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Influence of a Transport Current on Magnetic Anisotropy ION GARATE, ALLAN MACDONALD, University of Texas at Austin — The microscopic understanding of the spin transfer torque (STT) is an essential ingredient in the quest to develop optimized spintronic devices. It is well-known that STT occurs whenever electric currents travel through non-collinear magnetic systems. In contrast, it is often overlooked that current-induced torques may also arise in uniformly magnetized systems due to the intrinsic spin-orbit coupling in the band structure of the ferromagnet. We relate this effect to the change in magnetic anisotropy in presence of a current, and use simple models to estimate the possible role of transport currents to modify the direction of the ferromagnetic easy axis and assist magnetization reversal.

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