Postdoctoral Fellowship under the Marie S. Curie Actions Cofund project "Opening Sphere UAB-CEI to Postdoctoral Fellows (P-Sphere)" Gran Agreement 665919.

Department or Institution involved



# <u>Electron Microscopy (S/TEM) in Quantum Structures embedded in Nanowires and other</u> <u>nonplanar Nanostructures for Energy Applications</u>

## **Topic description**

Study of the structure and chemistry at the atomic scale correlated to the physical properties at the nanoscale by advanced Electron Nanoscopy in low-dimensional semiconductor nano and quantum structures (nanowires, quantum dots and nanoparticles) for energy applications. The candidate will apply his knowledge in S/TEM and related spectroscopies (EELS, EDX,etc.) to improve the methodologies for advanced atomic resolution characterizatiopn. Application of 3D methods as electron tomography as well as in-situ optical characterization based on light spectroscopies such as cathodoluminescence will be also applied.

## Project supervisor & hosting group

Prof. Jordi Arbiol, group leader of the Advanced Electron Nanoscopy Group (GAe-N) at

Institut Català de Nanociència i Nanotecnologia, ICN2 will be the project Supervisor, and his group, the hosting one. As the group has a strong transversal character, the candidate will be expected to collaborate with other groups at the ICN2 and also at the International level.

### **Planned Secondments**

Secondments at EPFL and at ER-C Jülich are planned. At EPFL for the application of in-situ CLspectroscopy measurements on the Solar Energy Fuel devices as well as for the use of the advanced electron microscopes placed there. The secondments at the ER-C in Jülich will promote the advancement in-situ electronic characterization of the nanostructures at the nanometer scale in their Advanced microscopes, allowing a direct correlation to the physical and chemical properties at the atomic scale.

### Candidate's profile

The candidate must have a minimum of 2 years post-doc experience with high skills in S/TEM and related spectroscopies (EELS, EDX, etc.). Knowledge on electron tomography as well as on light spectroscopies as cathodoluminescence will be a plus.

### **Research contact:**

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 665919.