Call reference number	(2026-32)
Call name	Predoctoral Position in local conductive properties of hybrid materials.
Application Deadline	2026/12/15

Introduction and main description

BCMaterials, Basque Center for Materials, Applications and Nanostructures, is an autonomous research centre located in Leioa (Spain), established in 2012 by Ikerbasque, the Basque Foundation for Science, and the University of the Basque Country (UPV/EHU). The centre is part of the Basque Excellence Research Centres (BERC) network and aims to advance fundamental knowledge of materials and translate it into multifunctional solutions and devices.

We are seeking a motivated PhD candidate with a background in physics, materials science, engineering, or a related discipline to participate in a research project focused on the experimental investigation of the electrical properties of low-dimensional and hybrid functional materials.

Low-dimensional and hybrid materials offer unique opportunities to investigate electrical and spin-related phenomena at the nanoscale. In particular, the electrical properties of biological and bio-inspired materials are attracting increasing interest for potential applications in bioelectronics, sensing, and emerging functional devices. Despite recent progress, the microscopic mechanisms governing charge transport and possible spin-dependent responses in these systems remain largely unexplored.

The position offers an opportunity to develop expertise in nanoscale characterization and contribute to emerging research directions at the interface of condensed matter physics, materials science, and biophysics.

We offer a one-year contract. After an evaluation of the candidate's performance, if the results are positive, the researcher will be hired for three more years. It is estimated that four years are enough to develop a PhD thesis.

Skills and Requirements

-Bachelor's or Master Degree in Physics, Engineering, or related areas.

The following qualifications and experience will be positively valued but are not mandatory:
- Experience in electrical characterization of materials or nanostructures.
- Experience with scanning probe microscopy, particularly AFM and conductive modes.
- Familiarity with optical characterization techniques, such as Raman spectroscopy, absorption spectroscopy, or dichroism measurements.
- Interest in low-dimensional, molecular or hybrid functional materials.
- Programming and data analysis skills, particularly in Python and/or MATLAB.
- Good scientific writing, communication, and presentation skills.

- Ability to work both independently and collaboratively in a multidisciplinary research environment.

Work Program / Duties / Responsibilities
The candidate will contribute to the experimental investigation of these phenomena using advanced nanoscale characterization techniques. The work will involve sample preparation, local electrical measurements, and complementary optical and transport characterization, with particular emphasis on conductive atomic force microscopy. Depending on the candidate's background and the evolution of the research, additional experimental approaches and data analysis methods may be incorporated. The successful candidate will investigate local electrical conductivity and explore potential spin-dependent transport phenomena in functional materials. The research will primarily rely on nanoscale electrical characterization techniques, particularly conductive atomic force microscopy (c-AFM), complemented by other electrical and optical methods. The candidate will participate in regular research meetings and collaborative activities and will communicate the results through scientific reports, conference contributions, and publications.

Application Procedure
Apply by submitting a motivation letter and a CV (in English), besides a recommendation letter and/or a list of referees (if possible), 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 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.