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Spin Propagation Through Antiferromagnetic Bulk Structure in Exchange Biased Magnetic Trilayers MICHAEL CRUMRINE, Beloit College, HILLARY KIRBY, CASEY MILLER, University of South Florida — When an exchange bias is induced in materials with a ferromagnetic (FM) – antiferromagnetic (AF) interface, the interfacial coupling between the antiferromagnet and FM manifests itself as a shift in the magnetic hysteresis loop. It has been an unresolved issue as to the role the bulk spin of the antiferromagnet plays in exchange bias and whether or not exchange bias is entirely an interfacial effect. We fabricated several FM/AF/FM trilayer structures of Py(100Å)/FeMn(x)/Ni₆₉Cu₃₁(200Å) with varying antiferromagnet thicknesses and used a field cool procedure to induce an exchange bias. A Magneto-Optical Kerr Effect magnetometer was used to investigate the propagation of spin information through the antiferromagnet by examining the hysteresis loops at different angles of applied field with respect to the magnetization. It was observed that there was no induced exchange bias in the NiCu probe layer for any of the antiferromagnet thicknesses, and we conclude that the patterning of the antiferromagnetic layer transmits no spin information for thicknesses greater than 100Å.

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