

PhD student position in photonics available at the *University of Mons*

on the subject

Development of fiber Bragg grating sensors for the monitoring of nuclear waste repositories

Job description:

Optical fiber sensors can perform sensitive and quantitative measurements of various physical parameters such as temperature, mechanical strain, pressure or bending. Their association with chemical compounds grafted on their outer surface opens up the sensing opportunities for gas and chemical sensing.

The work will be carried out at the *Electromagnetism and Telecommunication Department* (www.umons.ac.be/telecom) in the framework of the European project Modern2020 (www.modern2020.eu). The Department has a strong background in optical fiber sensing and metrology. In particular, two facilities (Argon laser and femtosecond pulsed laser) are available in a clean room environment to photo-inscribe Bragg gratings inside silica optical fibers. These gratings are mainly used for sensing applications. In this work, they will be developed to ensure the monitoring of nuclear waste of repositories, through the measurement of different physical and chemical parameters such as strain, pH and hydrogen concentration. This work is highly interdisciplinary and fits in several international collaborations within the Modern2020 project.

In that frame, we are looking for a PhD student in photonics whose main activities will be:

- Manufacturing of Bragg gratings into optical fibers using two kinds of lasers (UV frequency-doubled Argon laser and IR femtosecond pulsed laser);
- Optical characterization of the grating under different external solicitations (temperature, mechanical strain, pH variations, hydrogen concentration, etc ...);
- Sensing tests.

Starting date: June 2016 or later

Scientific responsables: Prof. Patrice Mégret and Dr Christophe Caucheteur

Profile Description:

- Master degree in physics, electrical engineering or equivalent;
- Technical background in photonics;
- Autonomy, good sense of organization and communication skills;
- Fluent in English; French is welcome.

Application Procedure:

Applications, including a motivation letter, a curriculum vitae (mentioning studies distinctions) and a copy of the university certificate, are to be sent by e-mail to patrice.megret@umons.ac.be and christophe.caucheteur@umons.ac.be

Submission deadline: 15 April 2016