



Conducting mixed-valence salt of bis(ethylenedithio)tetrathiafulvalene (BEDT-TTF) with the paramagnetic heteroleptic anion [CrIII(oxalate)2(2,2'-bipyridine)](-)

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Auteur	Madalan, Augustin-M. [1], Canadell, Enric [2], Auban-Senzier, Pascale [3], Branzea, Diana-G. [4], Avarvari, Narcis [5], Andruh, Marius [6]
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Résumé en anglais	The synthesis and crystal structure of the first tetrathiafulvalene (TTF) based radical cation salt containing the heteroleptic paramagnetic anion [CrIII(2,2'-bipy)(C2O4)2]- are reported. In the salt formulated as α' -(BEDT-TTF)2[Cr(C2O4)2(2,2'-bipy)]·CHCl2CH2Cl according to the single-crystal X-ray structure, the BEDT-TTF (bis(ethylenedithio)tetrathiafulvalene) donors are in a mixed valence state and form two types of uniform chains within organic layers. Two overlap modes are observed in these chains, which are canted with respect to the stacking direction, leading to a peculiar α' packing mode. The anions organize in supramolecular chains sustained by π - π interactions between the bipyridine units. The magnetic behavior of the compound follows a Curie-Weiss law, with a magnetic contribution arising from both cationic and anionic counterparts. Single-crystal electrical transport measurements are in agreement with a semiconductor behavior and have been correlated with extended Hückel tight-binding calculations.
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Liens

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