Electronic Supplementary Information

Fluorographene Nanosheets of a Broad Solvent–Dispersibility and Their Applications as Modified Layer in Organic Field–Effect Transistors

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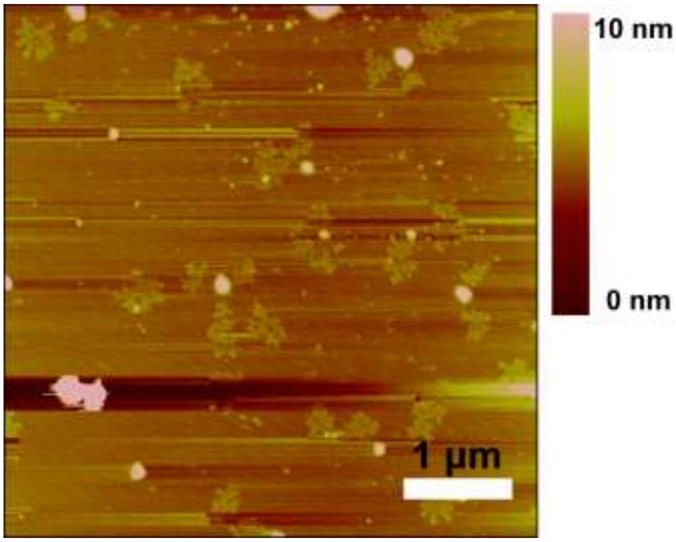

Fig. S1. AFM image of our graphene fluoride nanosheets scanned in a large visual field.

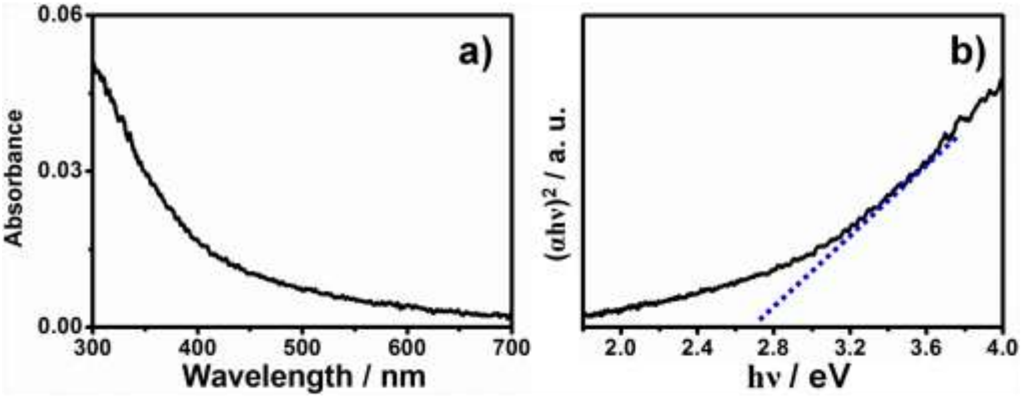

Fig. S2. DRS (a) and the corresponding plots of $(\alpha h\nu)^2$ *vs.* photon energy (b) of our fluorinated graphene species.

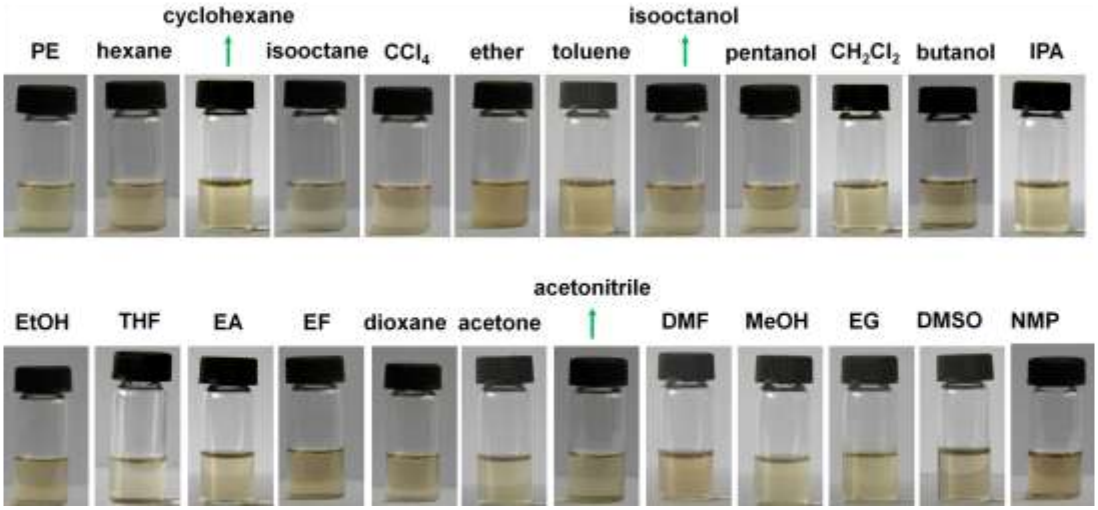

Fig. S3. Digital pictures of the fluorographene nanosheets freshly dispersed in other 24 kinds of organic solvents. The dispersions are prepared *via* a volatilization–redispersion process.

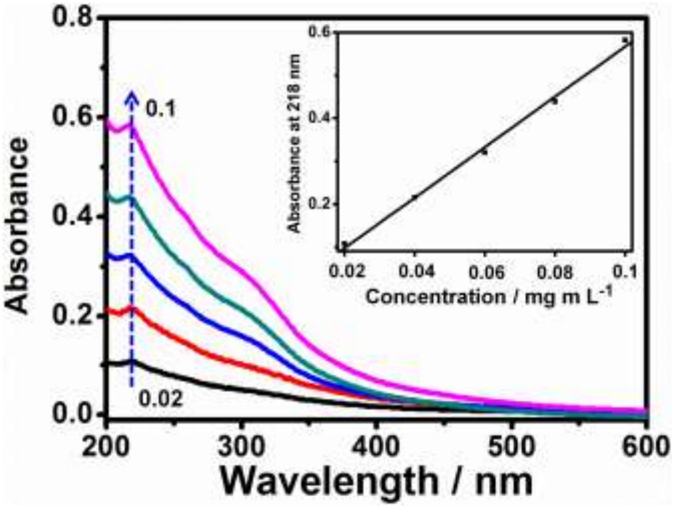

Fig. S4. UV-vis spectra of our fluorinated graphene of different concentration dispersed in hexane. Inset: absorbance at 218 nm versus concentration.

As shown in Fig. S4, the UV-vis spectra of our fluorographene exhibit an absorption at *ca*. 218 nm, which is attributable to the characteristic π–π* electronic configuration of the C=C plasmon peak caused by the polyene structure (*J. Mater. Chem.*, 2012, **22**, 16950). Besides, a shoulder peak around ~305 nm, which could be ascribed to the π–bonded electronic configuration of the polyaromatic systems of the fluorinated graphene, could also be observed (*J. Mater. Chem.*, 2012, **22**, 16950). The UV-vis spectra of our fluorographene of different concentrations dispersed in hexane were measured. As shown in the inset of Fig. S4, the intensity of the absorption at *ca*. 218 nm increases linearly with the increase of the concentration, indicating a nice match with the Lambert-Beer's law. This suggests that our fluorographene nanosheets are homogeneously dispersed in the solvent.

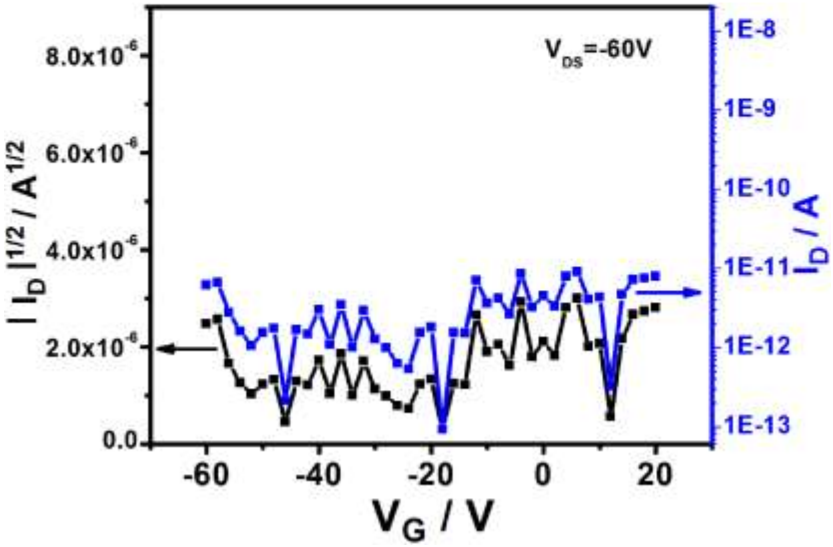

Fig. S5. Transfer characteristics of the OFETs using our fluorographene as the active semiconductor layer.

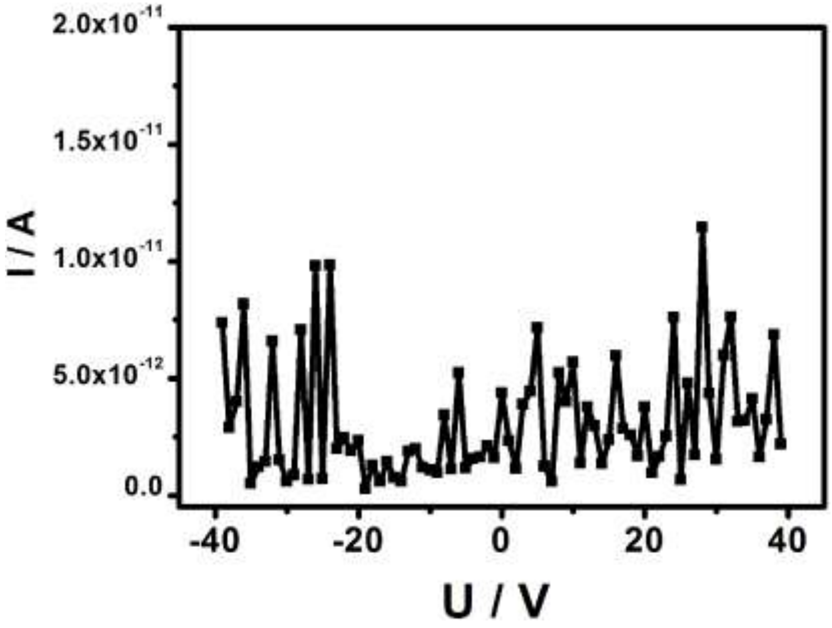

Fig. S6. The *I*–*V* curve of the spin–coated film of our fluorographene nanosheets.