

Abstract Submitted  
for the MAR15 Meeting of  
The American Physical Society

**Towards the terahertz frequency measurement of the Inverse Spin Hall Effect**<sup>1</sup> EVAN V. JASPER, M.T. WARREN, T.T. MAI, J. BRANGHAM, H. WANG, J. GALLAGHER, F. YANG, R. VALDÉS AGUILAR, Center for Emergent Materials, Department of Physics, The Ohio State University, Columbus, OH 43210 — The Inverse Spin Hall Effect (ISHE) has become an important tool in the spintronics field as a promising route for generation and detection of spin currents via charge currents. In particular, when the magnetization of a ferromagnet is resonantly excited by a radio-frequency field, angular momentum can be transferred to a non-magnetic metal to produce a pure spin current (spin-pumping), and the ISHE provides a way to measure the generated spin current in the metal and extract essential spin pumping parameters. Very recently, theoretical predictions of spin pumping from an antiferromagnetic (AF) insulator to a normal metal have attracted significant interest. We will report results of experiments where terahertz pulses of electromagnetic radiation resonantly excite the AF resonance on the AF insulator NiO coupled with a thin film of Pt, and attempt to measure the ISHE voltage at terahertz frequencies.

<sup>1</sup>Work partially supported by the NSF MRSEC Center for Emergent Materials under grant DMR-1420451, and by DOE grant DE-SC0001304.

Evan Jasper  
Ohio State Univ - Columbus

Date submitted: 14 Nov 2014

Electronic form version 1.4