

Supplementary Material (ESI) for Chemical Communications  
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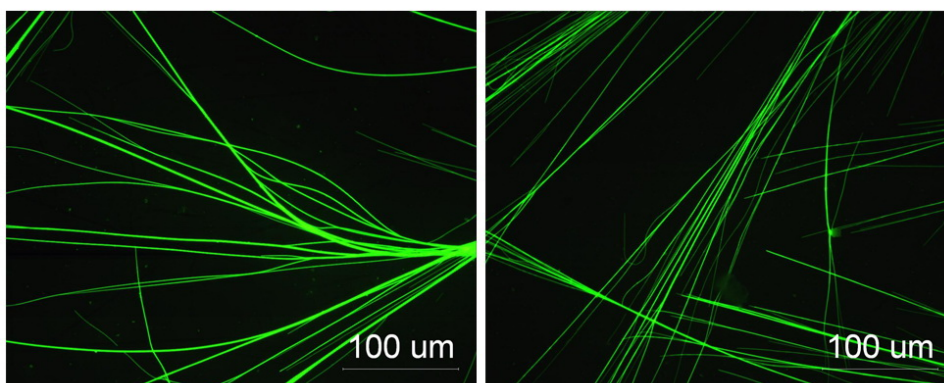
Electronic Supplementary Information (ESI):

Photo- and Vapor-Responsive Conducting Microwires Based on  
Pt...Pt Interactions

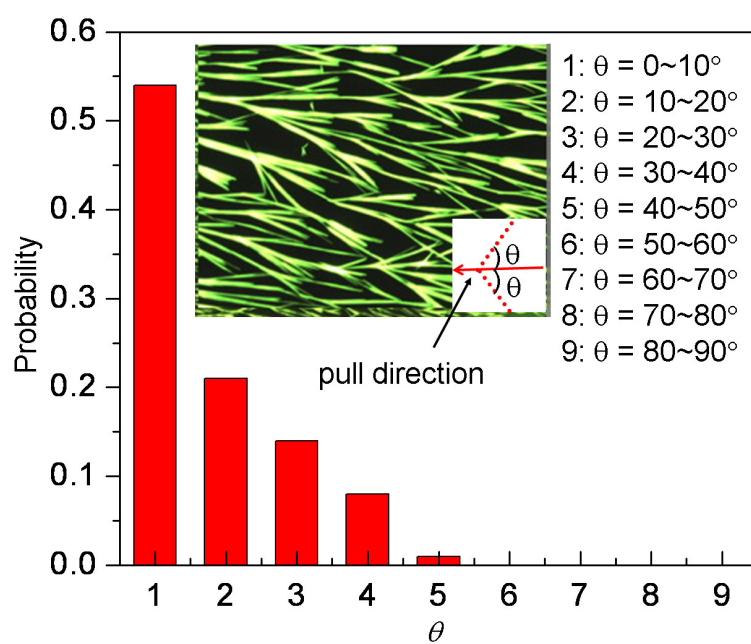
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## Experimental

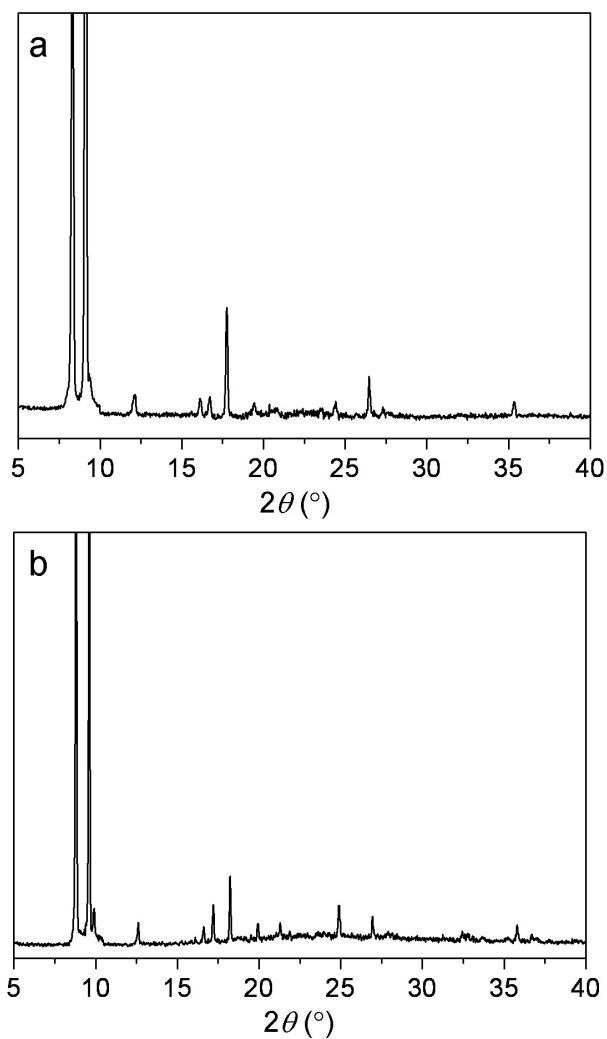
The fluorescence microscopy images of as-prepared microwires were obtained on an Olympus BX51 fluorescence microscope. Interdigitated electrodes (IDE) were fabricated by evaporation of gold on the template under which was the substrate, and cleaned by ozone plasma.  $I-V$  curves were measured with a CHI630C instrument at room temperature in air. The electrical characteristics of OTFT devices were measured using a Keithley 4200-SCS semiconductor parameter analyzer.



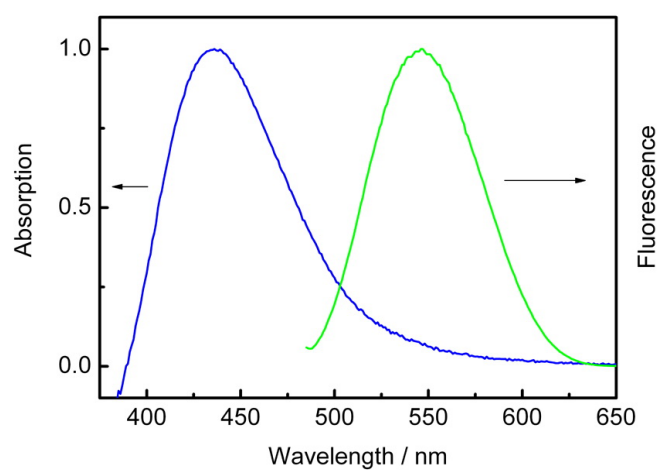
**Figure S1.** Morphologies of  $[\text{Pt}(\text{CN-}t\text{Bu})_2(\text{CN})_2]$  microwires on substrates prepared by fast evaporation.



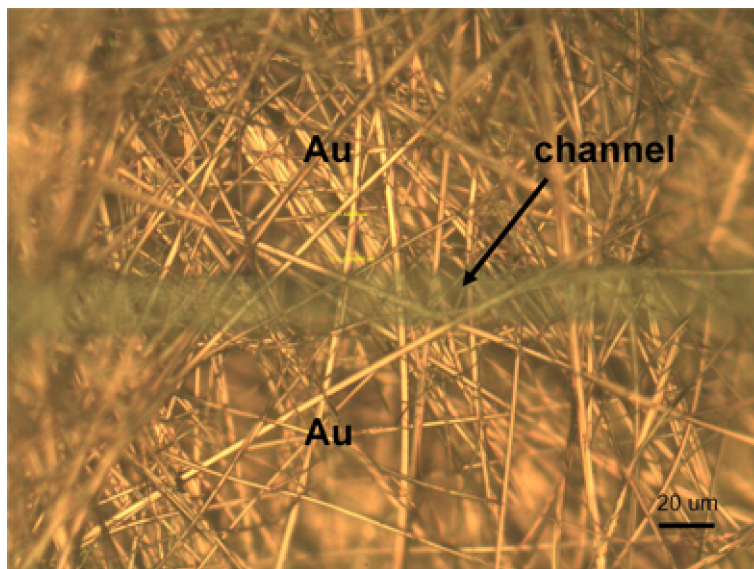
**Figure S2.** Statistic histogram shows the alignment of microwires obtained by dip-and-pull method along the pull direction.



**Figure S3.** Powder X-ray diffraction patterns of microwires obtained by a) slow evaporation and b) dip-and-pull approach. The microwires based on two approaches have quite similar X-ray diffraction patterns, therefore, they have the same structures.



**Figure S4.** The absorption (blue line) and fluorescence (green line) spectra of [Pt(CN-*t*Bu)<sub>2</sub>(CN)<sub>2</sub>] microwires.



**Figure S5.** Optical image of the FET device based on  $[\text{Pt}(\text{CN}-t\text{Bu})_2(\text{CN})_2]$  microwires.