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: Research Support Technician

Research area or group: Nanostructured Functional Materials

Description of Group/Project:

The Nanostructured Functional Materials group (NANOSFUN) is a research group of the Catalan Institute of Nanoscience and Nanotechnology (ICN2) that focuses on the research and development of novel molecular and polymeric functional nanomaterials.
The Nanostructured Functional Materials group (Nanosfun, www.nanosfun.com) is research group at the ICN2. Nanosfun is aimed to develop novel (supra)molecular and polymeric functional nanomaterials with application in Health, Energy-Efficient Devices and Environment. Specifically, one of our main research lines is the design and fabrication of polymeric coatings for the modulation of surface properties. In this area, the development of new materials with outstanding features is a pressing concern. In this scenario, bioinspired materials have emerged as potential candidates. Specifically, materials based on catechol molecules, present in various living organisms (e.g., mussels), have demonstrated unprecedented adhesive properties under wet conditions, biocompatibility, low toxicity and low cost/scalable processes. These excellent features turn bioinspired catechol-based materials unique for their use in coatings applications.
Our society must change the water usage model, ensuring its purity through the development of more efficient filters. In turn, these would also favor the conversion of a linear system to a circular economy system that promotes the recycling of wastewater and takes advantage of seawater as a water resource during drought periods. These filters, besides being efficient, must have high chemical resistance, allow for recycling and contaminant recycling, be stable in water, and have high biocompatibility. Although there are already various types of membranes on the market that serve this purpose, there is no solution that meets all the mentioned requirements. To find a solution, this project seeks the ultimate strategy through nanotechnology. The main objective is to develop a bioinspired polymer coating based on catechols to cover existing filters and/or propose the use of new (bio)filters as a recyclable support.

Main Tasks and responsibilities:

The research activity of the candidate will be mainly part of the BIORESEC project, which aim to reduce the impact of drought on health through innovative bioinspired coatings for water regeneration.

The candidate will be involved in activities related to the fabrication, characterization and final validation of polymeric coatings, based on different formulations containing catechol moieties. Besides, the candidate will be involved in the process of capturing selected contamiants suchs as antibiotics, nitrates and metal oxides, among others. The candidate will be working in a very multidisciplinary project that covers topics such as chemical sytnhesis and functionalization, materials science, characetrization techniques and prototype validation in relevant environments.

The candidate will work as part of an international team and she/he is expected to actively participate and lead part of this project.

Requirements:

- **Education:**
  A Bachelor or Master Degree in Nanoscience and Nanotechnology, Chemistry, Materials Science or similar.
- **Knowledge:**
  Science and technology of polymeric coatings
  Organic chemistry and functionalization routes
  Surface modification
- **Professional Experience:**
  Experience in the synthesis of polymeric materials.
  Experience in the chemical synthesis and modification of organic and polymeric materials.
  Experience in microscopic and spectroscopic characterization techniques
- **Personal Competences:**
  Excellent communication and writing skills.
  Fluent English both spoken and written.
  Intrinsic motivation, strong commitment, responsibility, independence, teamwork skills.
  Ability in writing complete technical reports.

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: November 2024

The BIORESEC project belongs to the Colaboración Publico-Privada 2023 grant CPP2023-010996 aiming to reduce the impact of drought on health through innovative bioinspired coatings for water regeneration. Project funded by MICIU/AEI/ 10.13039/501100011033 and by ERDF/UE.

How to apply:
All applications must be made via the ICN2 website and include the following:

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

Deadline for applications: 24 October 2024

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.