

MS36-P16**A new double metal oxalate compound with specific structural features**Malika Hamadene¹, Hamza Kherfi¹, Fadila Balegroune¹

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Only a very few examples of double oxalate compounds with Li have been reported in the literature [1,2]. In continuation of our crystallographic research about the coordination compounds [3], we have chosen to focus on mixed oxalate with Li atoms and 3d element. Pink single crystals with the Cr element have been obtained. Optical, thermal and RX analysis have lead to the formula $[\text{LiCr}(\text{C}_2\text{O}_4)_2(\text{H}_2\text{O})_4]_n$ and space group C_2/m . In this structure, both metal atoms in special positions are coordinated to two equivalent water molecules in axial sites and four equivalent O atoms from coplanar oxalate groups. The crystal structure consists of infinite and linear chains of *trans*- $\text{Cr}(\text{O}2)_4(\text{Ow}2)_2$ and *trans*- $\text{Li}(\text{O}1)_4(\text{Ow}1)_2$ octahedra μ_2 -bridged by oxalate groups, and propagating along [101] direction. The Ow1 atoms around the Li atom are disordered over two positions separated by 0.5259 (6) Å, due to the wagging in the (101) mirror plane. Taking into account of the $2/m$ imposed symmetry of both metallic elements, the unit cell may be described as an unconventional pseudo face-centered monoclinic cell. In this one-dimensional coordination polymer, $R^4_4(12)$ H rings are present between the parallel chains to stabilize a 2D framework. The UV and IR analysis are agreeing respectively with the *trans* conformation of Cr (III) octahedral due to the lack of the ruby line and the symmetry of the bridged ligands. The investigated compound is found to be a precursor of a ternary oxide LiCrO_2 deduced from the thermal analysis.

References:

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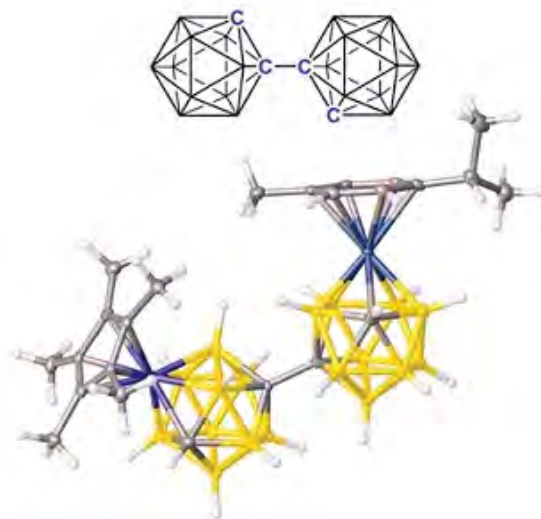
MS36-P17**Further Structural Adventures with Bis-metallacarboranes**Georgina Rosair¹, Alan Welch¹, Anthony Chan¹

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Metallacarboranes display great variation in polyhedral size and shape. They incorporate metal atoms from across the Periodic Table ¹ and find application in catalysis, medicine, metal-ion extraction and advanced materials.¹

The parent 1,1'-bis(*ortho*-carborane) (below) has a scaffold which offers extensive potential for derivatisation. Single cage metalation of 1,1'-bis(*ortho*-carborane) has yielded metallacarborane-carborane species,² with double cage metalation affording metallacarborane-metallacarborane compounds.² However such metalation follows double deboronation (removal of one vertex from each cage) so the final products are necessarily homometalated. Very recently stepwise deboronation and metalation of 1,1'-bis(*ortho*-carborane) has enabled the synthesis and characterisation of the first examples of heterometalated metallacarborane-metallacarborane species (one example below). More variety and surprises are revealed in this structural adventure with metallacarboranes.³



References:

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