

Company Description

CIC energiGUNE is the research centre for the storage of electrochemical and thermal energy, and a member of the Basque Research & Technology Alliance BRTA and a strategic initiative of the Basque Government. CIC energiGUNE was created in 2011 to generate research excellence in materials and energy storage systems, maximising the impact on results for the Basque business fabric, through collaboration with universities, research centres and companies. Located in the Alava Technology Park, it is considered one of the 3 reference centres in Europe, thanks to the positioning of its research lines, its research team and its characterisation, testing and prototyping platforms that make it the reference laboratory in southern Europe. The centre works with an extensive network of collaborators, including clusters, initiatives, companies, universities and research institutes, all of which are benchmarks in the international field of energy storage. These collaborations aim to obtain valuable results for both electrochemical and thermal storage applications. The CIC energiGUNE has recently been awarded the "HR Excellence in Research" by the European Commission, which reflects its commitment to fair and transparent recruitment and evaluation procedures, and certifies the existence of a stimulating and favourable working environment for the institution's researchers.

Information

 **Deadline:** 2020-10-18
 **Category:** Academia
 **Province:** Araba / Alava

 **Country:** Basque Country
 **City:** Vitoria

Company

CIC energiGUNE



Main functions, requisites & benefits

Main functions

CIC energiGUNE is seeking for a motivated student to complete a Master thesis, followed by a PhD in Materials Science in the field of energy storage. The student will join an experienced, international and multidisciplinary team, including both theoretical and experimental experts. His/her research project will be focused on the "Accelerated discovery of new electrode materials for Li- and Na-ion batteries, using Artificial Intelligence-aided high-throughput synthesis methods", which will be part of a wider, public-funded, innovative project aligned with the H2020 European research strategy in the field of Electrochemical Energy Storage. For this 3.5-year project, he will carry out the following tasks: Synthesis of inorganic materials. The student will be able to explore several approaches, such as solid-state, hydrothermal and/or sol-gel synthesis routes, under controlled atmospheres (inert or reductive conditions, work in glove-box, etc.) and using high-throughput synthesis modules developed at CICE. He/she will also take part in the implementation of machine learning algorithms to predict the outcome of new experiments and automatize their planning. Physical-chemical and structural characterization. The samples will be characterized using a large panel of techniques, including X-ray diffraction, electron microscopy, chemical analyses, thermogravimetric analyses, etc. Electrochemical characterization. The student will learn how to prepare electrode materials (formulation, coating) and assemble electrochemical cells (Swagelok-type and/or coin cells). He/she will perform electrochemical tests, including galvanostatic cyclings, cyclic voltamperometry, etc. Study of the reaction mechanisms of the most promising candidates. Using advanced ex-situ and in-situ experiments, as well as contrasting experimental results with density functional theory (DFT) predictions. Redaction of scientific publications in high-impact journals and participation to national and international conferences.

Requisites

The candidate will preferably be involved in a Master degree (or equivalent) with a major in Materials Sciences, Inorganic Chemistry, Electrochemistry, Materials Engineering or any other scientific discipline in a related field. Basic knowledge in computation and programming (e.g. Fortran, Python, C++) will be valuable. Demonstrated self-motivation and ability to work independently. A team player who can collaborate with other scientists and other groups. Good verbal and written communication skills in English. Spanish is not compulsory.

Benefits

We offer the candidate to prepare his/her Master thesis at CIC energiGUNE during the academic year 2020-2021 in an experienced and multidisciplinary team, that will be followed by a PhD thesis funded by a national grant (Ayudas para contratos predoctorales para la formación de doctores del Ministerio de Ciencia, Innovación y Universidades). We offer a collaborative and international environment with a wide range of up-to-date facilities that will be accessible to the student, as well as a culture through which he/she will be able to share ideas, develop expertise and prepare for a scientific career in both academic and industrial sectors. CIC energiGUNE is