

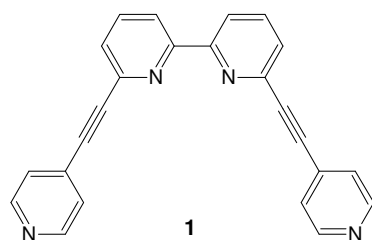
# A NOVEL APPROACH FOR THE SYNTHESIS OF MOLECULAR CONTAINERS

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The design of single ligands which are able to form enclosed cages without the aid of additional “blocking” ligands is a novel approach in modern chemistry.



A new multi-modal ligand **1** which contains both two bridging and a single chelating sites has been designed, synthesised and reacted with AgX (X=BF<sub>4</sub><sup>-</sup>, SbF<sub>6</sub><sup>-</sup> or NO<sub>3</sub><sup>-</sup>) and with Cu(MeCN)<sub>4</sub>BF<sub>4</sub> salts. Reaction of the ligand with AgBF<sub>4</sub>, AgSbF<sub>6</sub> or Cu(MeCN)<sub>4</sub>BF<sub>4</sub> lead to the self-assembly of hexanuclear cages [M<sub>6</sub>L<sub>6</sub>(X)]X<sub>5</sub>. In these three cases an anion is enclosed within the supramolecular cage. The flexibility of the cage is shown in the reaction of **1** with silver hexafluoroantimonate: to accommodate the significantly larger anion one of 4-pyridyl rings of the ligand twists by 82° with respect to the bipyridyl fragment

An anion effect was found in the reaction of the ligand with different Ag(I) salts. In particular the reaction of **1** with AgBF<sub>4</sub> gives hexanuclear complex whereas the reaction with AgNO<sub>3</sub> gives a binuclear species {[M(L)]NO<sub>3</sub>}<sub>2</sub>.

The Cu(I) hexanuclear species maintains its structure in solution as evidenced by electro spray mass spectrometry and temperature variable <sup>19</sup>F NMR

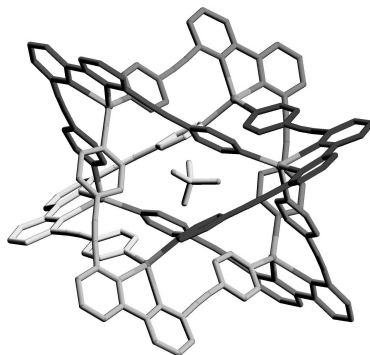


Figure 1: View of the Cu(I) hexameric structure.