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Surface Effects on Electrical and Magnetic Properties of $\text{Ni}_{75.2}\text{Mn}_{23.6}\text{Pt}_{1.2}$ Alloys Films

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Abstract

We report on the magnetic, electrical resistivity and ferromagnetic resonance (FMR) properties of polycrystalline thin films of $\text{Ni}_{75.2}\text{Mn}_{23.6}\text{Pt}_{1.2}$ prepared by electron beam evaporation with thicknesses from 10 to 800 nm. We measured field cooled magnetization as a function of temperature as well as hysteresis loops in parallel and perpendicular geometries (field parallel/perpendicular to film surface) at selected temperatures. We observe asymmetric double-shifted hysteresis loops below the freezing temperature, T_f , which can be attributed to the competition of unidirectional and uni-axial anisotropy fields.

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