

## Ph.D. Student Position in Nanomaterials for Energy

The Group Leader of Nanoionics and Fuel Cells is seeking a PhD student to work on a Project devoted to the development of breakthrough concepts for functional nanomaterials applied to micro-power sources for the Internet of Things.

**Description:** The Internet of Things (IoT) is the next technology revolution for connecting billions of things by using an autonomous network of wireless sensors and actuators directly integrated in all type of objects and individuals. For enabling this IoT deployment, we should be able to give energy autonomy to the nodes of this network. Beyond toxic and autonomy-limited batteries, harvesting energy from the ambience, convert it into electricity and finally store it in the very same device is the most promising solutions to power the IoT. This conversion is possible by using functional materials implemented into miniaturized generators (thermoelectrical couples or photovoltaic cells) and rechargeable storing units (Li-ion batteries).

The PhD student will be involved in developing new nanomaterials compatible with mainstream miniaturization technologies for a new generation of harvester and storage microdevices. The activity will be carried out in the frame of the European Project "HARVESTORE" (<http://www.harvestore.eu>). This will give the candidate a great opportunity to develop advanced concepts in collaboration with a well-reputed international network of collaborators.

We are interested in a Ph.D. student highly motivated to study the development of nanostructures and their applicability in micro power sources based on Li-ion conductor materials. She/he will get experience in *hands on* deposition and characterization of thin film oxides, as well as a deep knowledge on advanced in situ/in operando characterization techniques. Among the techniques employed will be Pulsed Laser Deposition, In Situ Ellipsometry, Raman or impedance spectroscopy.

**Requirements:** Ph.D. student who is highly motivated to learn, work in a team, high flexibility and initiative and ability to innovate.

Bachelor and master of Physics / Materials Science/ Chemistry or similar is required. Experience in thin films, advanced structural and electrical characterization will be positively evaluated.

Fluent English is mandatory.

**We offer:** Three years Ph.D student contract. Joining an international team of highly qualified and motivated researchers working in the frontiers of knowledge in science and technology.

**Incorporation:** The candidates should be available before June 2019 (negotiable).

**Workplace:** Barcelona (IREC facilities)

Applicants should send a detailed CV, a motivation letter and bachelor/master transcript to Albert Tarancón. [atarancon@irec.cat](mailto:atarancon@irec.cat). Please indicate the reference "HARVESTORE" in your mail.