

Abstract Submitted
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NIR Optical Studies of the Warped-Kagome Frustrated Magnet Neodymium Langasite¹ CHRISTOPHER FERRI, Physics Department, University of California, Merced, CHRIS WEIBE, Department of Chemistry, The University of Winnipeg, SAYANTANI GHOSH, Physics Department, University of California, Merced — We investigate the anti-ferromagnetic-to-spin liquid phase transition of Neodymium (Nd) Langasite, a warped Kagome lattice, using static fluorescence spectroscopy as a function of temperature. Nd³⁺ is excited at 808 nm and the fluorescence of the ground state to first excited transition is measured, the spectrum of which is a multiplet centered on 890 nm. We measure this spectrum at temperatures ranging between room temperature (295K) and 5K. The individual transitions comprising the spectrum are then fit by Lorentzians to determine the center wavelength (λ_c) of each transition. Plots of λ_c versus temperature show zeros in the first derivative near 52 K, the Neel temperature, and second derivative near 33K, the anti-ferromagnetic-to-spin liquid transition temperature. We attribute this to the phase transitions affecting the Zeeman energy of these levels.

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