conference abstracts

07-Crystallography of Organometallic and Coordination Compounds

PS-07.03.08 STUDIES ON TRINUCLEAR CADMIUM CLUSTER COMPLEXES. SYNTHESIS AND CRYSTAL STRUCTURES OF [MeAl]Co6(μ3-SC6H4-4,6-Pt)2; C4H8 AND [Co6(μ3-C6H4-
Pr2,4,6-Pt)2; C4H8]2; CH2OH - THF(O).

By Kanzuo Tang, Xinglin Jin, Aiqun Li, Shoujun Li and Yongxi Tang. Institute of Physical Chemistry, Peking University, Beijing 100871, China

By the reaction of a sterically hindered arsine 2,4,6-Pt-3C6H4-3H with CdMe2 and Cd2O in 2:2 to 1 ratio and in the presence of the quaternary ammonium salt Me3NCI, the colourless salt of trinuclear cadmium cluster anion complex [MeAl]Co6(μ3-SC6H4-4,6-Pt)2; C4H8 (1) has been synthesized. The same starting materials reacted in 2:1 ratio in the absence of the quaternary ammonium salt result, however, in an uncharged trinuclear cadmium complex [Co6(μ3-SC6H4-4,6-Pt)2; C4H8]2; CH2OH - THF(O) (2).

The crystal structures of both complexes have been determined by X-ray methods. Both are monocline, space group P21/n with a = 19.629 (8), b = 26.508 (8), c = 25.460 (90), α = 97.87 (9). V = 129203 (2) Å3, Z = 4, D = 0.76, for 2989 observed reflections. Crystals of (2) are triclinic, space group P1 with a = 19.792 (10), b = 20.508 (13), c = 53.97 (20), α = 83.31 (5), β = 88.77 (5), γ = 85.12 (4), V = 12988 (14) Å3, Z = 4, D = 0.92, for 8827 observed reflections. The core of the cluster anion of (1) [MeAl(μ3-SC6H4-4,6-Pt)2; C4H8]2; is formed by a defective cubic unit with three cadmium and four sulphur atoms at its vertices. Each cadmium atom exhibits tetrahedral coordination with one terminal sulphur, two doubly bridging sulphurs and one triply bridging sulphur atom. In the molecules of uncharged complex (2), three cadmium atoms are coordinated by six thiolates (3S) and one residual BDS ligand. Two of these cadmium atoms have tetrahedral coordination and one is trigonal planar. There is no triply bridging ligand in this structure.


PS-07.03.09 CLOSER PACKING AND ISOSTRUCTURALISM OF ANALOGOUS PbX2, XR, COMPOUNDS (R = Me, X = Sn, Ge, S, Ge, Sn, Sn, X = P, X = Si, Ge, S, Ge, Sn, Sn, X = Ge, S, Ge, S, Ge, S, Ge, Sn, Sn, R = H, X = Ge, S, Ge, S, Ge, S, Ge, Sn, Sn, R = Ph, X = Ge, S, Ge, S, Ge, S, Ge, S, Ge, S, Ge, S, Ge, S, Ge, S, Ge, Sn, Sn) LIGANDS (L) (Párkányi, Hernandez & Pannell, 1986) and Ph3Ge-GePh3 (TH) (Pannell, Karpur, Repins, Párkányi & Fábián, 1990, 1991) which remained, however, isostriuctural (with the same coordination and anion to cation ratio). Their similar packing can only be distinguished either by the different length or orientation of Sn-Si and Ge-Ge dangling bonds. Recently, structure of Ph3Ge-GePh3 (TH) was also determined. Remaining isostriuctural with TH (Fig. 1) IV provides an important link to the other relaxed pairs, as follows.

R = Me. The alternative replacement of one of Sn atom in Ph3SiSnMe3 (I) (Párkányi, 1983) with two amides (II) (Párkányi, Hernandez & Pannell, 1986) and Ph3Ge-GePh3 (TH) (Pannell, Karpur, Repins, Párkányi & Fábián, 1990, 1991) which remained, however, isostriuctural (with the same coordination and anion to cation ratio). Their similar packing can only be distinguished either by the different length or orientation of Sn-Si and Ge-Ge dangling bonds. Recently, structure of Ph3Ge-GePh3 (TH) was also determined. Remaining isostriuctural with TH (Fig. 1) IV provides an important link to the other relaxed pairs, as follows.

PS-07.03.10 X-RAY STRUCTURES AT 120% OF METALS ASSEMBLING SUGARS IN NOVEL ARCHITECTURES

By C. Floriani, G. Cerasio and D. Viterbo, Dept. of Chemistry, Univ. Lausanne, Switzerland and Dip. di Chimica, Univ. di Torino, Italy.

Sugars are the building blocks for a large number of biological molecules. The assembling strategy is dictated by nature and is appropriate for various functions of the resulting aggregates.