

Call reference number	(2026-20)
Call name	Predoctoral researcher on molecular qubits
Application Deadline	2026/10/25

Introduction and main description

BCMaterials is searching for a motivated and experienced predoctoral researcher to (a) develop a deeper fundamental and practical understanding of molecular qubits for quantum technologies and (b) enhance the robustness and scalability of molecular qubits to facilitate their real-world deployment. For such purpose, the predoctoral researcher will synthesize novel MOFs that behave as qubits and will determine their spin dynamics, including spin-lattice relaxation and quantum coherence times. The most promising molecular qubits will be exfoliated and deposited onto surfaces, which will allow to assess their functionality in the environment in which they will be used for quantum technologies.

This pre-doctoral position is to work in the Clockbits project, funded by the Ministerio de Ciencia, Investigación y Universidades and AEI under the Consolidación Investigadora program. The project funding will end on 31/03/2027.

Skills and Requirements

We are looking for a highly motivated researcher with a background in chemistry, molecular materials, or related disciplines, and a strong interest in molecular magnetism and qubits.

Required:

- BSc in Chemistry, Materials Science or a related discipline.
- MSc in Chemistry, Materials Science or a related discipline.
- Experience in synthetic chemistry and/or preparation and characterisation of organic and/or inorganic molecules.
- Experience with standard molecular characterisation techniques such as IR, UV-Vis, TGA and mass spectrometry.
- Fluent English.

Desired:

- Knowledge of polyoxometalates.
- Ability to work effectively in an international and interdisciplinary research environment.

Work Program / Duties / Responsibilities

1. Synthesis of 2D molecular qubits.
2. Physicochemical characterization and investigation of the spin dynamics.
3. Exfoliation of the extended systems and deposition on surfaces.
4. Characterization of the functional surfaces and investigation of the spin dynamics.

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

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.