Call reference number	(2026-01)
Call name	Predoctoral Researcher: Metal-Organic Frameworks for low temperature catalytic conversion of carbon dioxide into alcohols
Application Deadline	2026/02/16

Introduction and main description

BCMaterials – the Basque Center for Materials, Applications and Nanostructures (Leioa, Spain, www.bcmaterials.net) – is an autonomous research center belonging to Ikerbasque, the Basque Foundation for Science, and the University of the Basque Country (UPV/EHU).

We are seeking a highly motivated pre-doctoral researcher in Chemical Physics or Materials Chemistry to work on the design of advanced Metal–Organic Framework (MOF) catalysts. The project focuses on integrating multifunctional active sites within MOF pore architectures to enable the low-temperature conversion of carbon dioxide into alcohols, combining plasma-assisted processes with enzyme- and nanozyme-based transformations.

The candidate will conduct the synthesis and preliminary characterization of MOF catalysts. Advanced characterization and catalytic testing will be carried out during secondment periods at partner research institutions within the European C2FUELS consortium.

This is a full-time, pre-doctoral position funded under the Horizon Europe programme (Call HORIZON-CL5-2024-D3-02-02), with an estimated finishing date on 2028/09/30. The successful candidate will benefit from close interaction with leading European research institutions in materials science, advanced characterization, catalysis, and renewable energy technologies, offering an excellent international training environment.

Skills and Requirements

A Master's Degree in Chemistry, Physics, or a related field.
A research background in synthesis and catalysis.
Experience in X-ray diffraction data analysis
Experience on catalysts characterization
Proficiency in speaking and writing in English.
Self-motivation and ability to work in a team.
Willingness to coordinate research.
A high level of motivation and independent thinking skills.
Ability and eagerness to learn new skills outside their own discipline.
Presentation skills and ability to meet deadlines.

Work Program / Duties / Responsibilities

Design, synthesis, and characterization of MOF host materials.
Preparation of multi-element clusters and development of synthetic protocols for their integration into MOF structures.
Encapsulation of enzymes or nanozymes into MOFs under mild conditions.
Structural and physicochemical characterization using techniques such as single-crystal and

Work Program / Duties / Responsibilities

powder X-ray diffraction, infrared spectroscopy, thermogravimetric analysis, NMR spectroscopy, and related methods.
Participation in collaborative research activities and secondments within the C2FUELS European network.

Additional responsibilities:
Writing of manuscripts
Presenting research at national/international conferences
Working closely with collaborators
Maintaining a positive and collaborative group atmosphere

Further details: The pre-doctoral researcher will be incorporated at BCMaterials under the supervision of Dr. Roberto Fernández de Luis

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

Include contact details for 2 referees.
Interviews will be conducted soon after the deadline.

The preferred starting date to join is April-1, 2026.

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.