

s13.m42.p17 **Organic-inorganic Hybrids: $(R-NH_3)_m(SnX_6)_n$.** Rademeyer M, *University of KwaZulu-Natal, South Africa.* E-mail: rademeyerm@nu.ac.za

Keywords: Organic-inorganic hybrid; Layered structure; Hydrogen bonding

Due to their two-dimensional structure and interesting organic and magnetic properties, organic-inorganic hybrid materials have attracted a great deal of attention in terms of crystallographic investigation. However, the structural characteristics of organic-inorganic hybrid materials of the formula $(R-NH_3)_2SnX_6$ and $(R-NH_3)_4(SnX_6)X_2$, where X is a halide, have not been investigated extensively. Structures of these compounds with arylammonium cations will be reported, and the structural characteristics highlighted.

These structures consist of alternating organic and inorganic layers. The organic layer is comprised of the organic cations, often interacting via π - π stacking interactions. In the inorganic layer, isolated, distorted SnX_6^{2-} octahedra interact with ammonium groups via N-H...X hydrogen bonds. In certain structures, displaying an unexpected combination of anions and cations, isolated halide anions have been found to be incorporated into the inorganic layer. In these double salts, the isolated halide anion also participate in hydrogen bonding, resulting in the formation of a complex hydrogen bonding network in the inorganic layer. Specific structural characteristics of these organic-inorganic hybrid compounds will be discussed.

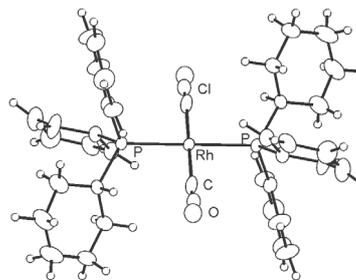
s13.m42.p18 **Packing Behaviour in Pseudo Vaska-Type Complexes.** Andreas Roodt and Alfred Muller, *Department of Chemistry and Biochemistry, Rand Afrikaans University, P.O. Box 524, Johannesburg, 2006, South Africa, E-mail: aroo@rau.ac.za*

Keywords: Vaska-type complexes; Disorder; Packing

Pseudo Vaska-type complexes, $trans-[M(X)(Y)(ZR_3)_2]$ (M = Rh, Ir if X=CO, NCS⁻, NCO⁻ and M = Pt, Pd if X = Cl, Me; Y = halide, Z = Group 15 atom, R = aryl, alkyl) can undergo various key step catalytic reactions, e.g. oxidative addition, reductive elimination, substitution, insertion, etc., yielding them as well-behaved model complexes for various catalytic systems. [1]

These complexes are easy to synthesize and can be investigated structurally due to their favorable thermal stability. Data obtained from solid-state investigations can then be correlated with solution IR and ³¹P NMR spectroscopy for the CO and PR₃ ligands to evaluate different ligand effects. However these complexes are also well known for their tendency to be statistically disordered (see figures below), thus decreasing accuracy of the solid-state data in some cases leading to incorrect correlations.

The complex below forms part of a study to determine which factors govern the packing disorder.



trans-[Rh(CO)Cl(PPh₂Cy)₂]

- [1] A. Roodt, S. Otto and G. Steyl, *Coord. Chem. Revs.* 2003, **245**, 121-137.