

Abstract Submitted  
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**Deposition-order dependent magnetization reversal of graded anisotropy Co/Pd films**<sup>1</sup> PETER GREENE, University of California, Davis, BRIAN J. KIRBY, JULIE A. BORCHERS, JUNE W. LAU, NIST, Gaithersburg, KAI LIU, University of California, Davis — We report deposition-order-dependent, and depth-dependent, magnetization reversal in Co/Pd with graded anisotropy, which are technologically important as they address both writability and thermal stability challenges. Multilayers of [Co(0.4nm)/Pd(0.6nm)]<sub>60</sub> have been deposited by sputtering, where the Ar pressure has been varied from 5 to 12 and 20 mtorr in type A samples and in the reverse order in type B samples. An extensive set of structural and magnetization reversal studies with depth-resolution has been performed using XRD, cross-sectional TEM, magnetometry, PNR and XMCD. In type A samples, due to the larger grain size, lower interfacial roughness and less disorder in the magnetically softer layer, magnetization reversal proceeds via domain nucleation, propagation, and annihilation. Type B samples show a more localized reversal. Layers grown at higher pressure contain more disorder and rougher interfaces, which is carried into the magnetically softer layers deposited on top, thus impeding domain movement.

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