Abstract Submitted
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Phonons and the isotope effect in pyrochlore superconductor $Cd_2Re_2O_7$[1] MAUREEN REEDYK, MOJTABA HAJIALAMDARI, Brock University, REINHARD KREMER, Max Planck Institute for Solid State Research, FEREIDOON RAZAVI, Brock University — $Cd_2Re_2O_7$ is a pyrochlore superconductor with a transition temperature near 2 K. The results of Raman scattering and far-infrared reflectance measurements will be presented. The temperature dependence of phonons has been investigated above and below T_C via IR spectroscopy and as a function of Oxygen (^{16}O and ^{18}O) and Cadmium (^{112}Cd and ^{116}Cd) isotope substitution in the normal state via Raman scattering. The shift in phonon frequency upon isotope substitution will be compared with measurements of the isotope effect on the superconducting transition temperature. The dominant presence of lattice vibrational modes in the optical spectra suggests that electron-phonon interaction plays an important role in the normal and superconducting state properties.

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