

Electronic Supporting Information

**Supramolecular Self-assembly and Photovoltaic Property of Soluble
Fluorogallium Phthalocyanine**

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1. ESI-MS and ESI-TWIM MS experiments of ttbPcGaOH

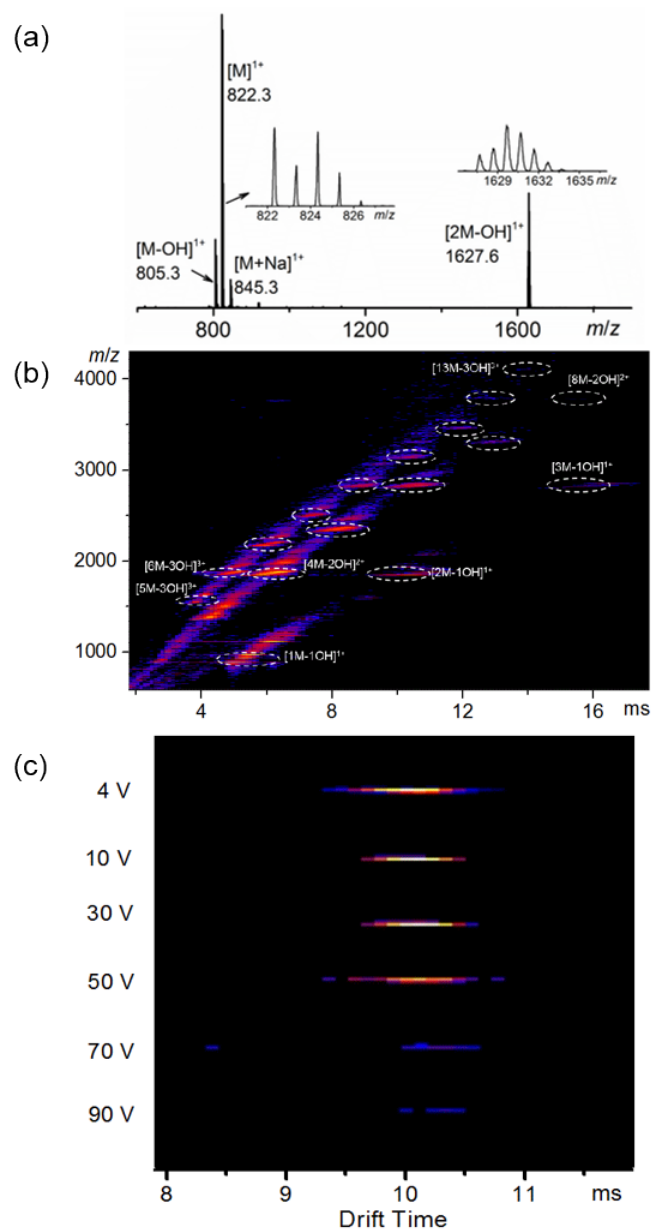


Fig. S1 (a) Conventional ESI and (b) two-dimensional ESI-TWIM mass spectra of ttbPcGaOH. (c) Two-dimensional gMS^2 TWIM plot of $[2M-OH]^+$ at $m/z = 1627.6$. Collisionally activated dissociation took place in the trap cell (before ion mobility separation) at different energies, which was varied by raising the potential applied to the trap from 4 to 100 V. The ions exiting the trap were subsequently separated in the ion mobility region.

2. UV-vis measurement of ttbPcGaOH in solution and thin film

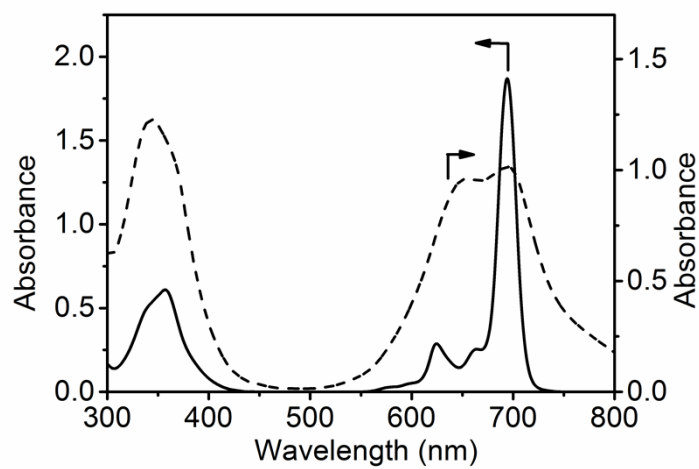


Fig. S2 UV-vis spectra of ttbPcGaOH in 1, 2-dichloroethane (solid line) (10^{-5} mol L $^{-1}$) and the corresponding cast film on a quartz plate (dashed line).

3. TEM measurement of ttbPcGaOH

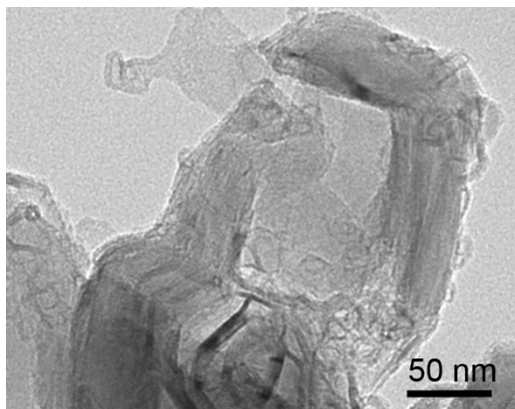


Fig. S3 TEM image of ttbPcGaOH casting from a 1, 2-dichloroethane solution (10^{-5} mol L⁻¹).

4. WAXS measurement of ttbPcGaOH

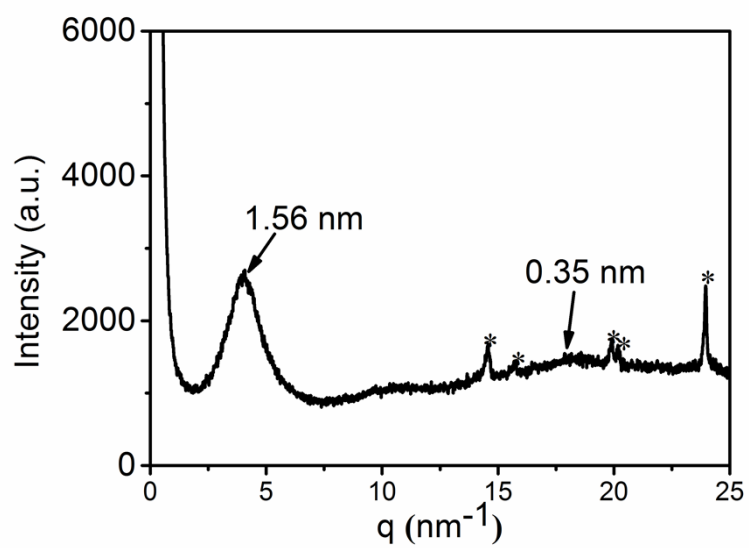


Fig. S4 WAXS profile of ttbPcGaOH powder. Asterisk (*) indicates the background peaks of aluminized paper.

5. The photovoltaic property of BHJ OSC prepared from ttbPcGaF:PC₆₁BM

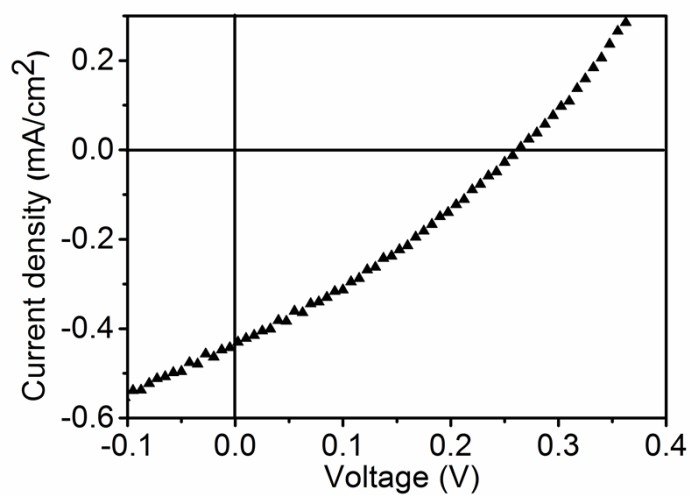


Fig. S5 Current-voltage characteristic of photovoltaic cell prepared from ttbPcGaF:PC₆₁BM under illumination of AM 1.5, 100 mW cm⁻² white light.

6. TEM and AFM measurements of $\text{ttbPcGaOH:PC}_{61}\text{BM}$ blend film

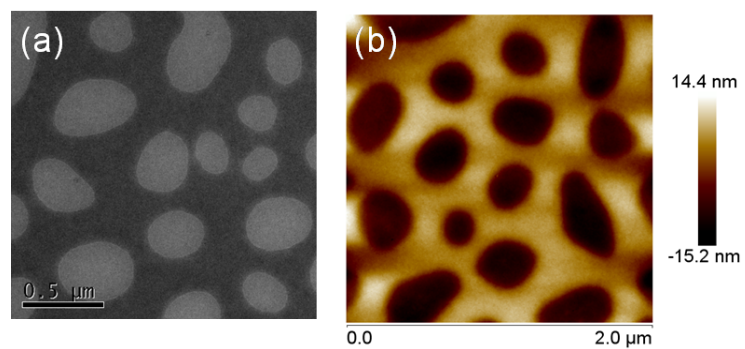


Fig. S6 (a) TEM image and (b) AFM image of $\text{ttbPcGaOH:PC}_{61}\text{BM}$ blend film, RMS (root mean square) = 5.94 nm.

7. GISAXS measurement of ttbPcGaOH:PC₆₁BM blend film

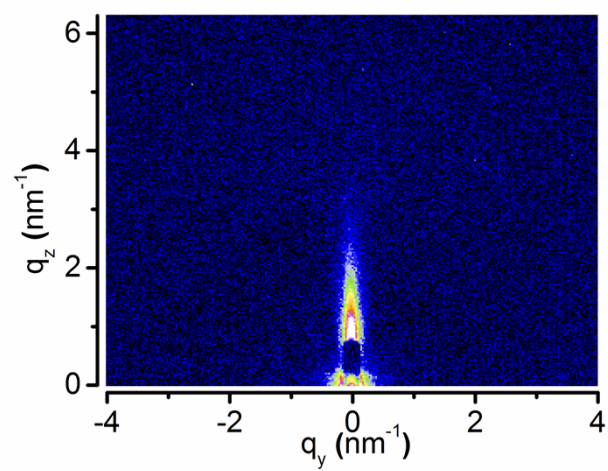


Fig. S7 2D-GISAXS image of ttbPcGaOH:PC₆₁BM blend film.