

Position Offered: PREDOCTORAL RESEARCHER

Project: *Control of spin waves in two-dimensional antiferromagnetic materials by light for the development of future devices in spintronics, LUMINA*

Technological and scientific fields: nanotechnology; massive data and information processing technologies.

Location: Madrid, Comunidad de Madrid, Instituto de Cerámica y Vidrio ICV, <https://www.icv.csic.es/>

Research Group/PI: Ceramics for Smart Systems group, Aída Serrano Rubio, <http://www.css.icv.csic.es/>

PROJECT SUMMARY

The aim of this project is to optically manipulate spin waves in bidimensional antiferromagnetic materials by means of light through the excitation of localized surface plasmons of plasmonic nanoparticles incorporated into the magnetic system. For this purpose, different hybrid nanoheterostructures will be designed and developed, in which an exhaustive investigation of their physical properties will be carried out by controlling the plasmon resonance and therefore the plasmon-magnon hybridization through intrinsic and extrinsic parameters of the systems. Furthermore, the plasmon-magnon hybridization will be analysed and modelled according to the plasmon resonance.

PROFESSIONAL PROFILE

Minimum requirements:

- Degree in Physics or Materials Engineering with a Master's degree.
- Good knowledge of English and Spanish (spoken and written).
- Availability to travel.

Merits to be considered:

- Skills in digital tools such as Matlab, Python, Comsol, Labview.
- Experimental skills in the laboratory and in the realization of presentations.
- Skills in the use of software for data processing.

WHAT IS OFFERED

Work is offered within a research project of great relevance for the field of spintronics that will allow the development of new state-of-the-art intelligent nanodevices to transmit and process ultra-fast information. Two pre-doctoral stays are foreseen at the Helmholtz-Zentrum Dresden-Rossendorf in Dresden, Germany and at The European Synchrotron Radiation Facility (The ESRF) in Grenoble, France for 3 months each. In addition, the pre-doctoral student will carry out short training stays for the use of advanced characterisation techniques: at The ESRF (France), Alba (Spain), Soleil (France), Sesame (Jordan), Solaris (Poland) or CMAM (Spain) by request of measurement time. In addition, a number of training courses and micro-credentials in advanced digital skills will be carried out, as well as attendance at national and international congresses.

Contract conditions:

Predocctoral Researcher contract of 4 years' duration. Gross annual salary of 23,871.33 €.

Start of contract: before 31 December 2024

PRINCIPAL INVESTIGATOR CONTACT

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Financiado por
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