

## **PhD student in materials science : physics of supercapacitors or photocatalytic cracking of water**

The Department of Chemical Engineering of the University of Liège, Belgium, (<https://www.chemeng.uliege.be>) has an opening for a PhD student /teaching assistant position. The starting date is September 1st or October 1st 2019.

We offer a two-year working contract renewable up to two times, with a monthly salary of approximately 2000 EUR, after taxes and social security.

### **Duties**

Globally, the workload is split between research (2/3 of the time) and teaching assistant (1/3).

#### Research (2/3 of your time):

You are part of a team of approximately twenty persons (PhD students, senior researchers, technicians and professors) working on the development of nanomaterials for applications in catalysis and in electrochemistry.

Depending on your tastes and background, your research can be on one of the following subjects :

- The development of carbon-based supercapacitors for energy storage, with a focus on the question of the wettability of the materials pores by liquid electrolytes. The project entails both the electrical characterization of the materials and devices and the modelling of the nanometer-scale physical phenomena, based notably on small-angle x-ray scattering experiments.
- The conversion of light into chemical energy, via the design of a setup for hydrogen production through the photocatalytic cracking of water. The first step of the project consists in the development of a catalyst with suitable chemical composition and nanostructure. This is followed by the development of a reactor for implementing the hydrogen production reaction, as well as studying its kinetics and mechanism.

#### Teaching assistant (1/3 of your time):

You are part of a team of about ten persons (teaching assistants and professors) supervising the first- and second-year chemistry and thermodynamic lectures in the engineering curriculum (taught in French to about 200-300 students). Specifically, you help preparing and supervising exercises and laboratory sessions, as well as correcting the exams.

### **Profile**

You have a Master's degree in engineering, physics, chemistry or materials sciences. You may also apply if you have a different Master's degree but you can testify to interests and

abilities in those fields. You are also passionate about sciences, and you want to prepare a PhD.

You will be expected to learn French for interacting with students. A working knowledge of French is a plus.

For any question and to apply for this position, please contact Cedric Gommès for the supercapacitor project ([cedric.gommès@uliege.be](mailto:cedric.gommès@uliege.be)) or Benoît Heinrichs for the photocatalysis project ([b.heinrichs@uliege.be](mailto:b.heinrichs@uliege.be)).