

**Non-Linear Conductivity and Dielectric Constant
in the Incommensurate SDW Phase of (TMTTF)₂Br**

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The non-linear conductivity[1] and the low-frequency dielectric constant were measured in the pressure induced incommensurate SDW phase in (TMTTF)₂Br in order to investigate the dynamics of the SDW. Under the pressure above 0.5 GPa, the non-linear conductivity with the threshold electric field E_T attributed to the collective sliding motion of the SDW and the huge dielectric constant attributed to the motion of the SDW were observed. The temperature dependence of E_T and of the real part of the dielectric constant ϵ' whose amplitudes grow with decreasing frequency shows the peak behavior in the incommensurate SDW phase. In contrast of the case of (TMTSF)₂PF₆ [2], the peak temperature of ϵ' is constant, irrespective of the frequency. These peak temperature T^* are scaled as $T^*/T_{SDW} \sim 0.3$ irrespective of pressure for the pressure larger than 0.8 GPa and is associated with the sub-phase transition in the incommensurate SDW proposed by the NMR measurement[3]. The sliding dynamics and the dielectric properties are probably connected with the co-existence of the CDW component proposed for high temperature sub-phase[4]. On the other hand, it is found that this ratio becomes larger with lowering the pressure. It is suggested that the co-existence of the CDW becomes unstable with lowering the pressure through the increasing electron correlation and one-dimensional character. We discuss the dynamics of the SDW in (TMTTF)₂Br in comparison with that in (TMTSF)₂X, considering the sub-phase transition.

[1] K. Nomura *et al.*, Synth. Met. 153 (2005) 433.

[2] F.Nad *et al.*, Solid State Commun. 95 (1995) 655

[3] K. Nomura *et al.*, J. Physique IV 3 (1993) C2-21.

[4] S. Kagoshima *et al.*, Solid State Commun. 110 (1999) 479.