de Nantes Atlantique* (IREENA) research centre, University of Nantes, as part of the EMODI project (<http://www.agence-nationale-recherche.fr/?Project=ANR-14-CE05-0032>). This project is funded by the French national Research Funding Agency (Agence nationale de la Recherche) and involves both academics and industrials such as CEA, Nexans, IFSTTAR, RTE, and Ecole Centrale de Nantes.

As part of this project, a task is dedicated to the thermal dimensioning of submarine power cables to be installed in wave energy farms. The very fluctuating nature of wave energy is reflected to a significant extent in the output power of wave energy converters. However, current dimensioning methods consider a constant current profile only, thus leading to useless oversizing of these cables.

The work of the post-doctoral researcher is intended to contribute in filling this gap by analysing the temperature fluctuations of a power cable subject to a variable current profile representative of this generated by wave energy converters and farms. The research work will be two-fold. First, the post-doctoral researcher will be responsible for setting up the experimental bench, developing the experimental protocol and performing the experiments. The second part of her/his work will focus on thermo-electrical simulations performed with COMSOL. For both parts, assistance from thermal or electrical engineering experts may be provided, depending on the profile of the post-doctoral researcher.

Salary: about 2000 € net per month (depending on several elements such as experience level). The gross salary includes social benefits (health coverage, family and retirement benefits, unemployment insurance) provided by the French Social Security System. Interested applicants may find more information at: http://www.cleiss.fr/docs/regimes/ regime_france/an_index.html

Research centre description:

IREENA is the Electrical Engineering laboratory of the University of Nantes (EA 4642). The laboratory gathers the research activities of about 50 people, including 22 permanent full professors or associated professors and 23 doctoral students. It is organized around two teams, the Modeling of Electromagnetic Devices team and the Control and management of Electrical Energy team. Modeling and design represent a common knowledge basis. Both teams also collaborate on joint projects. The research activities consist of two areas:

- Modeling and design (MDE): multi-physics and multi-scale modeling of electromagnetic and thermal phenomena, design of electromagnetic devices, non-destructive testing, diagnosis
- Efficiency and energy control (MEE): power system control, energy networks, power quality and control of sustainable energy, managing and optimizing multi-sources energy systems.

Qualifications, Experience, Skills, Knowledge, Abilities:

Essential

- PhD in electrical engineering or in thermal engineering, with experience in thermal or electrical engineering respectively.
- Experience with finite element methods and tools
- Excellent command of English and communication skills
- Ability to work autonomously, critical thinking

Desirable

- Experience in thermo-electrical numerical simulations
- Experience in power cables
- Experience with COMSOL
- Experience in wave energy

Interested applicants must send their CV and cover letter to Anne Blavette (anne.blavette@ens-rennes.fr) and Salvy Bourguet (salvy.bourguet@univ-nantes.fr) by 15th July 2016.