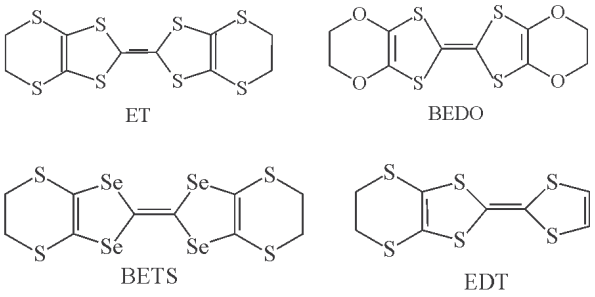
s13.m35.p8 **Molecular Conductors with Mercury-Containing Anions: Structure-Property Relationship.** Oleg Dyachenko, *Institute of Problems of Chemical Physics, RAS, Chernogolovka, Moscow Region, 142432, Russia. E-mail: doa@icp.ac.ru*

Keywords: Molecular conductors; X-ray study; Structure-property relationship

The report is devoted to the discussing of the investigation of the structure regularities of molecular conductors based on radical cation salts, which anions are Hg-containing complexes.

At present Hg takes the first place among the metals used in synthesis of molecular conductors. More than 60 mercury-containing molecular conductors have been investigated by X-ray study by this time [1-4]. These are salts with a wide range of electroconducting properties including superconducting as well. The results of these structural investigations have been systematized and will be discussed. Mainly these are the salts based on bis(ethylenedithio)tetrathiafulvalene (ET), bis(ethylenedioxi)-tetrathiafulvalene (BEDO) and bis(ethylenedithio)-tetraselenafulvalene (BETS) donors. Organic conductors on the basis of other p-donors have been studied considerably less. The structures of new radical cation salts series on the basis of ethylenedithiotetrathiafulvalene (EDT) with mercury-containing anions will be presented as well.



At the report composition nonstoichiometry and the tendency to forms variety of the mercury-containing anions caused by the specific properties of mercury will be discussed. The correlation between the compounds compositions, crystal structures and electroconducting properties have been determined.

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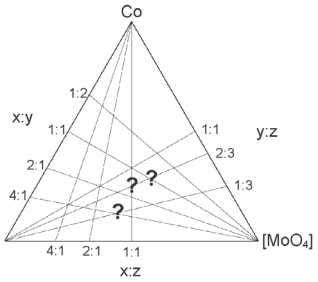
[4] Dyachenko, O.A., *et al*. (1994). *Synth. Met.* **62**, 193-196

s13.m35.p9 **Scheme of Orthomolybdates, $K_xCo_y(MoO_4)_z$.** J. Engel, K. G. Bramnik, E. Muessig, H. Ehrenberg, *Institute for Materials Science, Darmstadt University of Technology, Petersenstr. 23, D-64287 Darmstadt, Germany*. *E-mail: jennerich@gmx.net*

Keywords: Orthomolybdates; Networks of tetrahedra and octahedra; Structure systematics

Most of the known crystal structures of double molybdates of alkaline metals (A) and 3d-transitional metals (T) are orthomolybdates, where all oxygens belong to exactly one MoO_4-tetraedron. Therefore, the general formula is $A_xT_y(MoO_4)_z$, and all members are characterized by the x:y and y:z ratios. In the frame of a systematic study of structures and properties of compounds with A = Na or K and T = Fe or Co, we report on the present status of a proposed scheme for known K-Co-orthomolybdates and the corresponding crystal structures:



4 different orthomolybdate structures are known for 3 different compositions, marked as filled circles. $K_2Co_2(MoO_4)_3$ exists in two different modifications [1,2]. $K_4Co(MoO_4)_3$ has been reported in [3], and $K_3Co_2(MoO_4)_3$ has an alluaudite-type structure.

The only known quarternary phase in this system, which is not an orthomolybdate, is $K_{10}CoMo_7O_{27}$ [5].

The proposed scheme of K-Co-orthomolybdates is compared with the reported one for Na-Fe-orthomolybdates [5]. Up to now only the alluaudite-type phase has been found in both systems.

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