**Single Site Enriched $^{13}$C-NMR on Charge Ordering System**

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Quasi-two-dimensional organic conductor described by the form of $(BEDT\text{-}TTF)_2X$ has the two dimensional electronic structure where two BEDT-TTF [bis-(ethylenedithio)-tetrathiafulvalene] molecules donate electron to monovalent anion X. Among them, α and θ phases, which have double column structure tilted to each other, take quarter-filled band structure, whereas κ phase, which has strong dimeric structure, takes approximately half-filled band structure. It is important for quarter-filled system to examine on-site Coulomb repulsion, *U*, and off-site Coulomb repulsion, *V*, and the system is likely to show charge order (CO) state. Indeed, CO state was confirmed in $\alpha$-$(BEDT\text{-}TTF)_2I_3$, $\theta$-$(BEDT\text{-}TTF)_2RbZn(SCN)_4$ and other material. Moreover, the superconductivity was observed in $\alpha$-$(BEDT\text{-}TTF)_2I_3$ under uni-axial stress and $\theta$-$(BEDT\text{-}TTF)_2I_3$. The relationship between the superconductivity and the charge fluctuation has been suggested.

Nuclear magnetic resonance (NMR) is a powerful tool for the investigation on organic conductors. NMR measurements were performed on many materials and played an important role on the clarification on the charge ordering system. However there are some discrepancies among NMR, vibrational spectroscopic studies, which directly observed the charge on the orbital and other measurements. Moreover, whereas these microscopic probes can draw out the degree of the charge disproportionation, the information of the charge pattern does not go much beyond the speculation from theoretical considerations.

To clarify the discrepancy and get the information of the charge pattern, we designed the $^{13}$C-NMR measurements using a "single side $^{13}$C enriched" molecule and could draw the charge pattern on the charge ordering state, combining the angular dependent measurement.

We would introduce our $^{13}$C-NMR measurements on famous charge ordering salts, $\alpha$-$(BEDT\text{-}TTF)_2I_3$[1], $\alpha$-$(BEDT\text{-}TTF)_2RbHg(SCN)_4$[2], $\theta$-$(BEDT\text{-}TTF)_2RbZn(SCN)_4$, *etc*. and demonstrate the advantages of our single side $^{13}$C enriched NMR.

[1] T. Kawai and A. Kawamoto, J. Phys. Soc. Jpn., **78,** *in press* (2009)**.**
[2] T. Kawai and A. Kawamoto, Phys. Rev. B. **78**, 165119 (2008).