An Insulated Conjugated Polymer Wire

Significance: Insulated molecular wires are an interesting target for molecular electronics. The authors synthesize such a structure (5) by polymerizing 4, in which a conjugated unit is surrounded by a permethylated \( \alpha \)-cyclodextrin (PM \( \alpha \)-CD). Intermediate 3 is obtained using a recently reported route (S. Tsuda, J. Terao, N. Kambe Chem. Lett. 2009, 38, 76).

Comment: Polymer 6 containing repeat units with two PM \( \alpha \)-CD moieties was synthesized using the same strategy. Compared to the equivalent in which PM \( \alpha \)-CD units are attached at the same positions but not including the conjugated system through a host–guest pair, it shows a significantly higher solid-state quantum yield (23% vs. 6%). This suggests shielding of the molecular wire in 6.