Abstract Submitted
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Far-infrared transmission spectroscopy studies of $HoMn_2O_5$ single crystals at the commensurate-incommensurate phase transition[1] A.A. SIRENKO , Department of Physics, New Jersey Institute of Technology, Newark, NJ 07102 , S. PARK , Department of Physics and Astronomy, Rutgers University, Piscataway, New Jersey 08854 , S. M. O' MALLEY , Department of Physics, New Jersey Institute of Technology, Newark, NJ 07102 , G. L. CARR , NSLS, Brookhaven National Laboratory, Upton, New York 11973 , S-W. CHEONG , Rutgers Center for Emergent Materials, Department of Physics and Astronomy, Rutgers University, Piscataway, New Jersey 08854 — Spectra of the low-frequency IR-active excitations in $HoMn_2O_5$ multiferroic single crystals have been studied using synchrotron radiation based far-infrared transmission spectroscopy at U12IR beamline of NSLS-BNL in the frequency range between 8.5 and 105 cm^{-1}. Both preferable polarization of IR-active excitations along crystallographic directions of $HoMn_2O_5$ and temperature variation of their oscillator strength reveal strong changes at the commensurate-incommensurate phase transition at T_3= 19 K. Transmission spectra are interpreted in terms of the electromagnon, magnon, and crystal-field splitting excitations.

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