Supporting information for:

Facile fabrication and excellent electrical conductivity of ultralong nanobelts film of butoxy-substituted copper phthalocyanines

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Experimental section

Materials

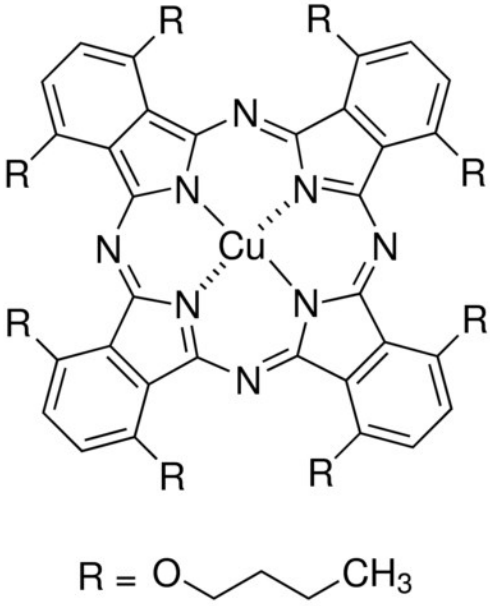
1,4,8,11,15,18,22,25-octabutoxy-29H,31H-phthalocyanin ($CuPcOC_4$) were from Sigma-Aldrich company. Chloroform and methanol were purchased from the Aladdin Company. All the chemicals were used without further purification.

Fabrication

$CuPcOC_4$ powders were dissolved in chloroform at a concentration of 1 mg/ml. The as-obtained solution was injected rapidly into methanol with different volume ratios (1:5, 1:10, 1:20, 1:40). The mixed solution was stored without disturbance for 3 h and a large amount of aggregates were formed. The final product was centrifuged, washed with methanol, and deposited on substrates for characterization. The devices were annealed at 120 ºC in vacuum oven for 1 h to remove the solvent thoroughly.

Characterization

The morphology and structure of products was characterized by means of scanning electron microscopy (SEM, Quanta 400 FEG), energy dispersed X-ray (EDX) spectrometer, transmission electron microscopy (TEM, Tecnai G2 F20 S-Twin), ultraviolet-visible spectroscopy (UV-vis, Lambda 750), and X-ray diffraction (XRD, D8-discover Bruker). The I-V curves of devices were recorded with a Keithley 4200 SCS and standard probe station at ambient conditions in the shielded box.



Scheme S1. Molecular structure of $CuPcOC_4$.

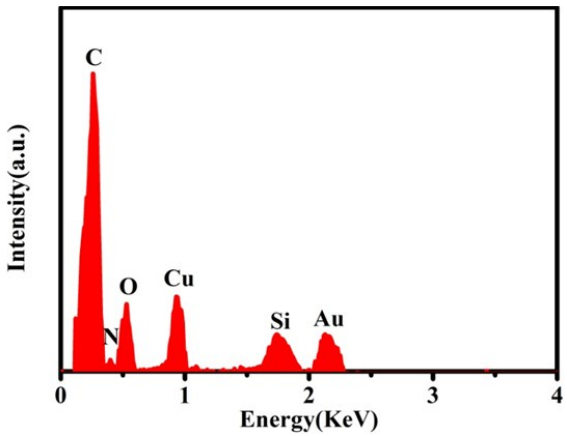


Fig. S1. EDX spectrum of $CuPcOC_4$ nanobelts.

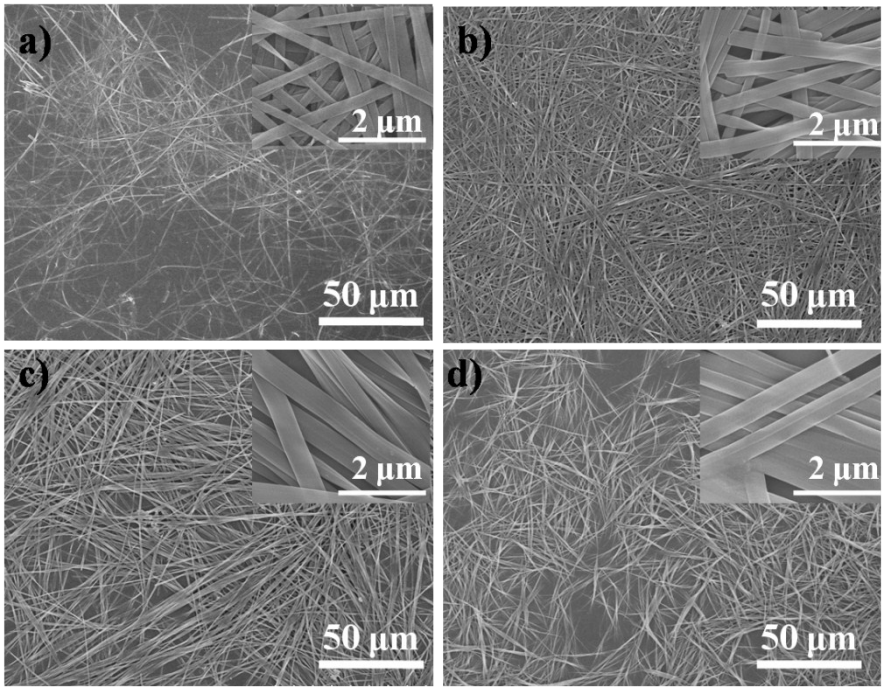


Fig. S2. SEM image of $CuPcOC_4$ nanobelts prepared with different volume ratios of chloroform and methanol: (a) 1:5; (b) 1:10; (c) 1:20; (d) 1:40. The insets are the SEM images of corresponding samples at higher magnification.

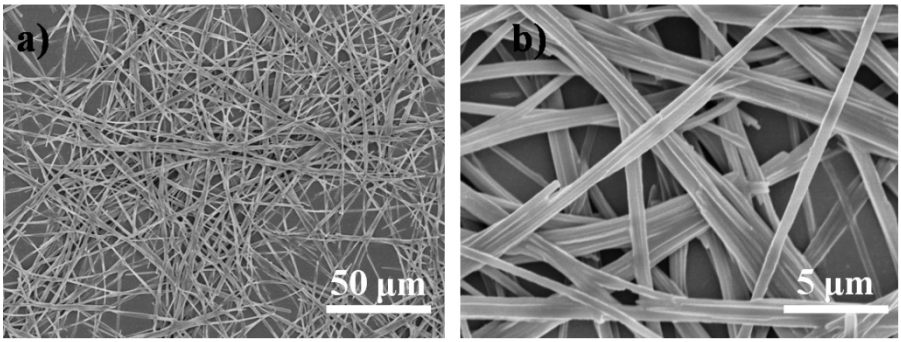


Fig. S3. SEM image of $CuPcOC_8$ nanowires at different magnification.