Electronic Supplementary Information for

H-bond and π–π stacking directed self-assembly of two-component supramolecular nanotube: tuning length, diameter and wall thickness

Zhaocun Shen,[a] Tianyu Wang*[a] and Minghua Liu*[a]

[a] *Beijing National Laboratory for Molecular Science (BNLMS), CAS Key Laboratory of Colloid, Interface and Chemical Thermodynamics, Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100190, People's Republic of China. Tel: 86-10-82615803; E-mail:* liumh@iccas.ac.cn *(M. Liu);* twang@iccas.ac.cn *(T. Wang)*

1. Experimental section

Materials:

The bolaamphiphile (HDGA) containing L-glutamic acid and alkyl spacer was synthesized by following the method reported previously (*Chem. Commun.,* 2010, **46**, 7178). Melamine was purchased from Alfa Aesar and used as received. Milli-Q water (18.2 MΩ cm^{-1}) was used in all cases.

Procedures:

For the self-assembly of the bolaamphiphile with melamine, 1 mg HDGA and a certain amount of melamine were added into 1 mL Milli-Q water, and the corresponding mixtures were heated to form a transparent solution. When the solution was slowly cooled to room temperature, white precipitates were formed, which could be different supramolecular nanotubes depending on molar ratios between HDGA and melamine.

Instruments and methods:

Scanning electron microscopy (SEM) was performed on a Hitachi S-4800 FE-SEM with an accelerating voltage of 10 kV. Before SEM measurement, the samples on silicon wafers were coated with a thin layer of Pt to increase the contrast. FT-IR spectra were recorded on a JASCO FT/IR-660 plus spectrophotometer with the resolution of 4 cm^{-1} at room temperature. Samples were first vacuum-dried and made into plates with KBr for FT-IR spectral measurements. X-ray diffraction (XRD) analysis was performed on a Rigaku D/Max-2500 X-ray diffractometer (Japan) with Cu$_{K\alpha}$ radiation (λ=1.5406 Å), which was operated at a voltage of 40 kV and a current of 200 mA. Samples were cast on glass substrates and vacuum-dried for XRD measurements.
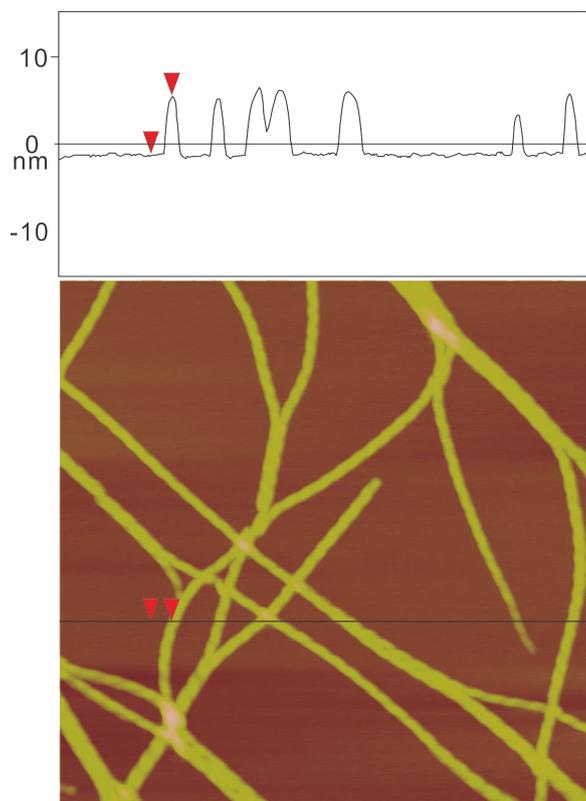
2. Supplemental Figures

Fig. S1 AFM image with section analysis of HDGA supramolecular nanotubes.
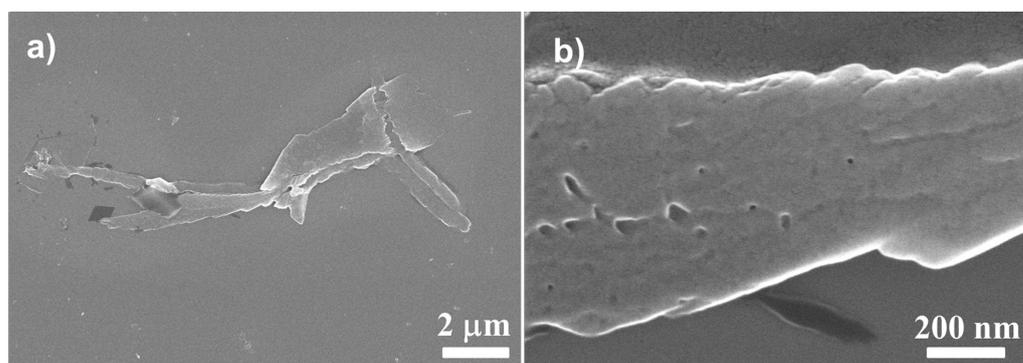

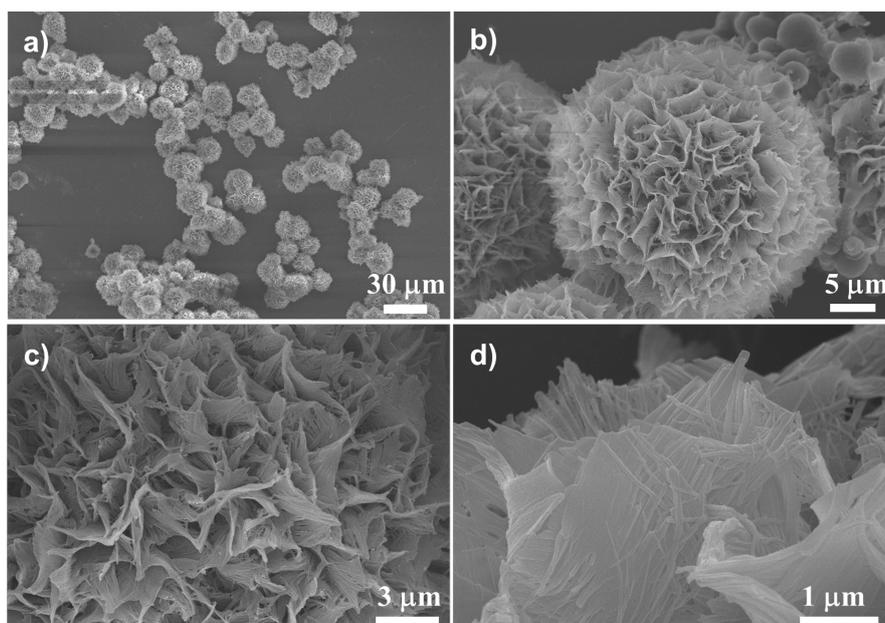Fig. S2 SEM images of HDGA/melamine=0/1 assemblies.

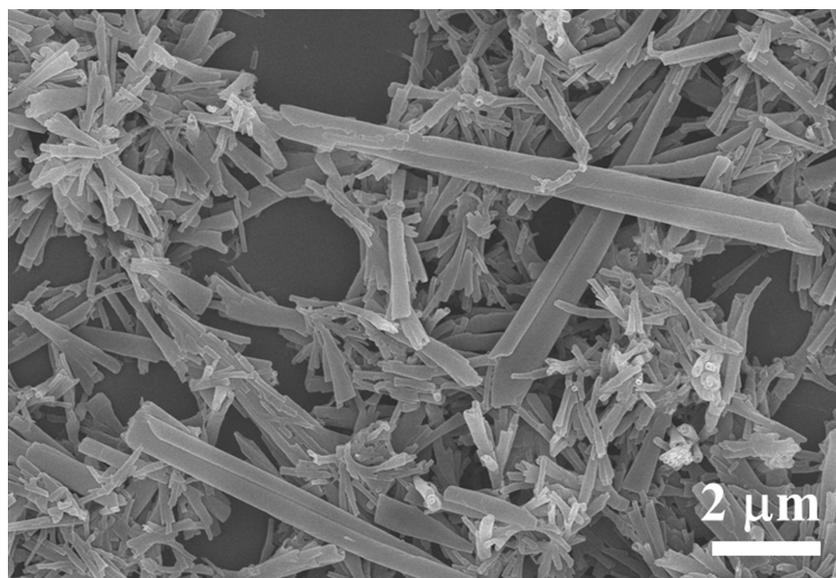Fig. S3 SEM images of HDGA/melamine=1/2 co-assemblies.

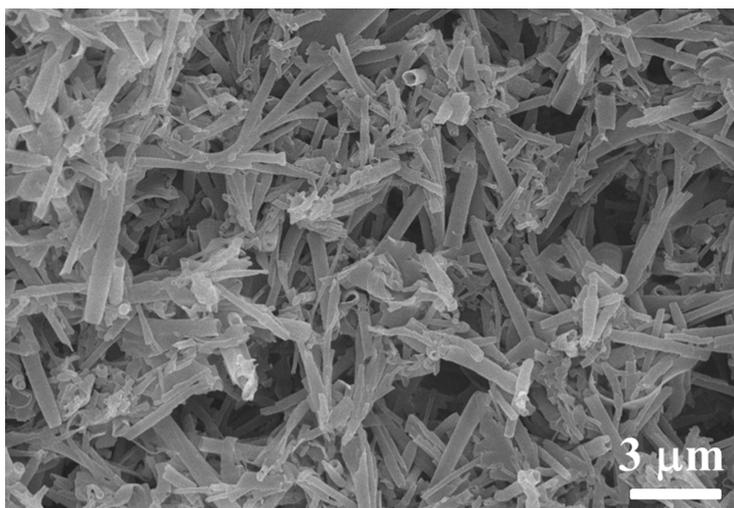Fig. S4 SEM image of HDGA/melamine=1/8 supramolecular nanotubes.
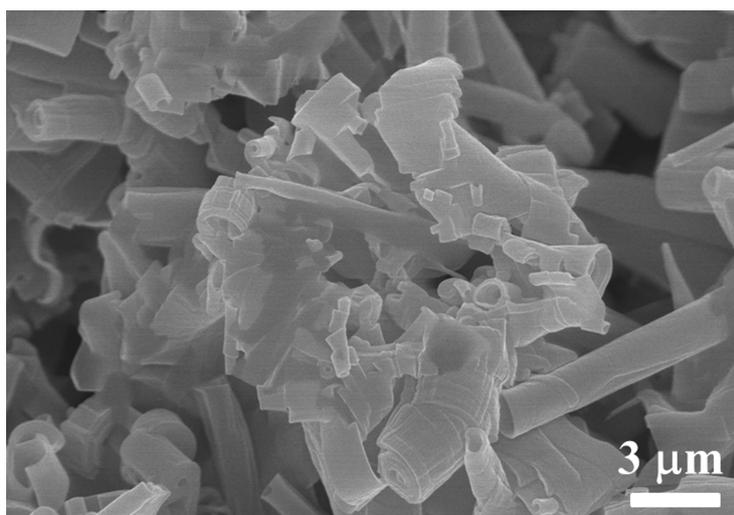
Fig. S5 SEM image of HDGA/melamine=1/16 supramolecular nanotubes.

Fig. S6 SEM image of HDGA/melamine=1/32 assemblies.