

^{13}C -NMR Study of Charge Order State of the Organic Conductor α' -(BEDT-TTF) $_2$ IBr $_2$

Shinji Hirose, Atsushi Kawamoto

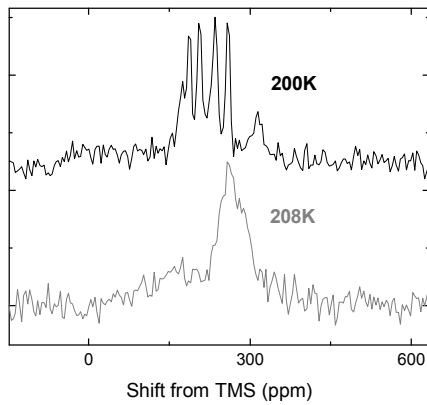
Department of Quantum and Condensed Matter Physics, University of Hokkaido, Japan.

Email: hirose@ltpphys.sci.hokudai.ac.jp

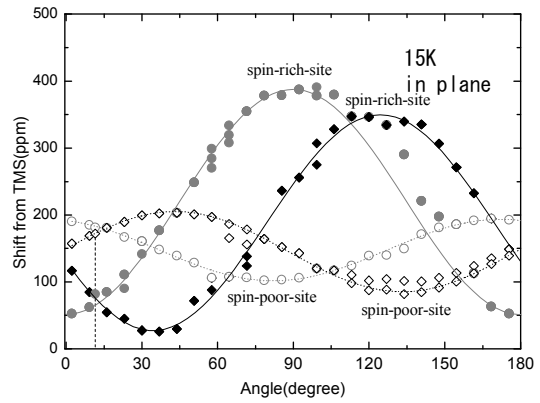
It is said that the quasi-two-dimensional organic conductor (BEDT-TTF) $_2$ X forming two columns structure like α or θ salts, shows charge order state at low temperature. To confirm the existence of the charge order state and the electron magnetism in α' phase whose symmetry is different from that of α , θ phases, we investigated α' -(BEDT-TTF) $_2$ IBr $_2$ by ^{13}C -NMR, in which one-sided central carbon on BEDT-TTF molecules is substituted with ^{13}C . As a result, the change of spectrum was observed at 200 K and the angular dependence of spectrum peak in 15 K indicated that the charge ordering pattern was intra-column separating type and the ratio of the charge separation on spin-poor-site and spin-rich-site was almost 1:0.

The spectrum in paramagnetic state can be examined by not only the difference of the charge density on on-site molecule but also the contribution from off-site molecules. This result suggested that the hyperfine coupling tensor changes after charge order transition in which the charge separates extremely.

We will also present ^{13}C -NMR result under the pressure.



NMR spectrum at 208 K and 200 K in α' -(BEDT-TTF) $_2$ IBr $_2$



Angular dependence of NMR shift at 15 K

