

FA4-MS06-P01**Synthesis, Structural Characterization, Thermal Stability and Physical Properties of New Hybrid Compound: "Bis(3,4-dimethylanilinium) hexachlorostannate(IV)".**

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Intense research activity during the past few decades in organic-inorganic hybrid materials of formula (R-NH₃)_nSnX_n, where X = F, Cl, Br or I, because for their interesting thermal, optical and electrical properties [1, 2]. In this study we present a new hybrid compound based on tin and derived from anilinium, examine the hydrogen bonding in its crystal structure and explore its thermal decomposition.

The title compound, [SnCl₆]²⁻, 2(C₈H₁₂N)⁺, crystallized in Triclinic system, with P-1 space group, it has been prepared by slow evaporation of an aqueous solution of 3,4 dimethyl aniline, tin(II) chloride and hydrochloric acid.

The crystal structure consists of alternating layers of hexachlorostannate and 3,4-dimethylanilinium along the c axis. They are linked together by cation-anion hydrogen bonds. This three-dimensional complex network of hydrogen bond reinforces the cohesion of the ionic structure.

We have measured a third-order nonlinear optical susceptibility and electrical conduction. The thermal decomposition of the compound shows that the SnO₂ is obtained after two steps.

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Keywords: single crystal; hydrogen bond; thermal analysis

FA4-MS06-P02**Unexpected Fragmentation of Phenylthiobenzoate, X-Ray Structure of [μ-η²]1,2-(dithio)-1,2(diphenylethylene)-di-iron Hexacarbonyl Complex.**

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The thermal reaction of Fe₂(CO)₉ with organic substrates containing sulfur atoms is a general synthetic way to various

hexacarbonyliron coordination compounds [1]. When the starting organic ligand is linked to the metal atoms without fragmentation the overall reaction may be rationalized by a stepwise replacement of three carbon monoxide ligand of Fe₂(CO)₉ by a six-electron one. The reaction of Fe₂(CO)₉ with dithioesters [2], ethylenetrithiocarbonate [3], or 1,2-dithiol-3-thiones [4], occurs without a ligand fragmentation. However, in some cases the thermal reaction of Fe₂(CO)₉ with sulfur containing substrates leads to the coordination of binuclear compounds including one or several fragments arising from the organic substrates [5-10]. Surprisingly, we have observed an unusual fragmentation of phenylthiobenzoate PhC(S)SPh (**1**) during its reaction with Fe₂(CO)₉ leading, besides the expected complexes : [(μ-η³(C,S,S)PhCS₂Ph)]Fe₂(CO)₆ (**2**) and (μ-S)Fe₃(CO)₉ (**3**), to the two other complexes (μ-SPh)₂Fe₂(CO)₆ (**4**) and [μ-η²](S,S)PhC(S)=C(S)Ph]Fe₂(CO)₆ (**5**) (Scheme 1). **4** and **5** compounds or analogous one are unexpected and were never observed during the reaction of Fe₂(CO)₉ with dithioesters. The X-ray study of **5** establishes that it was a binuclear iron complex. The two iron atoms are maintained at a distance from 2.56Å with a dithiodiphenylethylene group.

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Keywords: dithioester; iron; complex; X-ray

FA4-MS06-P03**Is the Chain Length of Diamine Sufficient to Span Dialdehyde to Form a Macrocyclic? Leila Noohinejad**

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Uncontrolled condensation reactions, e.g. of diamines with dialdehydes lead inevitably to a mixture of oligomers and various size macrocycles as the reaction products. The use of metal ions as templates is able to somewhat steer these kind of condensation reactions towards the formation of macrocyclic Schiff bases, but even with the