

Supplementary Information

Magnetocaloric and giant magnetoresistance effects in La–Ba–Mn–Ti–O epitaxial thin films: Influence of phase transition and magnetic anisotropy.

Marwène Oumezzine^{1,*}, Cristina Chirila², Iuliana Pasuk², Aurelian Catalin Galca², Aurel Leca², Bogdana Borca^{2,*}, Victor Kuncser^{2,*}

*Correspondence: oumezzine@hotmail.co.uk (Marwène Oumezzine), bogdana.borca@infim.ro (Bogdana Borca), kuncser@infim.ro (Victor Kuncser),

¹Laboratoire de Physico-Chimie des Matériaux, Université de Monastir, 5000 Monastir, Tunisia;

²National Institute of Materials Physics, 077125 Magurele, Romania;

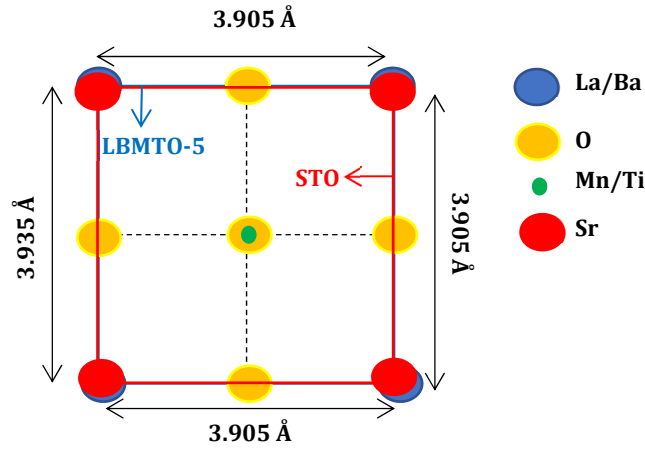


Figure S1: Schematic diagrams of in-plane lattice arrangement for LBMTO-5 on STO (001).

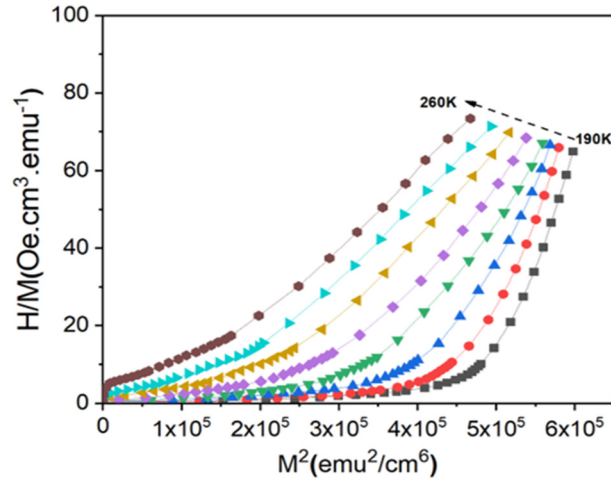


Figure S2: The Arrott plot of $\mu_0 H/M$ versus M^2 represented from the isothermal magnetization curves measured at different temperatures around T_c for LBMTO-5 on STO (001).

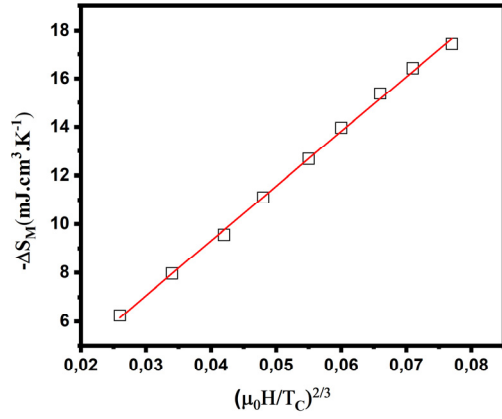


Figure S3: Corresponding plot and the linear fitting (red line) of the magnetic entropy change on the parameter $(\mu_0 H/T_C)^{2/3}$ of LBMTO-5 thin film in agreement with the existence of long-range ferromagnetic interactions in epitaxial LBMTO-5 thin films.

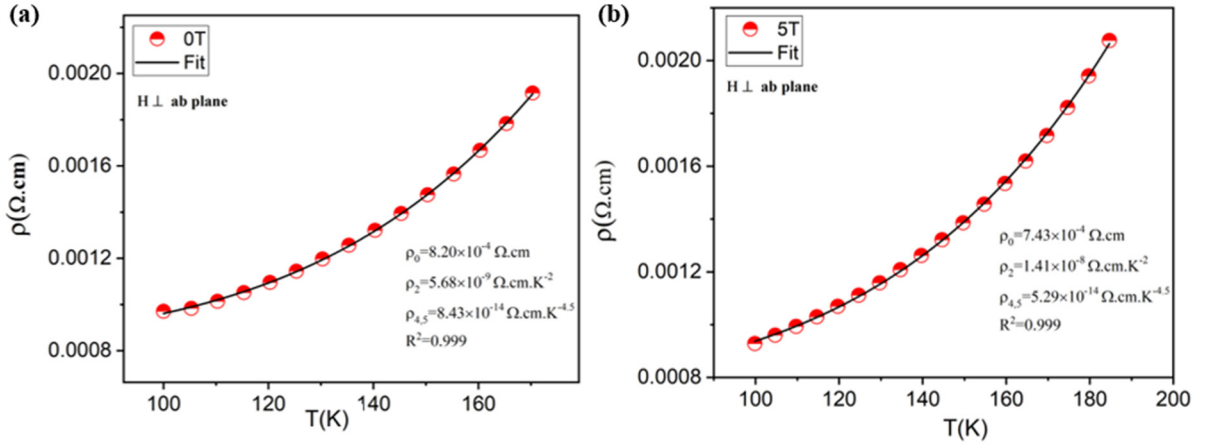


Figure S4: Fitting plots of the resistivity data of LBMTO-5 thin film in the low temperature ferromagnetic metallic state by using equation (1) $\rho(T) = \rho_0 + \rho_2 T^2 + \rho_{4.5} T^{4.5}$ for a zero-field (a) and under 5 T (b) in the perpendicular geometry.