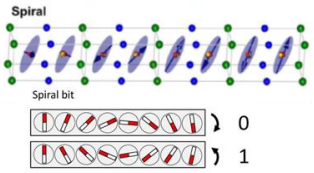
PhD position funded by the AEI agency (Spanish Government)

SUBJECT: **Chiral and frustrated high-temperature multiferroics for spin-based information technologies**

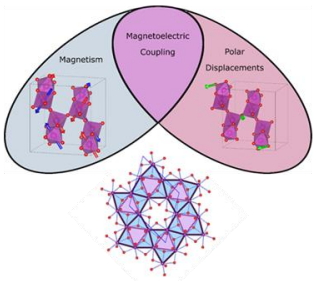
PhD position offered at the Instituto de Ciencia de Materiales de Barcelona (ICMAB-CSIC) within the framework of the SPIN4DATA project, jointly developed by the CMEOS and NN ICMAB groups.

SPIN4DATA encompasses concepts and methods in the rapidly evolving area of functional materials for information technologies. It deals with the synthesis and fabrication of different ferrite families as nanostructures or in bulk form (including crystals). We focus on exceptional new ferrite families with very strong magnetic coupling (to overcome the problem of too low transition temperatures) and different types of frustrated configurations that lead to unique properties at ambient temperature. Among them, exotic magnetic structures such as magnetic spirals, chiral and non-collinear magnetic orders, which can generate magnetoelectricity, improper ferroelectricity induced by spin ordering, multiferroicity, or high magnetic anisotropy, are promising for next-generation multifunctional electronic devices. SPIN4DATA: "*Spin-driven phenomena in frustrated magnets for a sustainable data-centric society*"

Data storage chiral magnetic materials



Spin-induced multiferroics



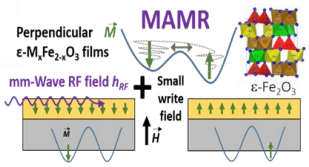
Duration: Contract of up to **4 years**, funded through an FPI Fellowship.
Start of the contract: from **April 2026**
Tasks and activities included in the PhD Project:

-Materials preparation: synthesis and growth methods adapted to obtain nanoparticles, heterostructures, bulk ceramics or crystals.
-Macroscopic magnetic and physical characterization at ICMAB.
-Structural and magnetic transitions investigated as a function of *T* and external fields.
-Chemical and magnetic structures, magnetoelectric characterization by synchrotron and neutron scattering techniques in European sources.
- Analyse complex data to unveil microscopic structural and magnetic details and model the resulting configurations.

Synchrotron and neutron beams

We are looking for a highly motivated candidate with:

-Degree in Physics, Materials Science, Nanoscience, or similar with a solid CV.
With Master + Bachelor degrees (300 ETCS in total) or Bachelor degree (300 ETCS).
Or currently involved in a Master program ending in the 2025-26 academic year
- Background of experimental techniques for Condensed Matter research
- Good communication skills in English
- Willingness to learn and engage in challenging research.



The selected PhD student will benefit from specific training at several international graduate schools and will follow the Materials Science PhD program at UAB (and the European Doctorate recognition), co-supervised by Prof. Jose Luis Garcia Muñoz (cmeos.icmab.es) and Dr. Martí Gich (nn.icmab.es).

Applicants should send their full CV to mgich@icmab.es and garcia.munoz@icmab.es **as soon as possible**. A motivation letter and one or more contact persons (researchers) are welcome and greatly appreciated. You are very welcome to contact us for more information.

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