

Call reference number	(2026-15)
Call name	Predoctoral Researcher – Ecodesign and development of energy storage devices for marine ecosystems
Application Deadline	2026/08/25

Introduction and main description

The exponential expansion of the Blue Economy is driving a massive deployment of autonomous sensors for aquaculture and oceanography, yet this technological wave presents a sustainability paradox where the devices used to monitor the ecosystem often become hazardous ghost gear or electronic waste upon loss or obsolescence. Current Li-ion batteries rely on toxic electrolytes and critical raw materials that pose severe leaching risks in marine environments, highlighting the urgent need for a new generation of power sources designed from the outset for marine disintegration.

The URDIN project aims to resolve this challenge by ecodesigning, developing, and validating a new generation of Na-ion batteries and supercapacitors manufactured entirely from marine-derived precursors via frugal, decentralized techniques. The project is founded on a circular marine-to-marine hypothesis which posits that it is possible to create energy storage devices that meet the rigorous power requirements of marine devices while guaranteeing innocuous degradation in seawater.

The purpose of the predoctoral position is to perform research in the URDIN project - PID2025-172870OB-I00 approved by the MICIU/AEI/10.13039/501100011033 with an estimated completion date of 08/31/2029.

Skills and Requirements

Required:

- BSc in Physics, Electrochemistry, Chemistry or Engineering.
- MSc in Materials Science, Electrochemistry, Chemistry, Physics or Engineering.
- Knowledge and experience in supercapacitor or battery prototyping and characterization.

Desired:

- Knowledge of electrical conductivity characterization and electrochemical characterization techniques.
- Experience in biobased hydrogel preparation and redox polymers.
- Knowledge of rapid prototyping and additive manufacturing techniques, including printed electronics.
- Fluent in english.

Work Program / Duties / Responsibilities

Design and fabrication of energy storage prototypes.
Electrical characterization of carbon-based electrodes.
Electrochemical characterization of electroactive species.
Evaluation of ionic conductivity of biobased polymer electrolyte membranes.
Electrochemical device performance characterization.
Preparation of samples for end-of-life assessments.

Application Procedure

Apply by submitting a motivation letter and a CV (in English) using the “Contact” button at the corresponding offer, at the “Join Us” area on BCMaterials’ portal (<https://www.bcmaterials.net/join-us>).
Your name and email address will be required for further contact too.

Other Relevant Information

Able to work in an international environment.
Spanish knowledge would be an advantage.

We provide a highly stimulating environment with state-of-the-art infrastructures, and unique professional career development opportunities. We offer and promote a diverse and inclusive environment and welcomes applicants regardless of age, disability, gender, nationality, ethnicity, religion, sexual orientation or gender identity.