

Call reference number	(2022-28)
Call name	Scientific position for Guidance and control of magnetotactic bacteria
Application Deadline	2022/12/18

Introduction and main description
<p>BCMaterials, Basque Center on Materials, Applications and Nanostructures, is an autonomous research center belonging to Ikerbasque, the Basque Foundation for Science and the University of the Basque Country (UPV/EHU). 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 our society.</p> <p>In the context of the research project "Guidance and control of magnetotactic bacteria for cancer therapies", funded by the Spanish Government, we offer a one-year scientific position to advance in the development of the detection and actuation procedures in a magnetotaxis system for the remote control of magnetotactic bacteria as nanorobots for biomedical applications.</p> <p>The position is focused on developing an experimental platform for the study of the mobility of magnetotactic bacteria comprising actuation and sensing capabilities. The tasks will include design, fabrication and testing of microfluidic chips with integrated magnetic sensors in order to detect the presence and motion of magnetotactic bacteria from their stray magnetic field. The position will demand intense work on the development of magnetic materials for the sensors. They will be fabricated in the form of thin films by sputtering, patterned by photolithography and magnetically characterized, including the measurements of their magnetic field-dependent transport properties (magnetoresistance and magnetoimpedance). The study will be complemented with computer simulations, using both micromagnetic and finite elements macroscopic codes.</p>

Skills and Requirements
<p>A proven experience in clean room microfabrication techniques, including microfluidics, photolithography and sputtering deposition must be demonstrated.</p> <p>A solid background on magnetism and experience in experimental work related to the characterization of magnetic materials is required. Familiarity with simulation software (FEMM, COMSOL, OOMMF, muMAX, etc.), will be positively valued.</p> <p>The candidate should be self-motivated and a team player willing to contribute to the successful development of the project.</p> <p>Candidates should preferably hold a degree in Physics or Electronic Engineering with intensification (Master degree) on Materials Science, Nanotechnology or similar discipline.</p>

Work Program / Duties / Responsibilities
<p>According to the description of the position above, the successful candidate will be in charge of developing the magnetotaxis platform and the associated instrumentation for the study of the mobility of magnetotactic bacteria, including the design and fabrication of microfluidic channels sensorized with magnetic sensors.</p>

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

The starting date to join is as soon as possible. After an initial testing period, the contract is expected to last one full year. Submit CV and a cover letter including contact details.