

Abstract Submitted
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Consequences of magnetoelectric interactions on ferroelectric domain structures P. MAHANANDIA, A.S. TATARENKO, G. SRINIVASAN, Oakland University, Rochester, MI — The standard lift mode of electrostatic force microscopy (EFM) has been utilized to study the influence of magnetoelectric (ME) effect on ferroelectric domain structures in a YIG-PZT bilayer. A PZT disk of thickness= $250\mu\text{m}$ was bonded on to a (111) single crystal YIG on GGG substrates. Randomly oriented domains of PZT are observed in the absence of a dc magnetic field H. The domains are transformed into a columnar structure when H= 120 Oe is applied to the bilayer. The H-induced changes are mediated by mechanical forces; when a magnetic field is applied to the layered composite, the magnetostriction exerts a stress on PZT, resulting in an induced electric polarization and changes in the domain structure.

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