

Call reference number	(2020-32)
Call name	Scientific position for multiscale simulation of magnetic materials and magnetic fields
Application Deadline	2020/06/30

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 society.</p> <p>In the context of a research project funded by the Spanish Government, we offer a one-year scientific position to advance in the development of the guidance, 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 primarily on multiscale simulation (micromagnetic and finite elements macroscopic behavior) of magnetic materials for sensors to detect the presence and movement of magnetotactic bacteria. Additional tasks will include simulation of magnetic fields and field gradients, and magnetic hyperthermia fields.</p> <p>More specifically, the successful candidate will be in charge of implementing the numerical integration of the Landau-Lipchitz-Gilbert equation of motion for the magnetization dynamics in COMSOL in order to obtain the material parameters required to perform finite element modeling (in COMSOL) of the electromagnetic behavior of the material.</p>

Skills and Requirements
<p>Experience in simulation software (COMSOL preferable, or similar) and related tools (Matlab). Knowledge of specific micromagnetic codes (OOMMF, muMAX, etc) and experience in magnetism and magnetic materials will be positively valued.</p> <p>The candidate should be self-motivated and a team player willing to coordinate the research in a particular topic.</p> <p>Candidates should hold a degree in physics, materials science, engineering or any other related subject.</p>

Work Program / Duties / Responsibilities
<p>The successful candidate will be in charge of implementing the numerical integration of the Landau-Lipchitz-Gilbert equation of motion for the magnetization dynamics in COMSOL in order to obtain the material parameters required to perform finite element modeling (in COMSOL) of the electromagnetic behavior of the material.</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 position will be available from July 2020.

The contract is expected last during one whole year (until end of June 2021), subjected to the approval of the project extension by the funding agent.

In case of rejection of the extension, the contract will end on December 2020.