

Abstract Submitted
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Electric-field-induced magnetic domain wall motion in bilayer FeGa/BaTiO₃ thin film structures¹ JOHN CUMINGS, T. BRINTLINGER, S.-H. LIM, Y. QI, L. SALAMANCA-RIBA, I. TAKEUCHI, University of Maryland — We have studied electromechanical coupling induced magnetic domain motion in unclamped FeGa/BaTiO₃ thin film bilayer structures. Magnetostrictive FeGa layers were sputter-deposited on epitaxially grown BaTiO₃ films on SrTiO₃ substrates. Focused ion-beam milling was used to remove the substrate from underneath the BaTiO₃ film, and electrodes were patterned in the metallic FeGa film to apply electric field across a patterned gap (1 micron). Lorentz microscopy was used to monitor the magnetic domains in FeGa, while electric field is applied to the piezoelectric BaTiO₃. Lorentz microscopy allows direct and dynamic observation of magnetic domain motions. Reversible electric field induced magnetic domain motion was observed, and the results will be compared to micromagnetic simulations of the domain wall structure.

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