

# PhD Position

## X-ray and Neutron-Scattering Analysis of Liquids in Nanopores

Profile: Master degree in Physics, Engineering or Mathematics, since less than 3 years

Keywords: porous materials, confined liquids, small-angle scattering, x-ray scattering, neutron spin-echo, stochastic models

### Context:

A wide array of technologies involve liquids confined in nanometer-sized pores. Examples include energy storage and conversion devices, heterogeneous catalysis, adsorption separation processes, among many others. Because of the intermediate scales between the microscopic and macroscopic worlds, physicochemical phenomena taking place in such confined environments are still incompletely understood.

In this general context, the [Department of Chemical Engineering](#) of the University of Liège has an opening for a PhD position to use X-ray and Neutron scattering methods to investigate the static and dynamic properties of liquids confined in nanoporous materials. The aim of the project is fundamental science, but it will be conducted in close contact with colleagues focusing on applied research.

The starting date is as soon as possible, and no later than July 2022.

### Your tasks:

- Prepare porous materials for scattering experiments and characterize them with state-of-the-art methods (nitrogen adsorption, intrusion porosimetry, electron microscopy,...);
- Conduct scattering experiments, notably at synchrotron and neutron facilities across Europe;
- Develop and adapt existing stochastic data-analysis methods to analyze scattering data.

### Profile:

You have a Master degree in Physics or Engineering, obtained less than 3 years ago. For the data-analysis aspects of the project, a strong taste for mathematical modelling and scientific computing (Matlab, Python, ...) is required. Candidates with a Master degree in Mathematics and a proven interest for experimental work are welcome to apply as well. Just as importantly, you are passionate about science, hard-working, and are willing to complete a PhD in four years.

### We offer:

- A stimulating and internationally-exposed working environment in a major Belgian University, with monthly salary around 2000 EUR after taxes, over four years.
- A challenging and carefully-designed research project, with full-access to expertise and state-of-the-art facilities;
- A pleasant living environment with fast connections to major European cities.

### How to apply:

Send your CV and a motivation letter justifying your interest for this specific position to Cedric Gommès ([cedric.gommès@uliege.be](mailto:cedric.gommès@uliege.be)). You are also welcome to get in touch for informal enquiry about the position.