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| <b>Call reference number</b> | (2025-35)                                                                          |
| <b>Call name</b>             | Predoctoral position: Laser-driven Nanomaterial Assembly and Synthesis on Surfaces |
| <b>Application Deadline</b>  | 2025/12/14                                                                         |

| <b>Introduction and main description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <p>BCMaterials, the Basque Center for Materials, Applications and Nanostructures, Leioa, Spain (<a href="http://www.bcmaterials.net">www.bcmaterials.net</a>), is an autonomous research center, belonging to Ikerbasque, the Basque Foundation for Science, and the University of the Basque Country (UPV/EHU).</p> <p>We seek a pre-doctoral researcher in Chemical Physics/Materials Chemistry focusing on emerging optically driven colloidal techniques for deposition of nanomaterials on surfaces. We offer a full-time position as a pre-doctoral researcher within a project supported by the ATRAE program, funded by the Spanish Ministry of Science, Innovation and Universities, until August 31, 2029. Specifically, laser-induced microbubbles will be used for the colloidal patterning of nanomaterials on solid surfaces.</p> <p>The work will involve the synthesis of ligands, functionalization of nanomaterials and solid substrates with different chemical moieties, and fabrication of assemblies via the use of a custom optical setup. Fabricated assemblies will be characterized by techniques such as dark field microscopy, electron microscopy, and various types of optical spectroscopy. Detailed studies of the colloidal interactions between nanoparticles, ligands, and solvent will provide the opportunity for combining experimental and computational studies.</p> |

| <b>Skills and Requirements</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| <p>A Master's Degree in Chemistry, Physics, or a related field.<br/> A strong research background in nanoparticle synthesis/functionalization/assembly.<br/> Experience with laser-based optical setups and/or optical microscopy is beneficial.<br/> Proficiency in speaking and writing in English.<br/> Self-motivation and ability to work in a team.<br/> Willingness to coordinate research.<br/> A high level of motivation and independent thinking skills.<br/> Ability and eagerness to learn new skills outside their own discipline.<br/> Presentation skills and ability to meet deadlines.</p> |

| <b>Work Program / Duties / Responsibilities</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <p>Main responsibilities include:</p> <p>Optical patterning of nanomaterials<br/> Synthesis, surface modification, and characterization of nanoparticles<br/> Characterization of printed assemblies of nanoparticles, including techniques such as:</p> <ul style="list-style-type: none"> <li>- Scanning electron microscopy (SEM)</li> <li>- Back-scattered UV-visible spectroscopy</li> <li>- Fluorescence Microscopy</li> </ul> <p>Developing a theoretical understanding of the mechanisms involved in the printing process using computational methods such as:</p> <ul style="list-style-type: none"> <li>- Molecular Dynamics simulations</li> <li>- Multiphysics and fluid dynamics simulations</li> </ul> |

### Work Program / Duties / Responsibilities

Additional responsibilities:

Writing of manuscripts

Presenting research at national/international conferences

Maintaining optical setup and lab equipment

Working closely with collaborators

Maintaining a positive and collaborative group atmosphere

Further details:

The PhD student will be incorporated at BCMaterials under the supervision of Eric Hill, Ikerbasque Research Associate Professor.

The candidate will be in close contact with several renowned international groups in the fields of colloidal chemistry and nanoscience in Europe and abroad.

### 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

Include references or contact details for 2 referees.

Interviews will be conducted soon after the deadline.

The preferred starting date to join is February 1, 2026.

We provide a highly stimulating and interdisciplinary environment, with state-of-the-art infrastructures and unique professional career development opportunities. We offer and promote a diverse and inclusive environment and welcome applicants regardless of age, disability, gender, nationality, ethnicity, religion, sexual orientation or gender identity.