Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Interfacial spin-orbit fields in ferromagnet/normal metal (FN) and ferromagnet/superconductor (FS) systems[1] PETRA HOEGL, University of Regensburg, ALEX MATOS-ABIAGUE, IGOR ZUTIC, University at Buffalo - SUNY, JAROSLAV FABIAN, University of Regensburg — Breaking of space-inversion symmetry at interfaces induces spin-orbit fields as an emergent phenomenon. Interfacial spin-orbit fields are believed to enable a wealth of new phenomena, not existent or fragile in the bulk, such as the tunneling anisotropic magnetoresistance (TAMR), interfacial spin-orbit torques, Skyrmions, or possible realization of topological superconductors. We theoretically investigate spin-polarized transport in FN and FS junctions in the presence of Rashba and Dresselhaus interfacial spin-orbit fields. The interplay of magnetism and spin-orbit fields leads to a marked magnetoanisotropy of the conductances. Remarkably, the anisotropy in FS systems—magnetoanisotropic Andreev reflection (MAAR)—is giant compared to TAMR, its normal-state counterpart in FN junctions [1]. We further report on the dependence of spin-flip probability currents on characteristic system parameters [2].

[1] P. Högl, A. Matos-Abiague, I. Žutić, J. Fabian, Phys. Rev. Lett. **115**, 116601 (2015)

[2] A. M. Kamerbeek, P. Högl, J. Fabian, T. Banerjee, Phys. Rev. Lett. **115**, 136601 (2015)

[1]This work has been supported by DFG SFB 689, International Doctorate Program Topological Insulators of the Elite Network of Bavaria, DOE-BES Grant No. DE-SC0004890, and ONR N000141310754.

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Date submitted: 06 Nov 2015 Electronic form version 1.4