**Main functions, requisites & benefits**

**Main functions**

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.

In the context of a research project funded by the Spanish Government, we offer a Postdoctoral position until 31st of December 2020 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.

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.

**Requisites**

Extensive 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. The candidate should be self motivated and a team player willing to coordinate the research in a particular topic.

Candidates should hold a PhD in physics, materials science or engineering. Responsibilities Development of procedures to simulate the detailed response of magnetic sensors (magnetoresistance, magnetoimpedance, etc.) including magnetization processes. Optimization of coil design for field and gradient generation for guidance of magnetotactic bacteria and hyperthermia application.