

Abstract Submitted
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Magnetic properties of partially oxidized Fe films¹ MIGUEL ANGEL GARCIA, VICTOR LOPEZ-DOMINGUEZ, Institute of Applied Magnetism UCM Institute for Ceramics and Glass CSIC, ANTONIO HERNANDO, Institute of Applied Magnetism UCM — Hybrid magnetic nanostructures exhibit appealing properties due to interface and proximity effects. A simple and interesting system of hybrid magnetic nanomaterials are partially oxidized ferromagnetic films. We have fabricated Fe films by thermal evaporation and performed a partial oxidation to magnetite (Fe_3O_4) by annealing in air at different times and temperatures. The magnetic properties of the films evolve from those of pure metallic iron to pure magnetite, showing intermediate states where the proximity effects control the magnetic behavior. At some stages, the magnetization curves obtained by SQUID and MOKE magnetometry exhibit important differences due to the dissimilar contribution of both phases to the magneto-optical response of the system

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