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Spin-transfer torque induced spin waves in antiferromagnetic insulators[1] MATTHEW DANIELS, Carnegie Mellon University, WEI GUO, Fudan University, G. MALCOLM STOCKS, Oak Ridge National Laboratory, DI XIAO, Carnegie Mellon University, JIANG XIAO, Fudan University — We explore the possibility of exciting spin waves in insulating antiferromagnetic films by injecting spin current at the surface. We analyze both magnetically compensated and uncompensated interfaces. We find that the spin current induced spin-transfer torque can excite spin waves in insulating antiferromagnetic materials and that the chirality of the excited spin wave is determined by the polarization of the injected spin current. Furthermore, the presence of magnetic surface anisotropy can greatly increase the accessibility of these excitations.

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