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Variation of magnetic domain structure correlated to low-field magnetoresistance hysteresis in $La_{0.66}Ca_{0.34}MnO_3$ film as observed by magnetic force microscopy.[1] CHANGBAE HYUN, CASEY ISRAEL, WEIDA WU, ALEX DE LOZANNE, Department of Physics, University of Texas at Austin, ALAKA P. VALANJU, RODGER M. WALSER, Electrical and Computer Engineering, University of Texas at Austin, Austin, TX 78712, M.E. GOMEZ, J. G. RAMIREZ, Thin Films Group. Universidad del Valle, A.A. 25360 Cali, Colombia , G.A. MENDOZA, Magnetic Materials and Nanostructures Group. Universidad del Quindío, Armenia, Colombia — The ferromagnetic domain structure of a 150-nm-thick $La_{0.66}Ca_{0.34}MnO_3$ film was imaged by magnetic force microscopy (MFM) as a function of in-plane applied field at 240K, just below T_C. The film was grown by sputtering on a (001) $SrTiO_3$ substrate. The variation of the domain structure is correlated with the hysteresis in both magnetization and magnetoresistance. The resistance peak in the magnetoresistance coincides with the coercivity of the film and sweeping changes in the MFM images. We show the effect of applying the in-plane magnetic field along both in-plane crystalline axes.

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