

## W0101

**Supramolecular Structures of Triangles, Squares, Loops and Carceplexes Based on Metal-Metal Bonded Units.** Xiaoping Wang, F. Albert Cotton, Laboratory for Molecular Structure & Bonding, PO Box 30012, Texas A&M Univ., College Station, TX 77842.

Metal-containing supramolecular entities may be constructed with single atom vertices or as in our laboratory by using metal-metal bonded dimetal vertices. Useful precursors for preparing the latter have  $cis\text{-}M_2(LL)_2^{n+}$  moieties with two cisoid LL anions at fixed positions, while the remaining coordination sites are occupied by easily displaceable ligands. These react with appropriate polyfunctional linkers such as dicarboxylates at the equatorial positions to give supramolecular triangles, squares and loops. The choice of linkers plays an important role for the self-assembly process. An example is shown for the formation of  $\{\text{NEt}_4\text{C}[cis\text{-Rh}_2(\text{DAniF})_2\text{L}]_4[\text{calix}[4]\text{arene}(\text{CO}_2)_4]_2\}\text{BF}_4$  with the use of toroidal calixarene linkers. The resulting carceplex consists of two tetracarboxylato-calixarene bowls joined covalently by four singly bonded dirhodium units. The cage molecule contains permanently encapsulated tetra-ethylammonium ion. Where DAniF is the anion of *N,N'*-di-*p*-anisylformamidine and  $\text{calix}[4]\text{arene}(\text{CO}_2)_4$  is 25,26,27,28-tetra-*n*-propoxy-calix[4]arene-5,11,17,23-tetracarboxylate.

