

The significant growth, development, and evolution of technologies such as optoelectronics and spintronics have been always accompanied by the access to materials with targeted and extraordinary properties. Among these materials, 2D materials such as graphene, transition metal chalcogenides, metal phosphorus trichalcogenides or hybrid metal-halide perovskites have attracted the attention due to their extraordinary electronic, optic, and magnetic properties and the possibility of control them by fine tuning the composition, crystal structure and dimensionality. In this project, we will focus on micro-Raman spectroscopy as a non-destructive and powerful tool for gaining insight into phase transitions, crystal structure or molecules arrangement and how they change with the composition, structure, and dimensionality of the 2D materials. For this purpose, we will use single crystals and flakes of 2D materials as material platform.

In this project, the Master student will be responsible for the design and preparation of the 2D materials by exfoliation and stamping on substrates. The student will be also involved in the Raman spectroscopy measurements (including low temperature tests), data analysis, and drafting of results.

We offer an international and competitive environment, state-of-the-art equipment (including a class 100 cleanroom for nanofabrication capabilities), and the possibility of performing research at the highest level.

### **Description of the research group:**

The Nanodevices Group in CIC nanoGUNE is mostly interested in the electronic, optical and magnetic properties of systems in reduced dimensions. Our research program is currently articulated around different themes of research related to spintronics, multifunctional devices and advanced nanofabrication. For more information, see our website at [www.nanogune.eu/nanodevices](http://www.nanogune.eu/nanodevices)

### **Application:**

If you are a master student and you are interested in this project, please get in touch with the scientist in charge: Beatriz Martín-García ([b.martingarcia@nanogune.eu](mailto:b.martingarcia@nanogune.eu))

To apply for a master scholarship, fill in the form below and follow the instructions and recommendations of the general call open until 30 June 2023.

*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.*