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Direct imaging of domain wall pinning in artificially created asymmetric potentials D.E. READ, Imperial College London, L. O'BRIEN, University of Cambridge, S. LADAK, K. ZEISSLER, Imperial College London, T. TYLISZCZAK, Lawrence Berkeley National Lab, A.-V. JAUSOVEC, H.T. ZENG, E.R. LEWIS, J. SAMPAIO, Imperial College London, A. FERNANDEZ-PACHECO, D. PETIT, R.P. COWBURN, University of Cambridge, W.R. BRANFORD, Imperial College London — Domain walls (DWs) in ferromagnetic nanowires are ideal candidates for a wide variety of technological applications including high density data storage devices. To realise functional DW devices the processes associated with DW pinning must be understood and controlled. Magnetostatic pinning of DWs has already been observed experimentally using spatially resolved MOKE measurements. Using high resolution scanning transmission x-ray microscopy (STXM) we were able to directly image DWs in NiFe nanowires pinned in asymmetric potentials which were created by nano-patterning additional ferromagnetic wires perpendicular to the DW conduit. Tailoring the pinning potential in this way allows us to probe the rigidity of the DW in the region of the pinning site, increasing our understanding of DW deformation in magnetostatic traps and paving the way for future commercial applications.

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