Abstract Submitted
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Electromagnons in multiferroic RMn_2O_5 compounds[1] ANDREI SUSHKOV, ROLANDO VALDES AGUILAR, DENNIS DREW, University of Maryland, SOONYONG PARK, SANG-WOOK CHEONG, Rutgers University — Electromagnons, or magnons with electric dipole activity, were observed so far only in some multiferroic $RMnO_3$ and RMn_2O_5 compounds. Electromagnons in these two systems have essentially different properties. We try to take a systematic look at electromagnons in the whole RMn_2O_5 family. In this talk, we report the results of detailed infrared study* of YMn_2O_5 and $TbMn_2O_5$ as well as some results on other RMn_2O_5 compounds. We found that electromagnons in the RMn_2O_5 family is a property of the manganese sublattices. The electromagnon spectrum consists of a set of well defined far infrared (3-80 cm^{-1}) modes which are just slightly broader than uncoupled magnons. No obvious changes in the phonon spectrum have been observed. Polarization of electromagnons is in agreement with the dominating symmetric exchange. * A. B. Sushkov, R. Valdes Aguilar, S. Park, S-W. Cheong, and H. D. Drew, cond-mat/ 0608707.

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