Supramolecular Fullerene Assembly Formed by Host-Guest Interaction of Calix[5]arene and Fullerene

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We have been working on developing supramolecular assemblies driven by the host-guest complexation of a calix[5]arene and fullerenes. Covalently-linked double-calix[5]arenes take up C_{60} into their cavities. This complementary interaction creates a strong non-covalent bonding. Accordingly, the iterative self-assembly between dumbbell fullerene **1** and an achiral ditopic host produces the supramolecular polymer networks.[1]

In this presentation, we will report that the synthesis of chiral ditopic host **2** and its supramolecular complexation with **1**. The chiral binaphthyl linker provides the asymmetric binding environments in the two fullerene binding sites; thus, their iterative binding can produce the supramolecular helical fullerene array in nanospace. The synthesis of **1** and **2** has been finished. Now, their supramolecular assembly is under investigation.

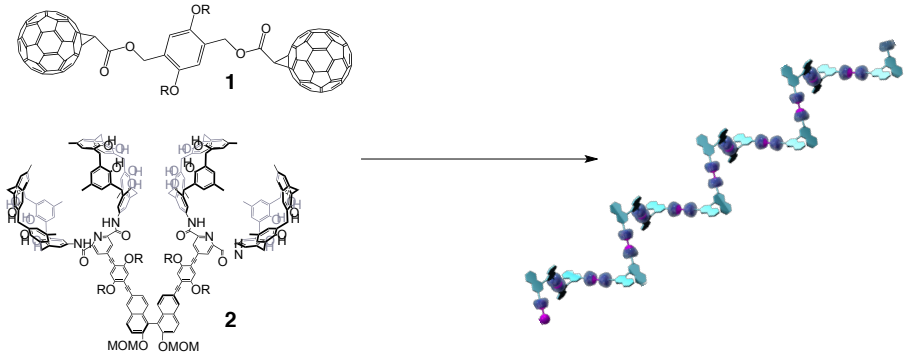

Figure 1. Supramolecular assembly of **1** and **2**.

References

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