The mission of the Catalan Institute of Nanoscience and Nanotechnology (ICN2) is to achieve the highest level of scientific and technological excellence in Nanoscience and Nanotechnology. Its research lines focus on the newly-discovered physical and chemical properties that arise from the behaviour of matter at the nanoscale. ICN2 has been awarded with the Severo Ochoa Center of Excellence distinction for three consecutive periods (2014-2018 and 2018-2022 and 2023-2026). ICN2 comprises 19 Research Groups, 7 Technical Development and Support Units and Facilities, and 2 Research Platforms, covering different areas of nanoscience and nanotechnology.

Job Title: PhD Student

Research area or group: NanoBiosensors and Bioanalytical Applications Group

Description of Group/Project:
The NanoB2A group focuses on the development of novel nanobiosensor devices based on plasmonics, nanoplasmonics, and silicon-based photonics principles, including surface biofunctionalization, microfluidics for automatic fluid delivery and complete lab-on-a-chip integration for point-of-care devices. The application of the nanobiosensor devices in real clinical diagnostics and environmental control is one of the Group's main objectives. The PhD position is framed within the SENTINEL PID2023 Project titled "Design and implementation of a novel portable, multispot nanoplasmonic biosensor for the diagnosis of opportunistic fungal infections" funded by AEI / MCIN, and led by Dr. M.-Carmen Estevez. The candidate will participate in the different processes towards the development of a novel plasmonic biosensor configuration including plasmonic chip preparation, optical characterization, microfluidics integration for bisoensing measurements, and final prototype evaluation. The candidate will fully develop and implement the clinical application based on the identification of fungal infections through the detection of relevant fungal markers in a multiplexed configuration. If you are interested in joining to a young, dynamic and highly multidisciplinary team, with a highly innovative research project, this could be your opportunity

Main Tasks and responsibilities:
The candidate will be involved in all the steps in the development of optical label-free biosensors and the implementation of relevant real-life applications. The main experimental tasks include: the fabrication and characterization of metallic nanostructures; the development of compatible microfluidics for integration; optical evaluation of the plasmonic prototype for biosensing measurements; development of surface biofunctionalization protocols with specific biomolecules (i.e. antibodies, DNA sequences) for the detection of biological markers (fungal markers); study and implementation of direct detection assays with the biosensor device; analytical characterization of the assay's performance and evaluation of biofluids' analytical and clinical validation at a final stage to demonstrate the viability of the developed prototype. The candidate will work under supervision and have the opportunity of independently developing the research. Related tasks will also include : data analysis and processing; preparation of regular reports and presentations; writing scientific publications.

Requirements:

- **Education:**
  Degree in Chemistry, biotechnology, nanoscience and nanotechnology or related areas.
  Master's degree in similar filed, including optics/photonics, biomedical engineering.
- **Knowledge and Professional Experience:**
  Background in chemistry and nanotechnology, preferably with demonstrated experience in optical sensing and biosensors.

Demonstrated experience on biomolecular assay design, development, and validation will be highly valued. Knowledge of microfludics will be positively considered.
Experimental optical setup design and implementation will be a plus
Excellent level of English (Fluent in writing and speaking) is required.

- **Personal Competences:** Highly motivated, enthusiastic, proactive, and responsible. Good communication and organization skills.

Summary of conditions:

- Full time work (37,5h/week)
- Contract Length: Temporary
- Location: Bellaterra (Barcelona)
- Salary will depend on qualifications and demonstrated experience.
- Support to the relocation issues.
- Life Insurance.

Estimated Incorporation date: as soon as possible

How to apply:
All applications must be made via the ICN2 website https://jobs.icn2.cat/job-openings/677/phd-student-nanobiosensors-and-bioanalytical-applications-group and include the following:

1. A cover letter.
2. A full CV including contact details.
3. 2 Reference letters or referee contacts.

Applications will be continuously reviewed. Shortlisted candidates will be invited for interview.

Equal opportunities:
ICN2 is an equal opportunity employer committed to diversity and inclusion of people with disabilities.
ICN2 is following the procedure for contract of people with disabilities according with article 59 of the Royal Decree 1/2015, of 30 of October.