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Large scale magnetic domain wall fluctuations in ultrathin cobalt films ANDREW BALK[1], JOHN UNGURIS, Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD 20899 — Controlling anisotropy through ion bombardment is a convenient method for manipulating domain walls in perpendicularly magnetized films. In ultrathin (<1nm) cobalt deposited on platinum, exposure to 50eV argon ions reduces the perpendicular magnetic anisotropy until the magnetization lies in plane. Just before this in-plane transition, the domain wall energy and pinning strength are reduced such that zero-field Barkhausen-like domain wall jumps become observable at zero field and room temperature. The domain wall jumps are large enough (>100nm) to be measured optically. In this work we use magneto-optic Kerr effect to measure how these fluctuations depend on the film thickness and applied magnetic field. Furthermore, we observe magnetostatic correlations between fluctuations in nearby domain walls.

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