

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Tuneable remote pinning of domain walls in magnetic nanowires

L. O'BRIEN, University of Cambridge, D.E. READ, J. SAMPAIO, Imperial College London, D. PETIT, University of Cambridge, E.R. LEWIS, Imperial College London, A.-V. JAUSOVEC, H.T. ZENG, Imperial College London, R.P. COWBURN, University of Cambridge — Domain wall (DW) motion in ferromagnetic nanowires has received much attention for its potential technological applications and for probing fundamental physics. The role of DW pinning in nanowires is crucial for these investigations however it is in general a complex process. Distortions of the DW shape make quantitative agreement between modelling and experiment difficult. Here we demonstrate pinning using nanometre scale localised stray fields. This type of interaction gives well characterised, tailorable potential landscapes that do not appreciably distort the DW. Our experimental results are in excellent quantitative agreement with an Arrhenius-Néel model of depinning - a result only possible when the modelled potential profile agrees fully with that experienced by the DW.

L. O'Brien
University of Cambridge

Date submitted: 10 Dec 2010

Electronic form version 1.4