Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Tunnel Magneto Resistance of Fe/Insulator/Fe [1] DENNIS ARYEE, DEREJE SEIFU, Morgan State University, PHYSICS — Tri-layer thin films of Fe/Insulator/Fe were synthesized using magnetron DC/ RF sputtering with MgO insulator and Bi_2Te_3 topological insulators as middle buffer layer. The multi-layered samples thus produced were studied using in-house built magneto-optic Kerr effect (MOKE) instrument, vibrating sample magnetometer (VSM), torque magnetometer (TMM), AFM, MFM, and magneto-resistance (MR). This system, that is Fe/Insulator/Fe on MgO(100) substrate, is a well-known tunnel magneto resistance (TMR) structure often used in magnetic tunnel junction (MTJ) devices. TMR effect is a method by which MTJs are used in developing magneto-resistive random access memory (MRAM), magnetic sensors, and novel logic devices. The main purpose behind this research is to measure the magnetic anisotropy of Fe/Insulator /Fe structure and correlate it to magneto-resistance [1]. In this presentation, we will present results from MOKE, VSM, TMM, AFM, MFM, and MR studies of Fe/Insulator/Fe on MgO(100). [1] A. Newman, S. Khatiwada,, S. Neupane, **D. Seifu**, "Nano Wires of Fe/MWCNTs and Nanometric Thin Films of Fe/MgO", J. of Appl. Phys., **117**, 144302 (2015).

[1]We would like to acknowledge support by NSF-MRI-DMR-1337339.

Dereje Seifu
Morgan State University, PHYSICS

Date submitted: 03 Nov 2015 Electronic form version 1.4