

# Postdoctoral Fellowships-Spintronic Nanodevices

Two Postdoctoral Fellowships are available in the experimental group of ERC grantee Prof. Sergio O. Valenzuela at the *Catalan Institute of Nanoscience and Nanotechnology* (ICN2) in Barcelona, Spain. The research in the Nanodevices group addresses fundamental aspects of the spin and charge transport properties of low dimensional systems, such as topological insulators and graphene, and thermal and thermoelectric properties of hybrid systems comprising magnetic materials. For further information, follow the link: [nanodevices.icn2.cat](http://nanodevices.icn2.cat).

For these positions, the Fellows will aim at 1) elucidating the main mechanisms for spin relaxation in graphene, including the effects of strain and 2) establishing the origin of the spin Hall effect (SHE) in hybrid graphene (graphene modified by proximity of metal adatoms, particles or chalcogenides). We will exploit non-local spin injection and detection techniques. In addition, we will explore the use of pure spin currents, either originating from direct injection from a ferromagnet or via the SHE, for the generation of spin transfer torques in contacting nanomagnets. Measurements will be performed in the dc and radio frequency domains.

The two candidates are expected to work as a team, with their own specific goals. They will also interact heavily with current PhD students, as well as other Postdoctoral Fellows on related 2D material research and topological insulators. For further information, contact directly, Sergio O. Valenzuela ([Sergio.Valenzuela@icn.cat](mailto:Sergio.Valenzuela@icn.cat)) before January 20<sup>th</sup>, 2016.

## Candidates' Profiles

1) Position #1. A PhD in Electrical Engineering, Applied Physics, Physics or a related field is required. The applicants must have experience in electronic-transport techniques and show motivation, independence, excellent disposition towards challenging research problems and a good level of the English language. Experience in micro/nanofabrication techniques, such as electron-beam lithography, UHV experiments, and electronic transport in graphene will be particularly valued. **Duration:** 2+1 years.

2) Position #2. In addition to the above, in order to eligible the researchers must not have resided or carried out their main activity (work, studies, etc.) in Spain for more than 12 months in the 3 years immediately prior to January 2016 and must have a minimum post-doctoral experience of 2 years. Mobility allowance: 3600 €/year. Relocation allowance: 2000 €. **Duration:** 3 years.

## Starting Date:

1) January 2016- May 2016 (negotiable)

## How to apply:

To apply, please e-mail Prof. Valenzuela, explaining the motivation, and attach a resume including names and contact information of at least two referees.

