Abstract Submitted
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Thickness dependence of inverse spin Hall effect in Au and W studied using YIG-based spin pumping KENG-YUAN MENG, JACK BRANGHAM, JAMES GALLAGHER, SISHENG YU, SHANE WHITE, WILLIAM RUANE, ROHAN ADUR, CHRIS HAMMEL, FENGYUAN YANG, The Ohio State University — Yttrium iron garnet (YIG) is an excellent material for generating pure spin currents due to its narrow ferromagnetic resonance (FMR) linewidth and low damping. High quality YIG thin films are deposited by off-axis magnetron sputtering, followed by in-situ deposition of Au and W layers of varying thicknesses. Using the inverse spin-Hall effect (ISHE) in the Au and W layers, we study FMR-driven spin pumping from YIG thin films (16nm) into each metal at thicknesses of 2-50nm. Gilbert damping of these bilayers are obtained with variable frequency FMR measurements. Spin transport parameters, including the spin diffusion length in metal, spin mixing conductance at the interfaces and spin hall angles, are also determined.

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