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THz spectroscopy of one-dimensional Ising chain compound $CoNb_2O_6$ near the quantum critical point[1] JOHAN VIIROK, D. HÜVONEN, T. RÕÕM, U. NAGEL, National Institute of Chemical Physics and Biophysics, Tallinn, Estonia, C. M. MORRIS, S. M. KOOHPAYEH, T. M. MCQUEEN, N. P. ARMITAGE, The Johns Hopkins University, Maryland, J. KRIZAN, R. J. CAVA, Princeton University, New Jersey — One-dimensional Ising spin chain is a novel example of an interacting quantum many body system. The Ising chain in a transverse field is a good candidate to study quantum phase transitions because its low dimensionality increases its tendency to exhibit interesting quantum effects. We studied the one-dimensional ferromagnetic Ising chain material $CoNb_2O_6$ using far infrared spectroscopy in high magnetic fields up to 17 T and down to 0.3 K using a dilution refrigerator. Special attention is paid to the spectral region near the quantum critical point near 5.5 T.

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