

Abstract Submitted
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Spin-Orbit Torques in ferrimagnetic GdFeCo¹ NIKLAS ROSCHEWSKY, Physics, University of California, Berkeley, CA, USA, CHARLES-HENRI LAMBERT, SAYEEF SALAHUDDIN, Electrical Engineering, University of California, Berkeley, CA, USA — Recently spin-orbit torques in antiferromagnets received a lot of attention due to intrinsic high frequency dynamics as well as robustness against perturbations from external magnetic fields. Here, we report on spin-orbit torque (SOT) switching in ferrimagnetic $\text{Gd}_x(\text{Fe}_{90}\text{Co}_{10})_{100-x}$ films on both sides of the magnetic compensation point [1]. In addition to current driven switching experiments we performed harmonic Hall measurements of the effective SOT fields. We find that both the Slonczewski torque as well as the field-like torque diverge at the magnetization compensation point. However, the effective spin Hall angle $\xi = (2|e|/\hbar)M_{stFM}(H_{eff}/|j_{HM}|)$ is found to be roughly constant across the investigated composition range. This provides important insight into the the angular momentum transfer process in ferrimagnets.

[1] Roschewsky, N. et al. *Applied Physics Letters*, 109(11), 2016.

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