Call reference number	(2026-04)
Call name	IKUR Quantum Technologies SPINSHALL Project. Post-doctoral position for designing and manufacturing of novel magnetic topological materials with spin-hall effect
Application Deadline	2026/02/17

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 for Materials, Applications and Nanostructures. The center is included in the BERC's (Basque Excellence Research Centers) network and its mission is to generate knowledge on the new generation of materials, turning this knowledge into (multi)functional solutions and devices for the benefit of society.

BCMaterials is looking for a motivated post-doctoral researcher to work in the IKUR Quantum Technologies SPINSHALL Project. This project is related with the area of magnetic topological materials (MTM), covering computational science (DIPC), material synthesis (BCM), and advanced characterization (UPV/EHU).

The aim of this project is to design and manufacture novel MTMs via computational screening and experimental validation of intermetallic single crystals with magnetic ordering and topological surface states, establishing a new approach for quantum computing: i) Design 4 MTMs with large spin-Seebeck and spin-Hall effect, predicting properties via computational calculations. ii) Synthesize 2-3 MTMs in single-crystalline form, including Mn(Fe, Co, Ni)Rh_2Te_4 and Co_2MnGa(Al,Sn). iii) Characterize crystal structures, physical properties, and SSE/SHE functionalities of MTMs.

The present position will be dedicated to the theoretical calculation, single crystal fabrication, structural characterization and the analysis of the magnetic properties of MTMs. It will be developed jointly by research groups from BCMaterials, the Basque Centre for Materials, Applications and Nanostructures, and the University of the Basque Country.

The position under this project is open to start at 01/03/2026 with an estimated completion date on 31/12/2026.

Skills and Requirements

PhD in Materials Science and Technology, or Physics.
Master in Materials science, Physics or related areas.
Bachelor degree obtained with an average mark above 7.5/10.
Fluent oral and written English is mandatory.
Experience in computational materials science, single crystal growth and magnetic and thermoelectric characterization techniques is an asset.

Work Program / Duties / Responsibilities
The research activity that the post-doctoral researcher will perform consists in the investigation, from the materials design to growth for their performance evaluation, of topological magnetic materials, with a variety of techniques ranging from X-ray diffraction, single crystal growth, and DFT calculations

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 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.