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Spin wave resonances and optical activity in simple chromites $RCrO_3$ (R=Pr, Sm, Er) at ultralow temperatures in the THz region N. E. MASSA, LANAIS EFO-CEQUINOR, UNLP, La Plata, Argentina, K. HOLLDACK, HZB, BESSY II, Berlin, Germany , R. SOPRACASE, V. TA PHUOC , GREMAN, Tours, France, D. DE SOUSA MENESES , L. DEL CAMPO , P. ECHEGUT , CNRS-CEMHTI, Orlans, France, J. A. ALONSO, ICMM-CSIC, Madrid, Spain — We show that the spin reorientation temperature T_{SR} in polycrystalline $RCrO_3$ (R=Pr, Sm, Er) is determinant on spin wave resonances,[1] ferromagnetic-like (FM) and antiferromagnetic-like (AFM), being optically active. We also report on crystal field temperature and field dependences. Pr^{3+} non-Kramers lowest energy main transition emerges at 100 K. The no detection of spin wave resonances is attributed to Pr^{3+} remaining paramagnetic disrupting Cr^{3+}-Pr^{3+} exchanges. In $SmCrO_3$ we propose magnetic compensation for not detecting Sm^{3+} ground state transitions. The FM and AFM harden upon lowering temperature and split linearly on applied fields at 5 K. In $ErCrO_3$ the Er^{3+} Kramers doublet becomes active at ˜T_{SR} onset. Each Zeeman line splits further under magnetic fields. The field-induced spin reversal at ˜1.5 T yields a secondary split at the highest Zeeman level. The Γ_2 5 K resonances show concerted frequency-intensity temperature dependence. A shoulder in the AFM profile points to subtle distortions by Er^{3+} smaller ion size. Both modes merge into an induced continuum prompted by the external field. At 2 K, in the Γ_1 representation, the resonances reduce to one excitation. [1] F. Keffer and C. Kittel. Phys. Rev. **85**, 329 (1952); G. F. Herrmann. Phys. Rev. **133**, A1334 (1964).

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