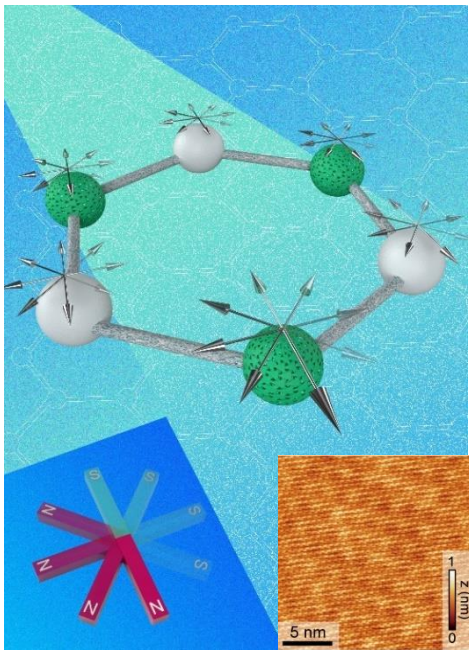
PhD position at the Institute of Molecular Science, University of Valencia (Spain)

The Institute of Molecular Science (ICMol) is one of the leading centers of multidisciplinary research in Spain, encompassing chemistry, physics, material science and nanotechnology; and is recognized by the Spanish Research Agency as a Maria de Maeztu Unit of Excellence.

In the framework of a Spanish Ministry Project "Generación de Conocimiento" we are currently offering one PhD position on the following topic:

Epitaxial growth and nanoscale engineering of 2D easy-plane magnets



In this project, we aim to experimentally investigate 2D materials displaying easy-plane magnetic anisotropy ascribed to the category of 2D-XY magnets [1]. This peculiar magnetic anisotropy leads to the emergence of a rich variety of physical phenomena such as topological spin textures or superfluid spin transport, thus being of fundamental importance. To stabilize the easy-plane anisotropy against the more ubiquitous easy-axis anisotropy, singular structural symmetries from the underlying substrates will be prepared by state-of-the-art surface nanoscale modification methods [2].

The candidate will synthesize homogeneous monolayers of 2D materials by means of molecular beam epitaxy and modify the substrate properties via focused ion beam techniques, and correlate the atomic and electronic structure of the 2D layers with the resulting magnetic anisotropy landscape.

We are looking for motivated candidates with background in condensed-matter physics or material science. Experience in ultra-high-vacuum methods, surface science and nanolithography is desirable, but not strictly required.

Application Deadline: 10th October 2024

Applications should be sent to Amilcar.Bedoya@uv.es and Rosa.Cordoba@uv.es with the subject "PhD position application", and a single .pdf file as attachment with two sections: (1) a motivation letter and (2) a CV.

References

[1] Bedoya-Pinto et. al. Intrinsic 2D-XY ferromagnetism in a van der Waals monolayer. *Science* 374, 616-620 (2021)

[2] Höflich, …, Córdoba et. al. Roadmap for Focused Ion beam Technologies, *Applied Physics Reviews* 10, 041311 (2023)

INSTITUTO DE CIENCIA MOLECULAR
Universitat de València
Catedrático José Beltrán, 2
46980 Paterna · Valencia · Spain