

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Impact of interfacial roughness on spin filter tunneling.**<sup>1</sup> DUSTIN D. BELYEA, CASEY W. MILLER, University of South Florida — The impact of interface roughness on spin filter tunneling is considered at low biases as functions of temperature and barrier parameters. Roughness reduces the maximum achievable spin polarization, which results from tunneling “hot spots” (thin regions of the barrier) having intrinsically reduced spin filtering efficiency. Surveying a range of experimentally reasonable roughness and mean barrier thickness values allows us to conclude that roughness values greater than 10% of the mean barrier thickness have an adverse impact on the spin polarization. Atomic-scale roughness may thus be critical for achieving 100% spin polarization in spin filter tunnel junctions at low biases.

<sup>1</sup>Supported by the National Science Foundation.

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Date submitted: 18 Nov 2009

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