

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: TFG/TFM

Project Title: Ultrasound activated NEMS based devices for drug delivery and cellular biology applications

Research Group: Micro and Nanotools Group (MNTL)

Project Description:

- ❖ This project proposes the development of nanoelectromechanical systems (NEMS)-based nanodevices that can be remotely activated using ultrasound for applications in drug delivery and cellular biology.
- ❖ Unlike light-activated systems, which face limitations in deep tissue penetration, ultrasound offers a non-invasive and highly controllable means of activation within the human body.
- ❖ These NEMS devices will enable precise, on-demand delivery of therapeutic agents and targeted interaction with cells, opening new avenues for minimally invasive biomedical interventions.
- ❖ Device will be fabricated using the Clean Room facilities of the IMB-CNM using NEMS technology with a specific and optimized design with a nanomechanical structure that will respond to ultrasounds.

Candidate desired studies:

- ✓ MSc in Nanoscience and Nanotechnology
- ✓ Double Degree in Physics and Chemistry
- ✓ BSc 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"**

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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.