

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Raman scattering study of electric-field-induced change of charge distribution in BEDT-TTF dimer compounds HIDEO KISHIDA, Nagoya University, JST CREST, YUMA HATTORI, Nagoya University, SATOSHI IGUCHI, TAKAHIKO SASAKI, SHINICHIRO IWAI, Tohoku University, JST CREST, HIROMI TANIGUCHI, Saitama University — Some BEDT-TTF dimer-Mott insulators show novel dielectric properties resulting from the positional degree of freedom for charge within a dimer. We have performed the microscopic Raman spectroscopy of a dimer-Mott insulator, β' -(BEDT-TTF)₂ICl₂. The charge sensitive vibrational mode is a single peak without electric field, while, by applying electric field beyond a threshold value, two side peaks appear on the low-wavenumber and high-wavenumber sides of the original position. This implies that an imbalance of charge within a dimer occurs. Moreover, we measured the electric-field dependence, the positional dependence and the temperature dependence of the electric-field-induced Raman signals. The positions of the side peaks are not so largely influenced by the electric-field intensity. The side-peak intensity shows a significant positional dependence. We will discuss the nature of the electric-field-induced change of the charge distribution in BEDT-TTF dimer-Mott insulators.

Hideo Kishida
Nagoya University

Date submitted: 15 Nov 2013

Electronic form version 1.4