Departamento de Física de Materiales

Towards Geometrical Control of Domain Walls in Complex 3D Nanostructures

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Advances in 3D nanofabrication, characterization, and modeling enable precise spatial control of spin textures.

This talk reviews our recent findings on how geometrical design in 3D nanowires and tubular structures tailors domain wall energy landscapes and dynamics [1,2]. Using operando high-resolution X-ray imaging under external stimuli, alongside correlative TEM/spectroscopy, we reveal how curvature stabilizes complex spin configurations and correlates structure with magnetism. Overall, 3D nanomagnetism offers new regimes of topological control for next-generation spintronics.



1. S. Ruiz-Gómez et al. Nat Commun 16 (2025) 7422
2. C. Fernández-González et al. Adv. Funct. Mater. 36 (2026) e15722.