Call reference number	(2025-27)
Call name	Postdoctoral position for the synthesis and caracterization of metal organic framework composites for triboelectrig generation
Application Deadline	2025/07/28

Introduction and main description

BCMaterials, Basque Center for Materials, Applications and Nanostructures, is an autonomous research center launched in June 2012 by Ikerbasque, the Basque Foundation for Science, and the University of the Basque Country (UPV/EHU), as a research center focused on Materials, Applications, and Nanostructures. The center is part of the BERC (Basque Excellence Research Centers) network, and its mission is to generate knowledge on the new generation of materials, transforming this knowledge into (multi)functional solutions and devices for the benefit of society.

We are looking for a postdoctoral researcher to carry out protocols for the synthesis and immobilization of metal–organic framework (MOF) particles on various supports, and to test their properties as electrodes for triboelectric generation. The scope of the project is to investigate the chemical and physical properties of MOFs as tribopositive materials, in order to rationalize material behavior and enable the design of a second generation of improved triboelectric composites. More specifically, factors such as material composition, the role of open metal sites, and linker functionalization will be considered, along with particle size and morphology. In addition, ambient conditions such as humidity and temperature, as well as the characteristics of the support, will be evaluated.

The work will be carried out at BCMaterials, with an ideal starting date of 15/09/2025. The project is funded until 31/12/2025. For experienced researchers, a competitive salary will be offered, in line with other EU scientific institutions.

Skills and Requirements

The candidate must hold a PhD in Chemistry, Materials Science, or Chemical Engineering. Important requirements include familiarity with the synthesis of MOF nano- and micro-particles, broad experience in materials characterization (particularly PXRD, SEM, IR, DLS, and zeta potential), and experience in the formation and handling of thin film composites. Skills in electrical and mechanical engineering will be considered an asset.

Furthermore, a strong set of soft skills is required, including proficiency in English, the ability to work in a team, self-motivation, and adaptability. Creative problem-solving, flexibility, and independence will be valued, as well as the ability to meet deadlines.

Work Program / Duties / Responsibilities

The research will be conducted within the Energy Generation and Storage research line at BCMaterials, with the objective of establishing a strong foundation in the material behavior of MOFs in relation to triboelectric generation. The project will involve the synthesis of a diverse array of materials with varying compositions and physicochemical characteristics, particularly focusing on their electrochemical properties. Physical characteristics such as particle size, morphology, and size distribution will also be evaluated. The materials will be fully characterized, after which the particles will be immobilized on various supports (e.g., paper,

Work Program / Duties / Responsibilities
polymer matrices, wood) and tested as electrodes for triboelectric generation under tightly controlled environmental and experimental conditions, such as humidity, press frequency, and interaction strength, using a custom-designed experimental setup. The resulting data will be cross-examined, and emerging patterns will be further investigated through specifically designed experiments, in order to validate and reinforce the research findings.

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 furher contact too.

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