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Area: Advanced Materials for Energy Applications

Head of the Area: Prof. Joan Ramon Morante

Group: Nanoionics and Fuel Cells

Head of Group: Dr. Albert Tarancón Rubio

Title: Researcher in Power MEMS for the Nanoionics and Fuel Cells Laboratory

Description:

The Nanoionics and Fuel Cells group (NFC) is focused on the development of i) solid oxide cells for power generation and production of synthetic fuels by electrolysis and ii) thin film based solid state energy microdevices such as micro-SOFCs or micro Li-ion batteries.

We are looking for a researcher able to cover our activity in design and microfabrication of powerMEMS, including integration and encapsulation aspects. Therefore, the candidate will be involved in:

- i) Design of breakthrough concepts for micro power sources in silicon technology
- ii) Design and supervision of the microfabrication flows within a clean room (patterning, etching, ion implantation, thin film growth, in line and offline metrology, etc)
- iii) Characterization of electrochemical devices and other micro-power sources
- iv) Integration/encapsulation of micro-devices in polymers (low temperature) and ceramics (high temperature)

Requirements:

- PhD in Physics or Materials Science and fluent English are mandatory
- Strong and complementary scientific and technological record of actions (to be evaluated according to the career stage of the candidate):
 - o Original research articles
 - o Patents
 - o Conferences, proceedings and books
 - o Outreach actions
 - o Participation in national and international research projects
 - o PI/coordination of national and international research projects/WPs
- Proved experience in the following aspects is mandatory:
 - o *Hands on* microfabrication using mainstream microelectronics technologies within a clean room (photolithography, DRIE, wet etching, thin film deposition, metal deposition, etc)
 - o Structural and morphological characterization of microdevices and parts, more specifically, thin films (confocal microscopy, AFM, SEM, etc)
 - o Electrochemical characterization of microdevices
 - o Integration/encapsulation of microdevices (polymers and ceramics).
 - o 3D printing technologies for rapid prototyping
- Proved experience in the following aspects will be positively evaluated:
 - o Mentoring and team leading (PhD thesis, Master/Bachelor thesis, etc)
 - o Leading technology transfer and innovation actions
 - o Funding searching

- Research in international teams (research visiting, pre-doctoral and post-doctoral research stays, international partnerships, etc)

Proposed Jury:

Presidència	Titular	Dr. Albert Tarancón Rubio
Vocal 1	Titular	Dr. Edgardo Saucedo
Vocal 2	Titular	Dr. Luis Fonseca