Supplementary material (ESI) for Journal of Materials Chemistry


# Tuning the Morphology of Self-Assembled Nanostructures of Amphiphilic Tetra(*p*-hydroxyphenyl)Porphyrins with Hydrogen Bonding and Metal-Ligand Coordination Bonding

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## Electronic supplementary information

**Table 1**. Electronic absorption spectral data for compounds **1-3** and the self-assemblies.

| Compound | λmax / nm | |
|---|---|---|
| | methanol | water |
| **1** | 418, 514, 550, 595, 647 | 438, 529, 576, 605, 661 |
| **2** | 414, 540, 576 | 403, 549, 584 |
| | chloroform | methanol |
| **3** | 418, 515, 550, 594, 645 | 412, 509, 543, 589, 643 |

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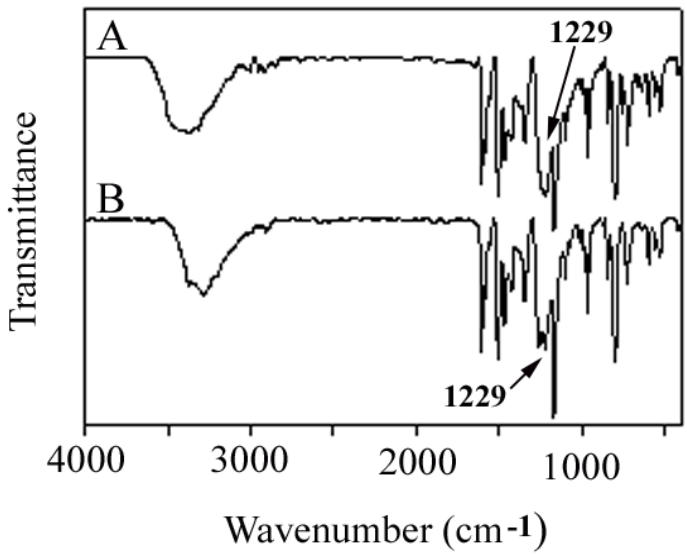


**Figure S1.** IR spectra of compound **1** (A) and aggregates of compound **1** with nano-scale hollow sphere morphology formed in water (B) in the region 400-4000 $cm^{-1}$ with 2 $cm^{-1}$ resolution.

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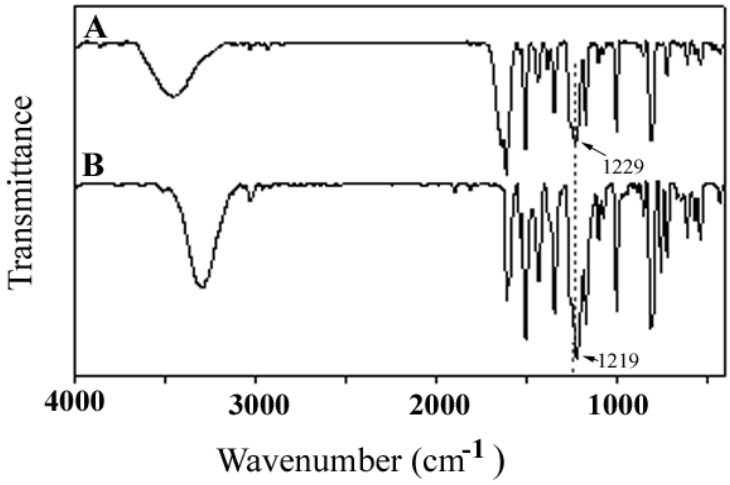


**Figure S2.** IR spectra of compound **2** (A) and aggregates of compound **2** with nanoribbon morphology formed in water (B) in the region 400-4000 $cm^{-1}$ with 2 $cm^{-1}$ resolution.

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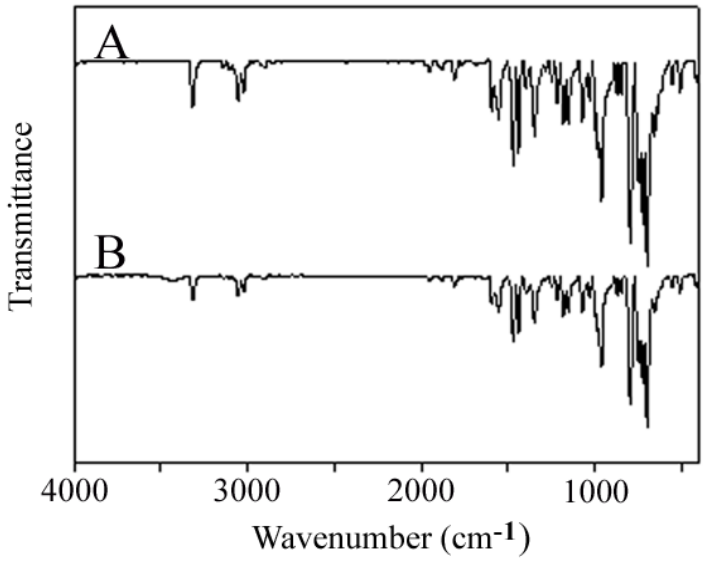


**Figure S3.** IR spectra of compound **3** (A) and aggregates of compound **3** with nanobelt morphology formed in methanol (B) in the region 400-4000 $cm^{-1}$ with 2 $cm^{-1}$ resolution.

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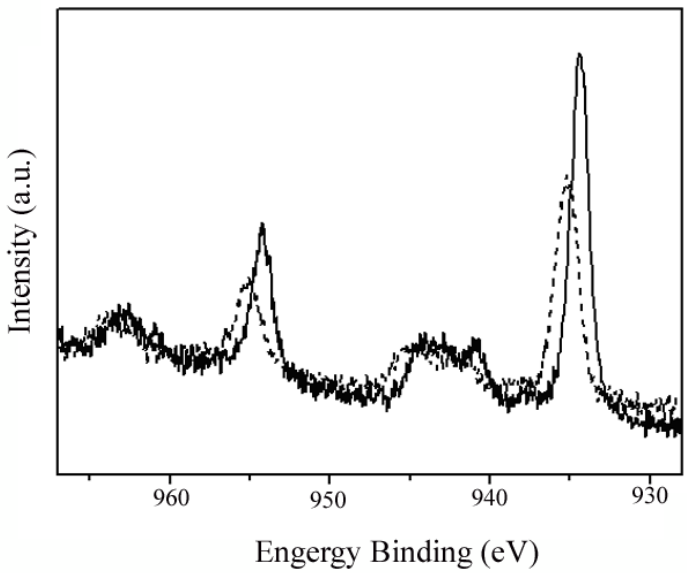


**Figure S4.** X-ray photoelectron spectra for compound **2** (dash) and aggregates of compound **2** (solid) deposited on silicon surface.

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**Preparation of CuTHPP (2).** CuTHPP was prepared by employing the reported procedure as detailed below.[1] A mixture of $H_2$THPP (34 mg, 0.05 mmol) and $Cu(AcO)_2 \cdot H_2O$ (20 mg, 0.1 mmol) in DMF (4 ml) was heated to reflux for 3 h. The volatiles were removed under reduced pressure and the residue was chromatographed on a silicon column with acetic ester /n-hexane (1:3) as eluent. The first fraction containing the target compound was collected. Repeated chromatography followed by recrystallization from $CHCl_3$ and *n*-hexane gave pure compound CuTHPP as red-brown solid. Yield: 34 mg (90 %), MS: Calcd. for $CuC_{44}H_{28}N_4O_4$ 740.3; found *m/z*. 740.8. Anal. Calcd (%) for $CuC_{44}H_{28}N_4O_4$: C,71.39; H, 3.81; N, 7.57; found: C,71.76; H, 4.13; N, 7.36.

**Reference**

1 A .D. Adler and F. R.Longo, *J. Inorg. Nucl. Chem.* 1970, **32**, 2443.