Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

High-resolution terahertz spectroscopy of Sr_2CrReO_6 at cryogenic temperatures and high magnetic fields D.R. DAUGHTON, R. HIGGINS, S. YANO, Lake Shore Cryotronics, C.H. DU, A.J. HAUSER, R. ADUR, J.M. LUCY, H.L. WANG, D.V. PELEKHOV, E. JOHNSTON-HALPERIN, F.Y. YANG, P.C. HAMMEL, The Ohio State University — Temperature and magnetic field dependent terahertz spectroscopies have proven useful in elucidating the interplay between structure charge, and magnetism in complex oxide systems. To this end, we are developing a turn-key, continuous-wave (CW) terahertz transmission spectrometer operating from 6 K to 300 K and in fields up to 9 T. Fiber-coupled photoconductive switches operate from 200 GHz to 1.8 THz in the cryogenic and high-field sample environment – eliminating the need to align a THz beam through multiple cryostat windows. In this work we compare CW-THz measurements on epitaxial thins films of Sr_2CrReO_6, a double-perovskite ferrimagnet, with conventional THz time-domain spectroscopy.

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Date submitted: 19 Nov 2012 Electronic form version 1.4