

Abstract Submitted
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Magnetization reversal in complex oxide magnetic tunnel junctions¹ S.G.E. TE VELTHUIS, Y.H. LIU, Argonne National Laboratory, USA, M. ZHERNENKOV, M.R. FITZSIMMONS, Los Alamos National Laboratory, USA, Z. SEFRIQUI, C. VISANI, J. SANTAMARIA, Universidad Complutense de Madrid, Spain — We have investigated the magnetization reversal of $\text{La}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$ (LCMO)/ $\text{PrBa}_2\text{Cu}_3\text{O}_7$ (PBCO)/LCMO magnetic tunnel junctions with Polarized Neutron Reflectivity (PNR) in order to better understand the observed tunneling magnetoresistance (TMR) behavior. The TMR initially increases with decreasing temperature but then reaches a maximum at a relatively high temperature (60 K) and decreases when the temperature is further decreased. PNR measurements reveal differences in the reversal behavior, in the temperature dependent magnetizations, and possibly in the anisotropy axis, between the thicker bottom and thinner top LCMO layers. Additionally a zero-moment layer of about 1.3nm is found at the top surface, which could explain an exchange bias behavior observed at low temperatures. These results are discussed in relation to the TMR behavior.

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