

Abstract Submitted
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Signatures of phonon splitting in the infrared spectra of a quantum magnet $\text{SrCu}_2(\text{BO}_3)_2$ S.V. DORDEVIC, The University of Akron, C.C. HOMES, Brookhaven National Lab, T. RÕÕM, D. HÜVONEN, U. NAGEL, National Institute of Chemical Physics and Biophysics, Estonia, A. GOZAR, G. BLUMBERG, Bell Laboratories, A. LAFORGE, D.N. BASOV, University of California, San Diego, N. DRICHKO, M. DRESSEL, Universität Stuttgart, H. KAGEYAMA, Kyoto University — Infrared spectroscopy studies of $\text{SrCu}_2(\text{BO}_3)_2$ have been performed along both the in-plane and c-axis crystallographic directions. The reflectance will be reported over a broad range of frequencies (from about 30 cm^{-1} to $20,000\text{ cm}^{-1}$) and temperatures (from 4.2 K to 300 K). In the in-plane spectra we observe a new feature developing at 443 cm^{-1} (55 meV) below about 20 K. Detail temperature, magnetic field and polarization dependence of this feature will be reported. All the results point toward close relation of 443 cm^{-1} mode with the development of singlet ground state in $\text{SrCu}_2(\text{BO}_3)_2$.

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