

Abstract Submitted
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Polarization dependence of wide-range Raman scattering spectra in κ -(BEDT-TTF)₂Cu₂(CN)₃ YUTO NAKAMURA, Nagoya Univ., NAOKI YONEYAMA, Univ. of Yamanashi, JST CREST, TAKAHIKO SASAKI, IMR Tohoku Univ., JST CREST, ARAO NAKAMURA, Nagoya Univ., HIDEO KISHIDA, Nagoya Univ., JST CREST — We measured Raman scattering spectra of κ -(BEDT-TTF)₂Cu₂(CN)₃, which is a quantum spin-liquid candidate, over a wavenumber range, 25-3200 cm⁻¹. This compound shows a relaxor-like dielectric response that could originate in the charge disproportionation within each BEDT-TTF dimer. The Raman spectra are composed of not only sharp vibrational modes but some broad structures. One broad component is observed below 700 cm⁻¹ in cross polarization configuration. It is assigned to a magnetic excitation and has a significant intensity at as low as 25 cm⁻¹ at 10 K, which results from a spin frustration effect. Moreover, some of the vibrational Raman lines below 120 cm⁻¹, which are assigned to intermolecular vibration, show a similar temperature dependence with the dielectric constant. This might indicate that the charge instability leading to the relaxor-like dielectric behaviors affects the Raman signals for molecular motions. We will discuss the magnetic excitation and the charge disproportionation in κ -(BEDT-TTF)₂Cu₂(CN)₃ in terms of wide-range Raman scattering spectra.

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