Laboratoire de l'Intégration du Matériau au Système CNRS UMR 5218

PhD Scholarship – University of Bordeaux

Biomimetic Multi-Stimuli Responsive Sensors and Actuators

With the advent of the Internet of Everything (IoE) era, tomorrow's society will employ an ubiquitous complex array of electronics and sensors in daily life. Due to their self-tailored functionality, straightforward processing and cost effective fabrication, smart polymers are promising materials for integration in multifaceted devices. In addition to their initial structural role in flexible electronics, smart polymers are attracting considerable interest today due to their ability to exhibit actuation and stimulus-response behavior. Mechanical movement can be controlled by light, temperature, chemicals, electric fields, and magnetic fields. Inversely, these stimuli can induce a large variety of responses such as color change, light emission, viscoelastic properties changes, and energy production. However, the difficulty to conceive multi-stimuli responsive sensors and actuators is one of the main challenge that the organic electronic community need to resolve.

In this framework, the project of this thesis is to design, model, fabricate and characterize multifaceted sensors and actuators based on electro active polymers as well as bio/chemical sensitive materials exhibiting several of these aforementioned functions. The PhD student will be embedded in the organic electronics and microsystems group of the IMS lab and she/he will participate to the DEFORM funded project. He will benefit from the experience of the full team at IMS.

Candidate's Profile: For this study, strong knowledge in sensors, microsystems and physics of the electroactive polymer is mandatory. Good experimental / technological skills are also required.

Starting date: PhD position is opened for 1st October 2019.

Scholarship:1 400 €/month (neto)

Localisation and Supervision: The PhD student will be located in the 'Laboratoire de l'Intégration du Matériau au Système' (IMS – UMR 5218), in Bordeaux, France. He/She will be working in the ORGANIC ELCTRONICS & MICROSYSTEMS research group (http://oembordeaux.cnrs.fr).This project will be developed under the supervision of Dr. Damien THUAU.

Application: Applications have to be sent by mail at: Dr. Damien THUAU (Assistant Professor at Bordeaux INP): damien.thuau@ims-bordeaux.fr

The application must include a complete CV, a cover letter, transcripts of Master 2, references and 2 recommendation letters.