Supplementary Material (ESI) for *Soft Matter*


**ESI**

# Aqueous Self-Assembly Driven Exclusively by H-bonds: Annual-Ring Microtubes

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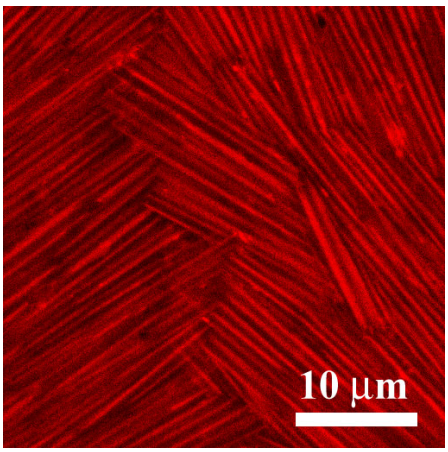


**Figure S1.** CLSM image for the 10 wt % solution, showing that the microtubes were snapped under macroscopic shear.

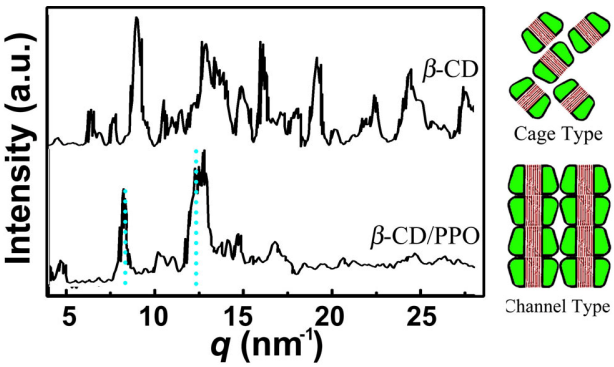


**Figure S2.** WAXS patterns of *β*-CD powders (cage-type) and *β*-CD/PPO powders (channel-type). Crystalline structures of *β*-CD and its inclusion complexes were mainly classified into cage-type and channel-type ones (see the inserted sketches in this figure). Cage-type compounds (e. g., *β*-CD) display

major peaks at 6.8, 9.1, 9.4, and 12.8 $nm^{-1}$; channel-type compounds (e. g., the inclusion complexes of *β*-CD with poly(propy1ene glycol)) exhibit characteristic peaks at 8.2 and 12.4 $nm^{-1}$ as highlighted by dotted lines. Comparison of the patterns in Figure S2 with that of SDS@2*β*-CD clearly reveals a channel-type structure for the SDS@2*β*-CD tubular lamellae.

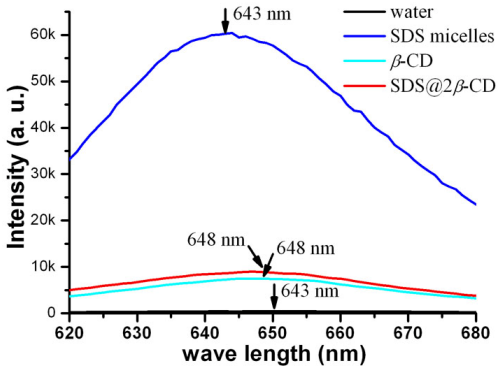


**Figure S3.** Fluorescence spectra of NR in plain water, SDS micelles (50 mM), *β*-CD aqueous solution (10 mM), and SDS@2*β*-CD solution (10 wt %). The local polarity in the SDS@2*β*-CD aggregates can be detected by fluorescent probes. In this case, NR was selected since it is sensitive to polarity and will be located within the aggregates. This figure lays out its emission spectra in plain water, and aqueous solutions of SDS micelles, *β*-CD, and SDS@2*β*-CD, where the latter three spectra correspond to micro-environments in micellar cores (a well-defined hydrophobic microdomain), near *β*-CD cavities, and in the SDS@2*β*-CD aggregates, respectively. Comparison of these spectra manifests that the local polarity in the SDS@2*β*-CD aggregates is far more hydrophilic than that in SDS micellar cores but similar to that near *β*-CD cavities. Although *β*-CD cavities are hydrophobic, they cannot account for the assembly because they are isolated and covered by polar surface. The fluorescence results, hereby, confirm the absence of hydrophobic domain in the SDS@2*β*-CD aggregates.