Abstract Submitted
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Ferroelectric Influence of Magnetic Anisotropy in Organic Ferroelectric/Co Heterostructures[1] KEITH FOREMAN, CELESTE LABEDZ, Univ of Nebraska - Lincoln, VALERIA LAUTER, ARTUR GLAVIC, HAILE AMBAYE, Oak Ridge Nat Lab, STEPHEN DUCHARME, SHIREEN ADENWALLA, Univ of Nebraska - Lincoln — Magnetoelectric coupling between ferroelectric (FE) and ferromagnetic (FM) thin films can influence the magnetic anisotropy of the FM film. This coupling is difficult to measure, requiring careful selection of the FE material. The organic FE poly(vinylidene fluoride-tri fluoroethylene), P(VDF-TrFE), provides high electric fields, compensating for the short penetration depth in the metallic FM layer, and is soft enough to minimize strain coupling. Here, we report on recent Polarized Neutron Reflectometry (PNR) experiments on a P(VDF-TrFE)/Co heterostructure indicating subtle changes in the magnetic anisotropy of the Co as a function of the FE polarization. To improve the magnetoelectric coupling in FE/FM heterostructures, further refinement of the layer interface is required. Typical deposition methods of P(VDF-TrFE) thin films expose the sample to atmosphere resulting in an ill-defined interface between FE/FM layers. Therefore, we have designed and constructed a thermal evaporation system capable of depositing thin films of the ferroelectric oligomer vinylidene difluoride (VDF), allowing us to create entire FE/FM heterostructures *in situ*. We also report on recent magnetic measurements on these clean interface heterostructures.

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Keith Foreman
Univ of Nebraska - Lincoln

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