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Strong anisotropy suppression at the CoO Neél temperature in perpendicularly exchange-biased CoO/CoPt multilayers ERIK SHIPTON, KEITH CHAN, UC San Diego, OLAV HELLWIG, Hitachi GST, ERIC E. FULLERTON, UC San Diego — We have performed high-field torque magnetometry measurements on perpendicularly exchange-biased CoO/CoPt multilayers. From magnetometry measurements we observe perpendicular exchange bias that goes to zero at a blocking temperature of 200 K. Torque measurements were performed from 2 to 400 K in fields up to 9 T. There is significant hysteresis even at 9 T fields suggesting instabilities in the AF layer. This hysteresis persists up to the blocking temperature. Surprisingly, there is a large reduction in the uniaxial anisotropy with increasing temperature with a minimum at 250 K, the estimated Neél temperature of the CoO layers, followed by an increase in the anisotropy with increasing temperature. The anisotropy of Co/Pt multillayers without the CoO layers monotonically decreases with increasing temperature. This suggests that there is an additional planar anisotropy arising from the CoO that counters the anisotropy of the Co/Pt layers, and that the contribution from the CoO is maximized at the Neél temperature as observed by Grimsditch et al. [1]. These results show that the addition of antiferromagnetic layers may be used to tune the temperature dependence anisotropy response of magnetic systems. [1] M. Grimsditch et al., Phys. Rev. Lett. **90**, 257201 (2003).

Eric Fullerton
UC San Diego

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