

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

The critical role of the barrier thickness in spin filter tunneling¹

CASEY MILLER, University of South Florida, Department of Physics — Spin filter tunneling is considered in the low bias limit as functions of the temperature dependent barrier parameters. We demonstrate the generation of spin polarized tunneling currents in relation to the magnetic order parameter, and discuss how an interfacially suppressed order parameter leads to a temperature dependent tunneling current asymmetry. Analyzing the full parameter space reveals that the often overlooked barrier thickness plays a critical role in spin filter tunneling. With all else fixed, thicker barriers yield higher spin polarization, and allow a given polarization to be achieved at higher temperatures.

¹Supported by NSF Award No. ECCS-0820880

Casey Miller
University of South Florida, Department of Physics

Date submitted: 21 Nov 2008

Electronic form version 1.4