The Nanoscience Cooperative Research Center, CIC nanoGUNE, located in Donostia / San Sebastian, Basque Country (Spain), is currently looking for a

MASTER STUDENT
to work on
MINECO_RETOS_2019_SYNERFUN_CIC08_Knez

NanoGUNE is a research center devoted to conducting world-class nanoscience research for a competitive growth of the Basque Country. NanoGUNE is a member of the Basque Research and Technology Alliance (BRTA) and is recognized by the Spanish Research Agency as a *María de Maeztu* Unit of Excellence.

The **position** is offered in the Nanomaterials Group, led by Knez, Mato (m.knez@nanogune.eu). The Nanomaterials group is led by Dr. Mato Knez. The activity of the Nanomaterials group is focused on the synthesis and functionalization of materials. Its research programme has been divided into thin-film coating, hybrid inorganic-organic materials, and bio-organic nanomaterials..

The candidate will join a **research line** focusing on . More information can be found at https://www.nanogune.eu/nanomaterials.
The aim of the **project** is to - Project: CIC082019006 - Funcionalización sinérgica de superficies para diagnósticos avanzados, materiales catalíticos y de embalaje - SYNERFUN

- Introduction: In a world of enormously rising energy consumption and environmental pollution, the demand for clean and renewable energy sources and for minimizing the energy loss is of critical importance. One strategy towards improved energy efficiency involves capturing and recycling the ?waste? heat from energy conversion processes. With a special class of materials, known as thermoelectrics, generators can be devised, which allow a direct conversion of heat into electricity.

- Work Plan:
Still, currently available hybrid thermoelectric (TE) materials have serious limitations: 1) the dominantly physical interactions between the organic and inorganic phases reduce their long-term stability and greatly restrict the carrier transport in hybrid TE materials, 2) limited control of the distribution of the organic/inorganic phases at the nanoscale makes enhancement of phonon scattering in hybrid TE materials difficult. To advance these materials and overcome the challenges, the project aims at developing new organic-inorganic hybrid TE materials by applying a newly developed concept of simultaneous vapour phase coating and infiltration (VPI/SCIP) of polymers with inorganics. VPI/SCIP technique as a viable, scalable, and robust preparative strategy for obtaining novel high-performance hybrid TE materials with chemically linked organic/inorganic interfaces and control of composition of the hybrid/inorganic layer thickness on the atomic level. The goal of this work lies in creating a new hybrid material set, where hierarchical superlattice structures of different inorganic materials are simultaneously grown in the subsurface of a polymer and on its top, which will allow to obtain a superior TE performance. The materials will be fabricated and characterized with a variety of physicochemical techniques including electron microscopy, UV-Vis spectroscopy, Raman spectroscopy, XRD and others. The Master project is at the intersection of inorganic, physical, organic chemistry and physics and combines experimental work in a chemical laboratory with various state-of-the-art characterization methods. The work will be conducted in the Nanomaterials group at CIC nanoGUNE..

The successful **candidate** will have a .
Additionally, the candidate should demonstrate experience in the following skills:
Although not compulsory, the following points will be considered:

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We promote teamwork in a diverse and inclusive environment and welcome all kinds of applicants regardless of age, disability, gender, nationality, race, religion, or sexual orientation.

The position is expected to start in 01/10/2021 and for a total length of up to 10 months (01/10/2021 - 31/07/2022) in the Nanomaterials Group. The contract will be funded by the .

Candidates should **apply** by completing the form below and attaching the following documents:

a. A complete CV
b. A cover letter and at least two reference letters grouped in a single PDF file

The **deadline** for applications is **30/06/2021**.

NOTES:
(i) All applicants will receive an answer after the end of the selection process; but please note that due to the large number of submissions that are expected, we cannot provide individual feedback.
(ii) Additional information about nanoGUNE's commitment towards HR excellence in Research and Gender Equality are available on our website.
(iii) We encourage you to subscribe to our HR mailing list to receive information related to nanoGUNE's open positions and open calls for different training and talent attraction programs.