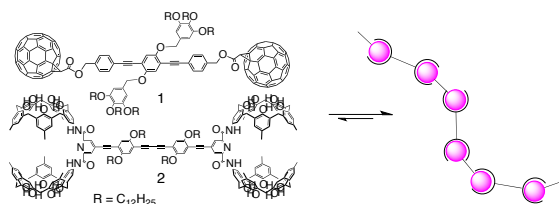


Supramolecular Fullerene Polymers Formed by Host-Guest Complexation between Calix[5]arene and C<sub>60</sub>

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**Figure 1.** Supramolecular polymer formed by host-guest interaction between a calix[5]arene and [60]fullerene.

Covalently-linked double-calix[5]arenes take up C<sub>60</sub> into their cavities.<sup>1)</sup> This complementary interaction creates a strong non-covalent bonding; thus, the iterative self-assembly between dumbbell fullerene **1** and ditopic host **2** can produce the supramolecular polymer networks.<sup>2)</sup> Fluorescence spectrum of **2** showed intense band at 466 nm, which was quenched by the addition of **1**. Job plot confirmed a 1:1 stoichiometric ratio of **1** and **2** in the supramolecular association. Diffusion coefficients of a mixture of **1** and **2** were concentration dependent. As increased the concentration, the diffusion coefficients decreased, suggesting that supramolecular polymeric aggregates were formed in solution. The supramolecular polymers of **1** and **2** was also characterized by SEM and AFM measurements.

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2) (a)Haino, T.; Matsumoto, Y.; Fukazawa, Y. *J. Am. Chem. Soc.* **2005**, *127*, 8936-8937; (b)Haino, T.; Hirai, E.; Fujiwara, Y.; Kashiwara, K. *Angew. Chem. Int. Ed.* **2010**, *49*, 7899-7903.