

## Job title

# TFG/TFM: Silicon nitride design and modelling of photonic integrated circuits for optical communication applications

### Main tasks and responsibilities

Advanced Photonic Integrated Circuit (PIC) simulation and design (Synopsys, Photon Design, IPKISS/Luceda, Lumerical, VPI, Klayout, etc.)

Interest in photonics.

### Requirements/Background and skills

- Engineering or Physics degree, with knowledge on Telecommunications, Microelectronics/RF, Optics/Photonics, or similar.
- Knowledge of optics and photonics technology.
- Programming knowledge (Python, C++ ...)
- High level of English (fluent B2 minimum). English interview.
- Very pro-active, solution oriented and versatile character.
- Organized, capable of dealing with tight deadlines.
- Good analytic and communication skills.

### Description of Group/Project

The candidate will be incorporated in the [Photonics Silicon Nitride Platform](#), belonging to the Grupo de Transductores Químicos (GTQ) (Chemical Transducers Group) of the Instituto de Microelectrónica de Barcelona (IMB-CNM, CSIC).

The GTQ is an interdisciplinary group recognized as Group A by the CSIC, Consolidated Research Group by the Generalitat de Catalunya (2017 SGR 1771, Grup de Recerca Consolidat, 2017-2020), and with high potential for valorization and technology transfer. It focuses the research in the solution of analytical problems in different industrial sectors. It has a quality management program EN-UNE ISO 9001 (from 2018) certified by AENOR, and it belongs to the TECNIO Network from the Generalitat de Catalunya since September 2006.

The project will consist on the design and simulation of silicon nitride integrated circuits for applications such as quantum computing, Lidar, sensing and optical communications. The candidate will learn the simulations and design models for photonic integrated circuits, will use existing state of the art PDKs in order to evaluate the silicon nitride platform at a system level. At the end of the project the candidate should have endorsed the skills of design and modelling, mask drawing and basic fabrication concepts of a PIC.

## How to apply

All applications must be sent to [Carlos.Dominguez@imb-cnm.csic.es](mailto:Carlos.Dominguez@imb-cnm.csic.es) or [joaquin.faneca@csic.es](mailto:joaquin.faneca@csic.es), with the subject *Silicon Nitride design and modelling*. Applications must include a CV.

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- This offer can be found on: <https://www.imb-cnm.csic.es/en/about-center/careers/open-positions>
- More information on IMB-CNM: <https://www.imb-cnm.csic.es/en/>

