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Spin pumping in oxide heterostructures SAM CROSSLEY, ADRIAN G. SWARTZ, Department of Applied Physics, Stanford University, Stanford, California 94305, USA, KAZUNORI NISHIO, YASUYUKI HIKITA, Stanford Institute for Materials and Energy Sciences, SLAC National Accelerator Laboratory, Menlo Park, California 94025, USA, HAROLD Y. HWANG, Department of Applied Physics, Stanford University, Stanford, California 94305, USA — Resonant excitation of magnetic films is an emerging technique for injecting large spin currents into adjacent materials for spintronics applications. Heterostructures comprised of transition metal oxides, with tunable spin-charge-orbital degrees of freedom, are a promising platform to realize diverse functionalities for new operational regimes in spintronics devices. Moreover, it is now possible to realize atomically precise interfaces in oxide heterostructures, enabling a careful examination of the correlation between structure, composition, and spin pumping characteristics. Using pulsed laser deposition, we have fabricated epitaxial oxide heterostructures comprised of ferromagnetic manganites and candidate high-spin orbit materials in order to understand the potential phase space for spin-orbit coupling length scales in oxide materials. One promising class of materials are the Ruddlesden-Popper series of perovskite iridates which can now be thermodynamically stabilized in the ultrathin limit. We will report our results on the enhanced damping of ferromagnetic resonance due to spin pumping oxide heterostructures.

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