Abstract Submitted
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High-frequency Infrared Studies of Manganese-based Single-molecule Magnets[1] JIUFENG TU, The City College of New York, YOKO SUZUKI, S. MCHUGH, D. GRAYBILL, M.P. SARACHIK, CCNY, L. MIHALY, SUNY-Stony Brook, G.L. CARR, BNL, N.E. CHAKOV, G. CHRISTOU, University of Florida — High-resolution far-infrared transmission studies of Mn_{12} single crystals (both aligned crystal assemblies and randomly oriented samples) have been carried out as a function of temperature and magnetic field over a wide frequency region (7 - 100 cm^{-1}). Several absorption lines corresponding to different transitions within the S = 10 manifold can be observed as a function of temperature. Our previous low frequency studies have shown that the sum of absorption coefficients of these absorption lines does not seem to conserve as a function of temperature. The new high- frequency measurements indicate that the oscillator strength is recovered at higher frequencies with the appearance of new absorption bands. The origin and the frequency dependence of these new absorption bands will be discussed.

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