Institute of Microelectronics of Barcelona IMB-CNM CSIC

The **IMB-CNM** is the largest institute in Spain dedicated to the research and development of Micro and Nano Technologies and Microsystems and with unique capabilities in silicon technology. It belongs to CSIC since its foundation in 1985 and is distinguished as a María de Maeztu Unit of Excellence.

IMB-CNM aims to contribute to the advancement of knowledge and to the economic and social development of society, as well as to the training of researchers and engineers and to the advice to public and private entities.

The research activities of IMB-CNM are dedicated to Micro/Nano Integrated Systems: miniaturized electronic systems which include sensing and/or actuating capabilities in addition to electronic information processing, power management and external interfaces.

The IMB-CNM is located on the Autonomous University of Barcelona (UAB) Campus and contains the largest clean room facilities in Spain with full capability to process its own CMOS technologies and laboratories.

Project Type: TFM

Project Title: Development of inkjet printed memristors

Research Group: Integrated Circuits and Systems (ICAS) - Printed Microelectronics Team

Project Description:

- This project aims to develop printed organic memristors using solution-processable materials and scalable fabrication techniques.
- The goal is to integrate these devices into a functional crossbar array for neuromorphic or memory applications.
- Emphasis will be placed on low-cost, flexible substrates and environmentally friendly processes.
- The work will explore material selection, device architecture, and electrical performance.

Work Plan:

- The work will begin with material preparation and ink formulation for organic memristors. Printing techniques such as inkjet or screen printing will be used to fabricate devices on flexible substrates.
- Electrical characterization will follow to evaluate memristive behavior and stability.
- Finally, a crossbar array will be designed, fabricated, and tested to demonstrate scalability and integration potential.

Candidate desired studies:

- ✓ MSc in Semiconductor Engineering and Microelectronic Design
- ✓ MSc in Nanoscience and Nanotechnology

Application Process:

Before applying, please **check with your TFG/TFM program supervisor,** as he/she may already be coordinating with us to assign the project.

If there is no such coordination**, complete this form and send your CV and a motivation letter** to **Talent@imb-cnm.csic.es**, with the **subject: "TFG/TFM at IMB-CNM"**

Carrer dels Til·lers s.n., Campus UAB | 08193, Cerdanyola del Vallès
https://www.imb-cnm.csic.es | talent@imb-cnm.csic.es
+34 93 594 7700

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Your CV will be forwarded to the Researcher leading the project who will contact you directly if interested.

Check our website for more information about the IMB-CNM and our research activities

https://www.imb-cnm.csic.es/en

Take the next step in your research career with us!

*By applying, you accept our data protection policy.

**IMB-CNM (CSIC) adheres to the European Charter and Code of Conduct for Researchers, ensuring full alignment with their principles and requirements, including equal opportunity, transparency, merit and ability, caring for an open, fair, and excellence-based hiring processes.

IMB-CNM holds the HR Excellence in Research award, which acknowledges CSIC's commitment to continuous improvement in HR strategies for researchers.

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