

Phase diagram of quarter-filled band organic salts, [EDT-TTF-CONMe₂]₂ X, X = AsF₆ and Br

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An investigation of the Pressure / Temperature phase diagram of the quarter-filled organic conductors, [EDT-TTF-CONMe₂]₂ X is reported on the basis of resistivity, thermopower and NMR studies of two members, X=AsF₆ and Br of the family [1]. The strongly insulating character of these materials in the low pressure regime has been attributed to a remarkably stable charge ordered state confirmed by ¹³C NMR and the only existence of 1/4 Umklapp e-e scattering favoring a charge ordering instead of the 1D Mott localization seen in (TM)₂X which are quarter-filled compounds with dimerization. A non magnetic insulating phase instead of the spin density wave state is stabilized in the deconfined regime of the phase diagram. This sequence of phases observed under pressure may be considered as a generic behavior for 1/4-filled conductors with correlations.

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