Supplementary Information

for

Control of magnetization-reversal processes via uniaxial anisotropy strength in La0.67Sr0.33MnO3 electrodes for spintronic devices

L. C. Phillips^{1,*}, W. Yan¹, X. Moya^{1,2}, M. Ghidini^{1,3}, F. Maccherozzi⁴, S. S. Dhesi⁴ and N. D. Mathur^{1,†}

¹Department of Materials Science, University of Cambridge, CB3 0FS, UK.

²Facultat de Física, Departament d'Estructura i Constituents de la Matèria, Universitat

de Barcelona, Martí i Franquès 1, E-08028 Barcelona, Catalonia, Spain.

³DiFeST, University of Parma, viale G.P. Usberti 7/A, 43124 Parma, Italy.

⁴Diamond Light Source, Chilton, Didcot, Oxfordshire, OX11 0DE, UK.

*Current address : Unité Mixte de Physique CNRS/Thales, 1 av. Fresnel, 91767 Palaiseau, France.

[†]e-mail: <u>ndm12@cam.ac.uk</u>

Supplementary Note 1

XRD data on LSMO films on NGO substrates

All LSMO films present strong Laue fringes in x-ray diffraction, and are thus coherently strained through their thickness.



Fig. S1. High-resolution x-ray diffraction data: out-of-plane ω -2 θ scans of (a) a 60 nmthick LSMO film grown on NdGaO₃ (001); (b) a 61 nm-thick LSMO film grown on NdGaO₃ (100). Subscripts denote orthorhombic (o) and pseudocubic (pc) crystal systems. Asterisks (*) denote substrate twins.