Revisited low temperature structure of κ-(BEDT-TTF)$_2$Cu[N(CN)$_2$]Cl

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The organic charge transfer salts κ-(BEDTTTF)$_2$X are Mott insulators due to Coulomb interactions between electrons [1]. The observed rich phenomenology of ground states, from superconducting to Antiferromagnet and ferroelectric phases [2–3], is due to the highly tunable nature of the correlation strength of the charge carriers, their strong coupling to vibrational modes of the crystal lattice and the underlying presence of disorder in the ethylene groups. This disorder is expected to tune the metal insulator transition observed under pressure and thus the superconducting phase [4]. In κ-(BEDT-TTF)$_2$Cu[N(CN)$_2$]Cl (Ket-Cl), no exact structure was determined at low temperature to investigate accurately the effect of the disorder on the electronic properties. In this work, we present a recent synchrotron measurement of the exact structural properties of the Ket-Cl at 17 K.

References