

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 behavior of matter at the nanoscale. ICN2 has been awarded with the Severo Ochoa Center of Excellence distinction for two consecutive periods (2014-2018 and 2018-2022). 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 in Electrocatalyst Materials for Renewable Energy Conversion

Research area or group: NanoElectrocatalysis

Description of Group/Project:

The NanoElectrocatalysis Group combines electrochemistry, materials science and in situ characterisation at the atomic scale to elucidate design principles for the discovery and development of novel electrocatalyst materials for the conversion and storage of renewable energy, as well as the production of sustainable fuels and chemicals. We offer stimulating working conditions in a vibrant, interdisciplinary and international research environment. Within this PhD project, the candidate will characterise functional electrocatalyst nanomaterials and investigate the molecular mechanisms of electrocatalytic reactions for energy conversion and production of green fuels.

Main Tasks and responsibilities:

The successful candidate will combine classical electrochemical methods with in situ characterisation techniques including spectroscopy, electrochemical scanning probe microscopy and electrochemical mass spectrometry to investigate the structure-property relations of electrocatalyst materials as well as the mechanism of electrocatalytic reactions.

The main reactions of interest are oxygen evolution and electrochemical reduction of carbon dioxide and carbon monoxide into renewable fuels.

The candidate will develop electrochemical and in situ characterisation methods and setups for the real-time detection of intermediates and products during electrocatalytic reactions.

This PhD will be part of the Electrochemistry – Science and Technology interuniversity PhD programme and will be carried out in collaboration with other groups at both ICN2 and foreign research institutions.

The candidate will carry out independent research under supervision, write scientific papers for publication in peer-reviewed journals, and disseminate their work in international conferences.

Requeriments:

- **Education**

Master's degree in chemistry, chemical engineering, nanoscience and nanotechnology, materials science, physics or related areas with an academic level equivalent

- **Knowledge and professional experience**

The candidate should have strong experience in electrochemistry, electroanalytical techniques, materials characterisation and/or in situ microscopy or spectroscopy for the characterisation of electrochemical reactions.

Relevant publications within electrochemistry are desirable.

Excellent written and spoken communication skills in English are required.

The successful candidate will be able to develop experimental methods, advance the PhD project and work independently and as part of a team.

- **Competences**

Integrity, perseverance and resilience, innovation, teamwork and communication skills.

Summary of conditions:

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

Estimated Incorporation date: September 2022

Deadline for applications: 13 May 2022

How to apply:

All applications must be made via the ICN2 website <https://jobs.icn2.cat/job-openings/386/phd-student-in-electrocatalyst-materials-for-renewable-energy-conversion> and include the following:

1. A cover letter.
2. A full CV including contact details and a list of publications (if possible)
3. Original diplomas for Bachelor of Science or Master of Science and transcript of records in the original language, including an authorized English translation if issued in another language than English or Spanish. If not completed, a certified/signed copy of a recent transcript of records or a written statement from the institution or supervisor is accepted
4. 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.