Playing with the cavity of self-assembled cages

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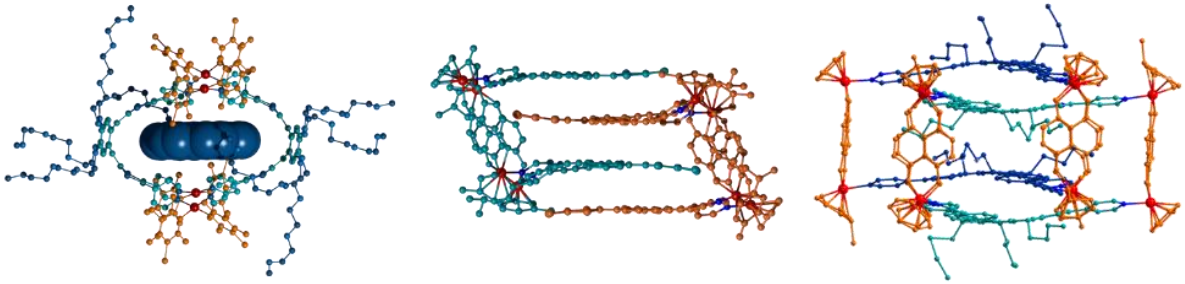
Coordination driven self-assembly has allowed the preparation of many molecular polygons and polyhedrons with remarkable properties. The corresponding host cavities offer promising opportunities for applications in molecular recognition, drug delivery, remediation or catalysis. In this context, we focused our attention in the design of electro-active self-assembled discrete structures based on the tetrathiafulvalene unit (TTF) and derivatives (exTTF and DTF for instance) with the aim of controlling the guest release thanks to an electrochemical stimulation. We are also interested in understanding the key parameters governing the formation of an emergent class of coordination assemblies, i.e. interlocked cages. For example, we demonstrated recently that truxene and triazatruxene based ligands, associated with dinuclear Ruthenium or Rhodium complexes, can produce this type of compact interlocked systems.



X-Ray crystal structures of self-assembled structures constructed from **exTTF** (left), **DTF** (center) and **Truxene** (right)