

**Single-Crystalline Organic Nanowires with Large Mobility and Strong
Fluorescence Emission: A Conductive-AFM and Space-Charge-Limited-
Current Study**

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ELECTRONIC SUPPLEMENTARY INFORMATION

1. Gelation and fluorescence properties of SS-TFMBE: SS-TFMBE forms a highly fluorescent organogel in solution that is much the same as that of CN-TFMBE. The organogel is prepared by dissolving SS-TFMBE (0.8 wt/vol %) in 1,2-dichloroethane with gentle heating (Figure 1A, left vial), followed by slow cooling to room temperature. The gel formation during cooling of SS-TFMBE is accompanied by the drastic increase in fluorescence intensity as shown in Figure 1B. The gel is opaque, exhibits no gravitational flow (Figure 1A, right vial) and strong fluorescence (Figure 1B).

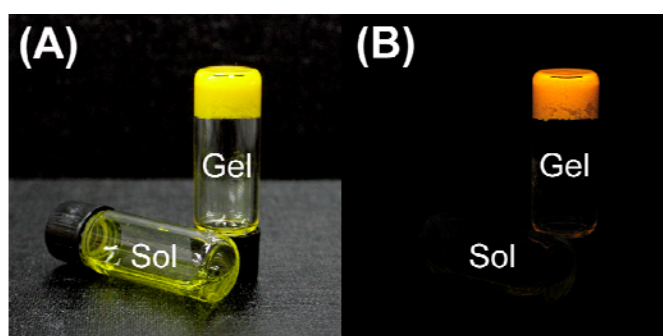


Figure S1. (a) The gel and sol state of SS-TFMBE. (b) The photographs show the fluorescence emissions of the sol and gel state of SS-TFMBE (under 365nm UV lamp).

2. Aggregation-induced enhanced emission (AIEE) behavior of SS-TFMBE: This postulated AIEE phenomenon of the SS-TFMBE is experimentally evidenced by the UV-vis absorption and photoluminescence (PL) studies of dilute solution (isolated state) and colloidal nanoparticle suspension (aggregated state) of SS-TFMBE by typical simple reprecipitation method. After 80% vol. fraction of water addition, the suspension was macroscopically homogeneous with no precipitates but had slightly yellow turbidity as a result of light scattering from the nanoparticles.

The maximum peak in the absorption spectrum of the SS-TFMBE colloidal nanoparticle suspension is clearly bathochromic shifted (maximum peaks from 416 nm to 422 nm) compared with that of dilute solution due to the extended effective π -conjugation caused by the planarization of twist molecular in nanoparticles, and a new shoulder band appeared around 482 nm (see Figure S2a) is properly assigned to the *J*-type aggregation band (the red arrow) owing to the specific arrangements by cyano group of SS-TFMBE molecule.

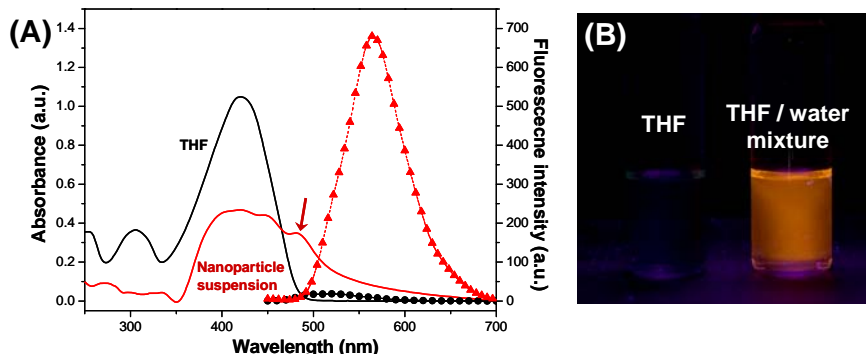


Figure S2. (A) UV-vis / PL spectra of SS-TFMBE ($2 \times 10^{-5} \text{ mol}\cdot\text{L}^{-1}$) in THF and its colloidal nanosuspension ($2 \times 10^{-5} \text{ mol}\cdot\text{L}^{-1}$) (80 wt % water addition in THF solution). The PL intensities were normalized by the corresponding UV absorbance. (B) Photo showing fluorescence emission of SS-TFMBE solution (left vial) and its colloidal nanosuspension (right vial) under the 365nm UV light.