Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Low energy THz excitations in distorted perovskites under strong magnetic fields and low temperature. N. E. MASSA, LANAIS EFO-CEQUINOR, UNLP, La Plata, Argentina, K. HOLLDACK, HZB-BESSY II, Berlin, Germany , V. TA PHUOC, R. SOPRACASE, GREMAN, Tours, France, L. DEL CAMPO, D. DE SOUSA MENESES, P. ECHEGUT, CNRS-CEMHTI, Orlans, France, J.A. ALONSO, ICMM-CSIC, Madrid, Spain — We report on the magnetic field evolution of distinctive absorption bands in several zero field cooled polycrystalline RMO_3 (R= Pr, Nd, Sm, Er, Tm, Lu; M= Cr, Mn, Fe. Ni) at low temperatures. Measurements below 120 cm^{-1} were done in an 11 T magnet combined with a Bruker IFS125-HR interferometer at the THz beamline of the BESSY II storage ring. At the reordering spin temperature, the spectra of $ErCrO_3$ show an Er-Kramers doublet at ˜55 cm^{-1} following a second order continuous reorientation. It suggests strong anisotropic Er^{3+}-Cr^{3+} magnetic exchange interactions. The band strength of its triplet excited states decreases upon increasing the magnetic field. Non-Kramers Pr in $PrCrO_3$ implies a magnetic field induced quasi-doublet system. Spin wave modes AF and F are also tentatively assigned. In $ErFeO_3$, the spin reordering of the canted transition metal, and the Er^{3+} exchange, is monitored emerging above 80 K. Temperature dependent multiplet transitions centered at 50 cm^{-1} and 110 cm^{-1} appear as asymmetric field dependent broad lines. The absence of activity at ˜4 K in $SmCrO_3$, shared by $SmMO_3$ (M=Fe, Ni), is consequence of near Cr-canted-Rare-Earth-opposite moment compensation juxtaposed to random micrograin orientation. We will also comment on observed only in $ErNiO_3$ field dependent Er transitions and band profiles.

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Date submitted: 05 Nov 2015 Electronic form version 1.4