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Thickness dependence of magnetization switching of sub-100 nm magnetic nanodots.[1] CHANG-PENG LI, IGOR V. ROSHCHIN, IVAN K. SCHULLER, Physics Department, UCSD, La Jolla, CA, USA — Vortex and single domain states are found in sub-100 nm Fe planar nanodots, fabricated by electron-beam evaporation using self-ordered porous alumina masks.[1] The thickness dependence of the magnetization reversal is studied by in-plane and out-of-plane SQUID measurements, and the thickness is verified using low-angle X-ray diffraction. The hysteresis loops of 53 nm and 66nm diameter dots changes with the dot thickness. This is attributed to the magnetization reversal occurring via a combination of in-plane and out-of-plane single domain and vortex states, as obtained from micromagnetic simulation. The 66 nm diameter and thickness above 50 nm dots are expected to develop a funnel-like configuration with two in-plane vortices of opposite chiralities as an out-of-plane field is applied. [1] C.-P. Li *et al.*, J. Appl. Phys. **100**, 074318 (2006).

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