

## Company Description

BCMaterials, Basque Center on 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. The BCMaterials (Basque Center for Materials, Applications & Nanostructures), opens the call to develop the PhD thesis at our center in collaboration with Professors of the University of the Basque Country (UPV/EHU).

## Information

 Deadline: 2020-07-21
  Country: Basque Country  
 Category: Business
  City: Leioa  
 Province: Bizkaia

## Company

BCMaterials



## Main functions, requisites & benefits

### Main functions

Work Program / Duties / Responsibilities A Research Project within the five strategic Research Areas of the Center: Active and smart materials Advanced functional materials Functional surfaces and coatings Micro and nano-devices Nanostructured materials Within this frame, the BCMaterials is currently researching an ample diversity of materials, surfaces and devices processing, which fundamental understand and modification allows modifying or combining different physic and chemical properties towards their application in research fields such as Advance Manufacturing, Biomedicine, Energy or Environment <https://www.bcmaterials.net/research-lines-and-areas/> Main duties will include the direct deposition of repair particles onto a variety of substrates and materials, the preparation of a set up processing testbed suitable for application of electrical voltages to the surface of the materials that contain damage, the characterisation of the structural and mechanical properties of the resulting composite layers under relevant working environments. Preparation of high quality scientific articles and participation in project meetings.

### Requisites

#### Skills and Requirements

This is a practical project, requiring lab working skills. The project will require the mounting of a new electropulse set up, deposition of coatings and surfaces using advanced PVD techniques, the structural and mechanical characterization of the films, and the preparation of high quality scientific publications and the presentation of the outcomes at international conferences.

### Benefits

This PhD thesis will tackle the very significant challenge of self-repairing metallic materials and components by addressing the problem of the self-repairability of surfaces from an experimental point of view. Important questions in this regard include the influence of repair triggers (e.g., electric currents or localized heat) and geometry (e.g., heterogeneous sizes) on the material's microstructure which can be answered by means of the deposition of intellegent multilayers and nanocomposite coatings combined with suitable repair triggers. We will offer three years PhD Grants to develop a Research Project.