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Correlation between bias fields and magnetoresistance in CoPt biased NiFe/Ta/NiFe heterosystems YI WANG, XI HE, Department of Physics, University of Nebraska-Lincoln, SARBESWAR SAHOO, Seagate Technology, CHRISTIAN BINEK, Department of Physics, University of Nebraska-Lincoln — Exchange coupled magnetic hard layer / soft layer (SL) thin films show SL biasing in close analogy to exchange bias systems with antiferromagnetic pinning.[1] Here we study CoPt(35nm)/NiFe(450nm)/Ta(d)/NiFe(450nm) heterostructures with d between 0.7 and 5nm. We use AGFM and SQUID to measure the overall magnetization reversal and minor loop behavior of the top NiFe layer followed by reversal of the CoPt-pinned NiFe layer. Magnetoresistance (MR) is measured by four-point methodology and modeled using magnetization data thus confirming the assumptions of uniform rotation of the top layer and exchange spring behavior of the pinned NiFe layer. In the absence of vector magnetometry, MR provides evidence for the distinct reversal mechanisms. [1]Ch. Binek, S. Polisetty, Xi He and A. Berger, Phys. Rev. Lett. 96, 067201 (2006). Financial support by NSF through Career, MRSEC and the NRI.

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