

## PRESENTER INFORMATION



Name: Le Borgne

First name: Brice

E-mail: brice.leborgne@univ-tours.fr

Institute/ affiliation: Université de Tours, Laboratoire GREMAN



### **BIOGRAPHICAL SKETCH**

Dr. Brice Le Borgne is associate professor at the University of Tours (France) where he teaches power electronics and electrical engineering. He studied mechatronics at the Ecole Normale Supérieure and obtained his PhD in Microelectronics in 2016 from the University of Rennes 1 (France). After two years as Research Assistant working on printed organic electronics at the University of Surrey (UK), he joined GREMAN laboratory to dedicate his research to porous semiconductors for energy application. At the heart of his work is the aim of developing more responsible processes for nanomaterials and thin films deposition.

### **TITLE Is ultrathin coating the next step-up for porous semiconductors?**

### **ABSTRACT**

The use of porous materials offers many advantages in the fields of electronics, biomedical, optics and even more. However, giving advanced functions to these materials to obtain porous composites could lead to find undiscovered properties that could benefit to the general public.

A way to synthesize these composites is to develop ultrathin coatings of the porous structures. After a quick review of the available techniques, their advantages and limitations, this seminar will focus on the use atomic layer deposition (ALD) for functional coatings.

During the presentation, we will see a brief history of ALD and how this technique became unavoidable in the field of microelectronics? Is it possible that to see the same thing happening in the field of porous semiconductors? The technique, although very simple to implement, allows fine-tuning in terms of thickness, films stoichiometry and even optical properties. It is also the place for brilliant innovative technological improvement for the machines to handle large-area substrates or even to coat powders. We will present interesting coating capabilities for various engineering and research fields.

However, many limitations still impedes the development of the technique for industries: the slow deposition rate into porous media. Can we improve it? Can we also develop greener processes? We will discuss the opportunities during the webinar.