



Magnetic anisotropy in magnetic nanowire arrays

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Abstract.

This work aims to relate microstructure and magnetic properties of ordered-nanowires arrays on alumina oxide porous membranes. At the beginning, we present a study about the membranes preparation and posterior electrodeposition of the wires into their pores. Morphological and structural characteristics were described from the scanning electron microscopy images and energy dispersive spectroscopy of these systems. Magnetic properties study from the magnetization curves and ferromagnetic resonance of arrays show a typical axial magnetic anisotropy and the demagnetizing dipolar interactions predominance. In the tentative to relate structure and magnetic properties, we present models based in ellipsoids-chains according to the polycrystalline character of the nanowires. A posterior application of the models, permits to associate the microstructural parameters introduced here with the surface anisotropy constant describing the same situation macroscopically.