Supplementary Information for

Tuning the Self-Assembly of Surfactants by the Confinement of Carbon Nanotube Arrays: A Cornucopia of Lamellar Phase Variants

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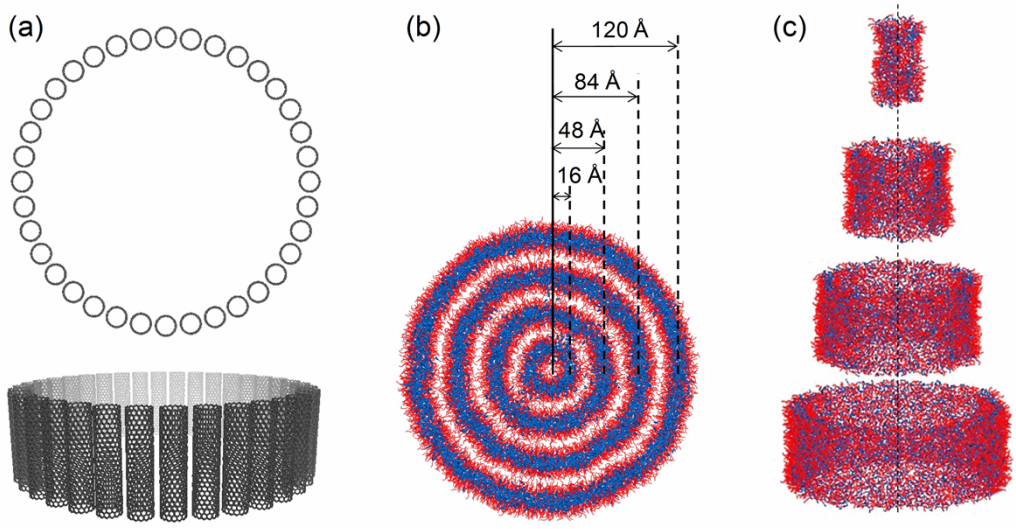


Fig. S1 The concentric bilayer tubes observed in our previous work (Z. Li, P. Wang, Y. Yan, R. Wang, J. Zhang, C. Dai and S. Hu, *J. Phys. Chem. Lett.*, 2013, **4**, 3962-3966.). (a) The top view and the side view of the carbon nanotube (CNT) array confining surfactant aqueous solution. (b) The top view of the self-assembled "dartboard" structure. (c) The side view of the self-assembled structure with separating the four bilayer tubes. Color scheme: CNT, grey; hydrophobic group of surfactant, blue; hydrophilic group of surfactant, red.

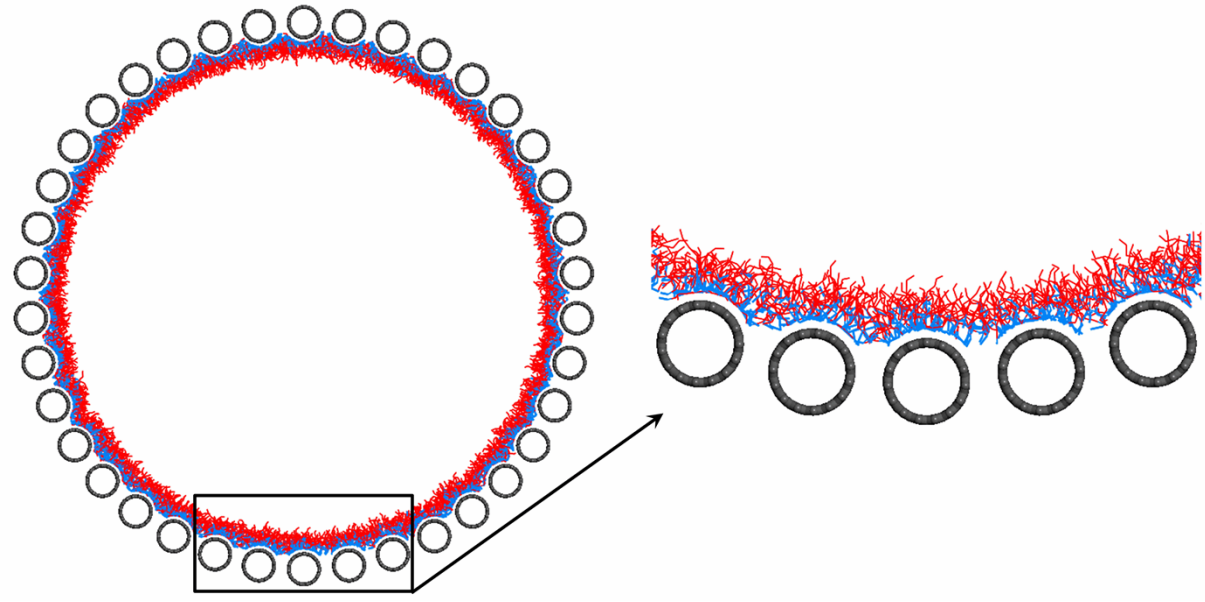


Fig. S2 The hydrophilic surface of the confining pore. Because of the hydrophobicity of CNT, the hydrophobic groups of surfactants can be adsorbed onto the surface of CNT, exposing hydrophilic groups to aqueous solution of surfactants. Therefore, all the confining spaces in this work possess hydrophilic surface, but not the hydrophobic surface of CNT array. Color scheme: CNT, grey; hydrophobic group of surfactant, blue; hydrophilic group of surfactant, red.

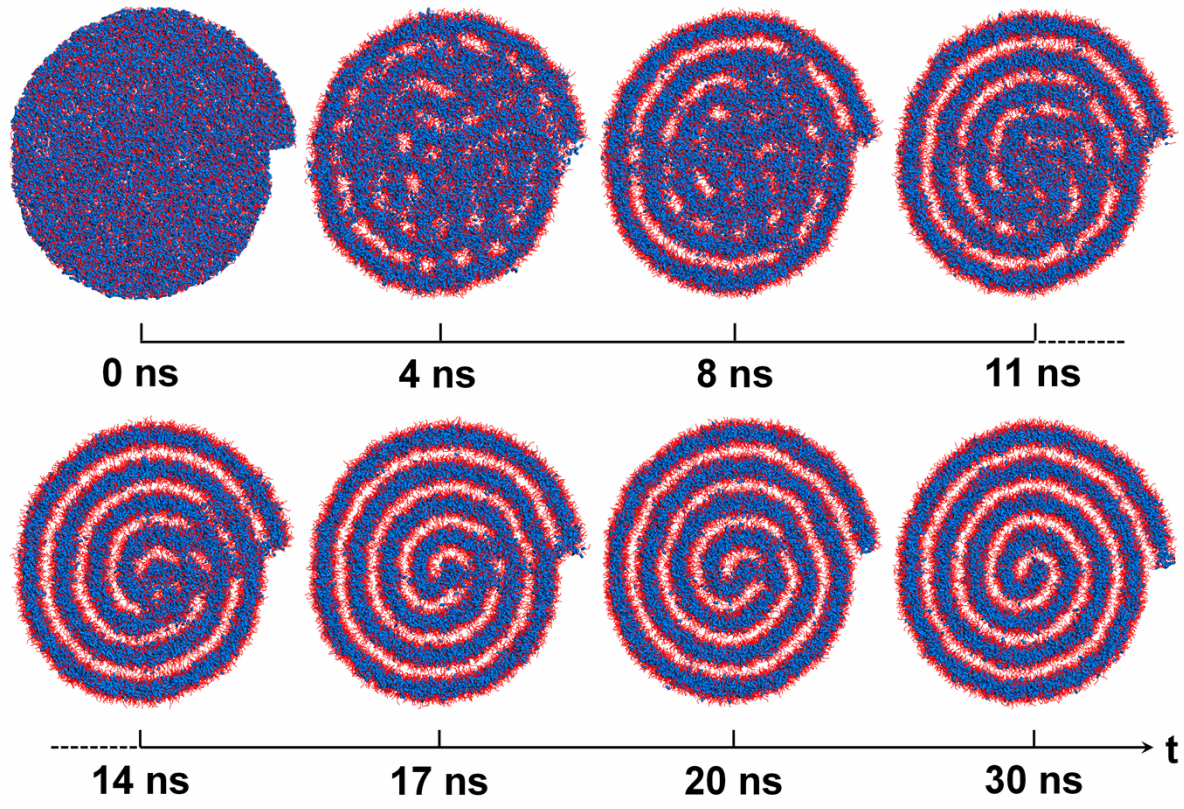


Fig. S3 The morphology evolution of the self-assembled bilayer nano-scroll. Obviously, it is also a "successive self-assembly process". Color scheme: hydrophobic group of surfactant, blue; hydrophilic group of surfactant, red.

Table S1. Details of the models studied in this work [a]

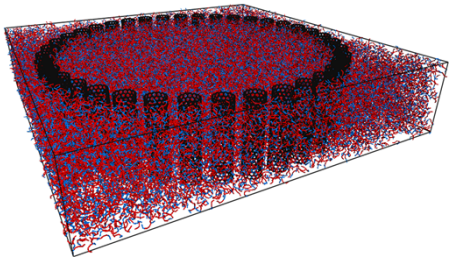
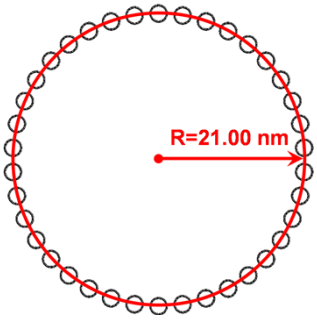
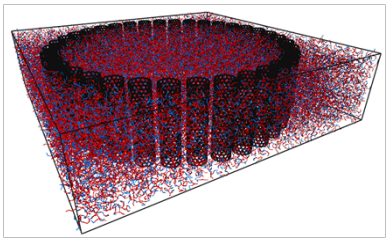
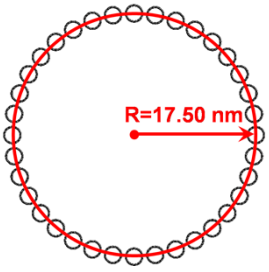
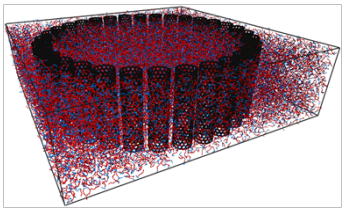
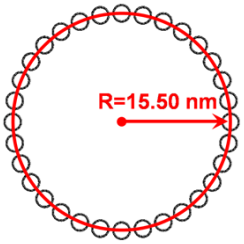
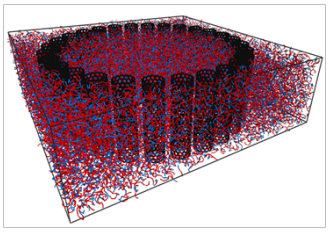
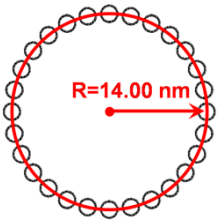
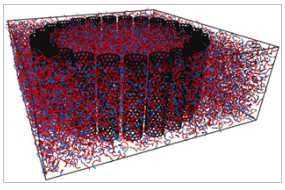
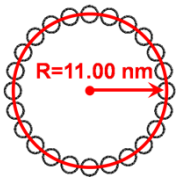
Figure in the article	Initial model	The axial (Z) view of the CNT array	Size of the box (X-Y-Z)/nm
Fig. 2b			48-48-10
Fig. 2c			41-41-10
Fig. 2d			37-37-10
Fig. 2e			34-34-10
Fig. 2f			28-28-10

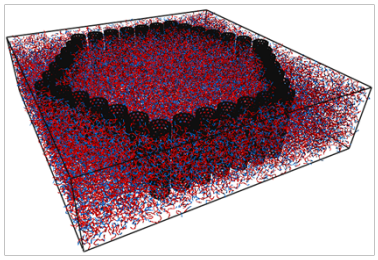
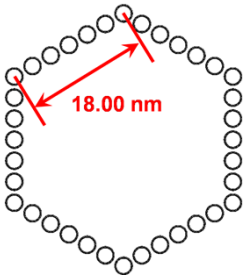
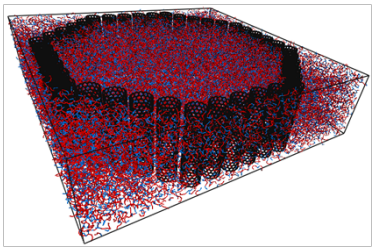
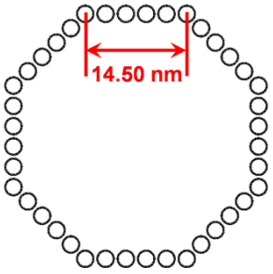
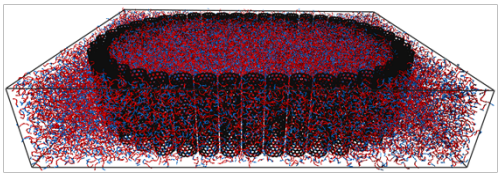
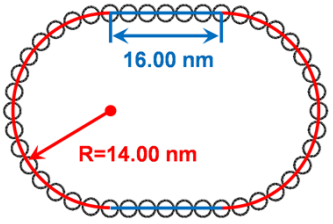
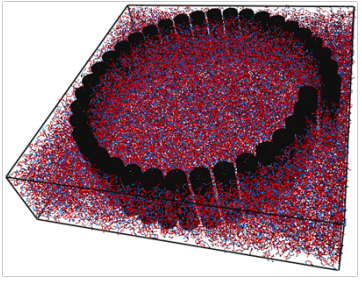
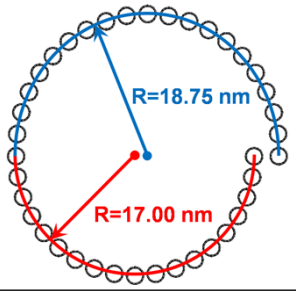
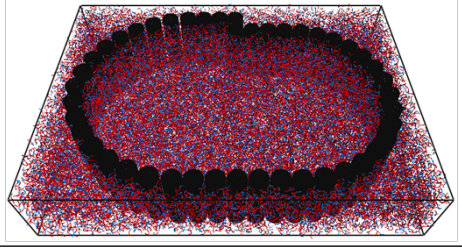
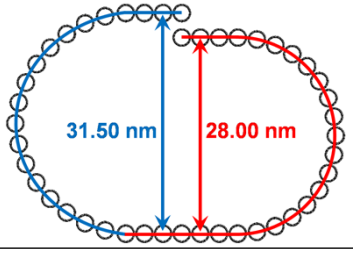
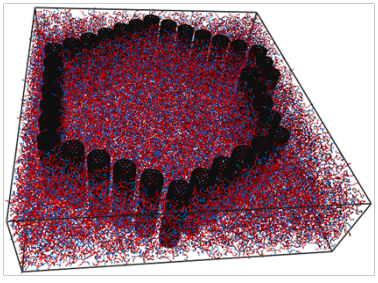
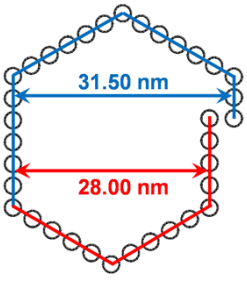
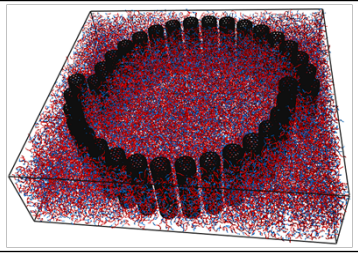
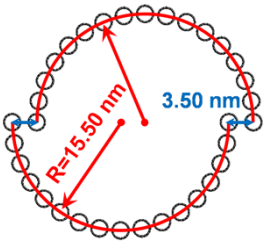
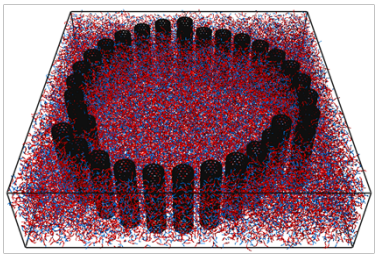
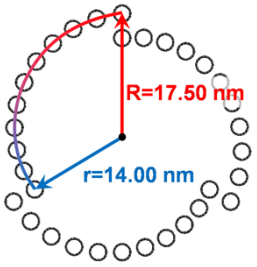
Fig. 5a			40-40-10
Fig. 5b			40-40-10
Fig. 5c			50-34-10
Fig. 6b			42-42-10
Fig. 6c			52-37-10
Fig. 6d			38-42-10

Fig. 7b			40-37-10
Fig. 7d			40-40-10

[a] Color scheme: CNT, black; hydrophobic group of surfactant, blue; hydrophilic group of surfactant, red. The concentration of surfactant in aqueous solution is 70 wt % for all the models. Water is not shown for clarity. The periodic boundary condition was imposed for all three directions, and black line represents the periodic boxes.