

Abstract Submitted
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Fe/MgO/Fe Tunnel Magneto Resistance Structure¹ ALEXANDER NEWMAN, DEREJE SEIFU, Department of Physics, Morgan State University, Baltimore, MD 21251 — Tri-layer thin films of Fe/MgO/Fe were synthesized using magnetron DC/ RF sputtering on MgO(100) at several substrate temperatures. 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), atomic force microscopy (AFM), magnetic force microscopy (MFM), and magneto resistance (MR) measurements. This system, that is Fe/MgO/Fe on MgO, 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/ MgO/ Fe structure which is correlated to magneto-resistance property. In this presentation, we will present results on MOKE, VSM, TMM, AFM, MFM, and MR studies of Fe/MgO/Fe on MgO(100).

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