

Dynamic capsules and some of their uses

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Simple organic subcomponents can come together around metal-ion templates to produce intricate hollow capsules.^[1] This talk will describe the design and uses of some of these three-dimensional architectures, a few of which are shown in Figure 1 below, along with the use of the same construction principles to produce interlocked structures – catenanes^[2] and knots^[3] – and double-helical metallopolymers with potentially useful optoelectronic properties.^[4] A special focus on porphyrins assemblies will be made.

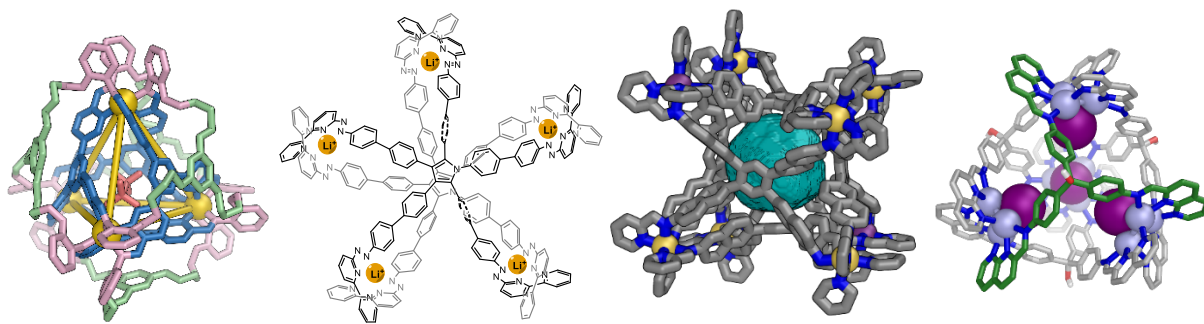


Figure 1. From left to right: a knotted capsule that exchanges guests 17000 times more slowly than its non-knotted counterpart;^[5] a photoactive $\text{Li}_5\text{L}_2^{5+}$ complex that can extract Li^+ selectively from mixtures of the other alkali metals, and release it photochemically;^[6] $\text{Zn}^{\text{II}}_8\text{L}_6$ with walls that dynamically expand to adapt to different guests;^[7] a tetrahedral cage with $\text{Ag}^{\text{I}}_3\text{I}$ vertices.^[8]

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