Position Offered: POSTDOCTORAL RESEARCHER

Project: *Electrochemically exfoliated 2D material inks for the printing of electronic, sensor and energy storage microdevices*

Technological and scientific fields: Nanotechnology, New materials, Sensorization

Location: Oviedo, Principality of Asturias, Carbon Science and Technology Institute (INCAR), https://www.incar.csic.es/

Research Group/PI: Carbon Materials Group / Juan Ignacio Paredes, https://www.incar.csic.es/en/carbon-materials/

PROJECT SUMMARY

Microdevices based on printed 2-dimensional (2D) material networks will be developed for their use in transistors, batteries, supercapacitors or sensors in flexible and wearable technologies. 2D materials will be prepared via electrochemical exfoliation and processed to obtain printable inks for the fabrication of networks. This project involves training in scientific computing and machine learning tools, which will be used in several steps of the work to optimise exfoliation conditions, identify 2D materials with optimal properties for specific applications or reconstruct the 3D morphology of printed networks. The achievement of the scientific objectives is supported by the complementary specialization areas of the involved researchers: (i) development of 2D materials via electrochemical exfoliation from the PI (CSIC), (ii) scientific computing applied to chemistry, materials and nanotechnology problems from the co-PI (University of Oviedo), y (iii) printed networks for microdevices from the external collaborator (Trinity College Dublin, Ireland), pioneer in the field of 2D materials, in whose group there will be training stays.

PROFESSIONAL PROFILE

Minimum requirements:

- Bachelor's Degree in Chemistry, Physics or Materials Science
- PhD in Materials Science, Nanoscience or Nanotechnology, focused on the synthesis and processing of nanostructured materials
- Broad English knowledge, basic Spanish knowledge

Merits to be considered:

- Experience in the synthesis of 2D materials, especially via electrochemical exfoliation
- Experience in the use of characterization techniques: AFM, SEM/TEM, XPS, Raman, EPR, DLS
- Knowledge in material printing techniques via inks

WHAT IS OFFERED

Integration in a research group specialized in the synthesis, processing and diverse applications of 2D materials, with the objective of developing printed microdevices supported by machine learning techniques. Colaborations and stays with first-class 2D materials research groups. 240 ECTS credits of training, co-supervised by an expert in scientific computing.

Contract conditions:

Indefinite contract for a Postdoctoral Researcher associated to the Momentum Project of 4 years' duration according to Spanish science law. Gross annual salary (41.000 € - 52.000 €).

Start of contract: before 31 December 2024

PRINCIPAL INVESTIGATOR CONTACT

Email: paredes@incar.csic.es

Phone: +34 985 11 89 97

momentum@csic.es | https://momentum.csic.es/

Financiado por la Unión Europea NextGenerationEU

GOBIERNO DE ESPAÑA MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES MINISTERIO PARA LA TRANSFORMACIÓN DIGITAL Y DE LA FUNCIÓN PÚBLICA CSIC red.es

Plan de Recuperación, Transformación y Resiliencia