Supporting Information:

Facile fabrication and optoelectronic properties of platinum octaethylporphyrin microsheets

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Experimental section

In a typical experiment, PtOEP powder (99%, Aldrich) was dissolved in Chloroform at a concentration of 2 mg/ml. The PtOEP chloroform solution was slowly injected into propylene glycol methyl ether acetate (PGMEA). The volume ratio of $V_{chloroform}/V_{PGMEA}$ was 3:1. A drop of PtOEP solution was then directly dropped onto the heavily-doped clean Si substrate. After the solvent evaporation, the microsheets of PtOEP were formed. To remove the solvent thoroughly, the microsheets were post-annealed at 150 ^{o}C for 30 min. The morphology and crystalline structures were then characterized by scanning electron microscopy (SEM, Quanta 400 FEG), transmission electron microscopy (TEM, Tecnai G2 20 S-Twin), X-ray diffraction (XRD, Bruker D8 Advance X-Ray Diffractometer), Fourier-transform infrared (FTIR, Thermo Fisher Scientific FTIR 6700) , atomic force microscope (Veeco), confocal laser Raman microscope (JY HR800), and fluorescence microscope (Leica DM 4000M).

The photodetectors were constructed in bottom-connected configuration. The finger

electrodes with the length of 200 μm, the width of 10 μm and the distance of 10 μm, were fabricated by the photolithography and electron beam deposition of Au on the SiO_2/Si substrate. The 5 μl PtOEP solution (0.5 mg/ml, the mixed solvent volume ratio of $V_{chloroform}$:V_{PGMEA} was 3:1) was directly deposited on 5mm×5mm the Au electrodes deposited SiO_2/Si substrate. The solvent was allowed to evaporate in air. To remove the solvent thoroughly and enhance the contact the nanowire and the Au electrodes, the device was also post-annealed at 150 ^oC for 30 min. Current-voltage characteristics of the devices were recorded with Keithley 4200 SCS and RF Probe Station (PE-4RF) probe station in a clean and shielded box at room temperature. A Xenon lamp was used as the white light source with different intensity. All measurements were carried out at ambient conditions.

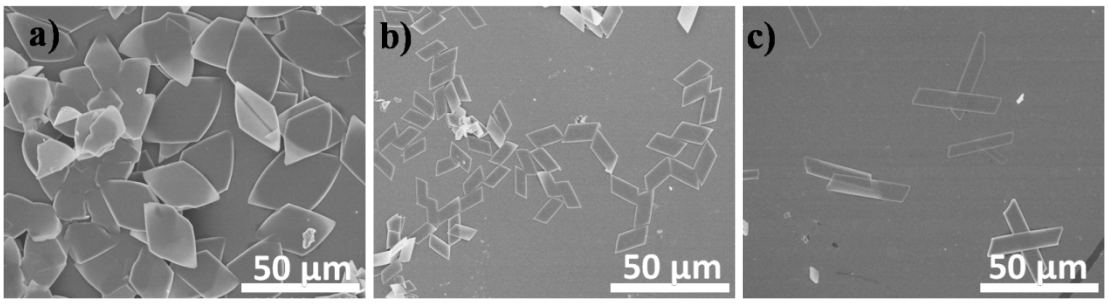

Figure S1. SEM images of PtOEP microsheets fabricated by using different volume ratio of chloroform solution and PGMEA: (a) 5:1; (b) 3:1, (c) 1:1;

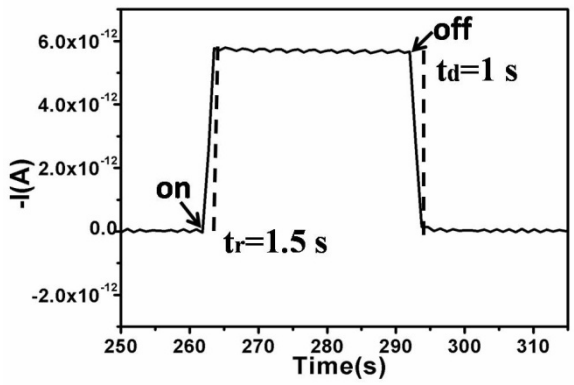

Figure S2. The rise time (t_r) and the decay time (t_d) of the device based on PtOEP microsheet.