



Departamento de  
Física de la  
Materia Condensada  
**Universidad Zaragoza**

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## A matter of orientation: superparamagnetic magnetite mesocrystals

Mesocrystals are unique nanostructured materials characterized not only by the long-range packing arrangement of nanoparticles but also by their preferred crystallographic orientation, which results in a complex structure-property relationship. Our approach aims to determine the structure of superparamagnetic magnetite mesocrystals, including the translational and orientational order of nanocrystals within the superlattice (using various electron microscopy and X-ray diffraction techniques), as well as to study their magnetic properties under various conditions. Additionally, we investigate the influence of synthesis conditions on the assembly process, particularly on the formation of 3D faceted mesocrystals.

*Since 2022, Elena Sturm is a Professor of Applied Mineralogy at the Department of Earth and Environmental Sciences, LMU Munich. In 2010, she received her Ph.D. from the Department of Crystallography at Saint Petersburg State University. From 2010 to 2012, she was a Postdoctoral Researcher at the Max Planck Institute for Chemical Physics of Solids in Dresden and since 2013, she has been a Research Fellow at the Zukunftskolleg, a Junior Group Leader, and a Habilitandin at the Department of Chemistry, University of Konstanz. In 2021, she completed her Habilitation and received her Venia Legendi in Materials Science and Solid-State Chemistry.*

Con la colaboración de:



**28 Febrero (viernes)**

**HORA: 12:30**

**SALA DE GRADOS  
FACULTAD DE CIENCIAS**