

Correlation and frustration effects in molecular conductors  $\text{Et}_x\text{Me}_{4-x}\text{Z}[\text{Pd}(\text{dmit})_2]_2$   
( $\text{dmit}=\text{C}_3\text{S}_5^{2-}$ ,  $\text{Z}=\text{N, P, As, Sb}$ ,  $x=0, 1, 2$ )

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A series of 1:2 anion radical salts of the metal dithiolene complex  $\text{Pd}(\text{dmit})_2$  with  $\text{Et}_x\text{Me}_{4-x}\text{Z}^+$  ( $\text{Z}=\text{N, P, As, Sb}$ ;  $x=0, 1, 2$ ) belongs to a strongly correlated system with a quasi-triangular lattice of  $[\text{Pd}(\text{dmit})_2]_2$  dimers. This system is also characterized by the two-MO nature associated with interplay of HOMO and LUMO. At ambient pressure, they are Mott insulators with one electron on each dimer and show magnetically frustrated behaviors. Depending on the cation, the system exhibits various low-temperature electronic states including the long range antiferromagnetic order, the frustrated paramagnetic state, and the charge-ordered non-magnetic state. Application of (hydrostatic or uni-axial) pressure can induce the metallic state accompanied by the superconductivity. The pressure effect can be described in terms of band width, effective on-site Coulomb energy on the dimer, and anisotropy of interdimer transfer integrals that is related to the degree of the frustration.

We will discuss how the electron correlation and the frustration govern the electronic state of this two-dimensional strongly correlated system.

