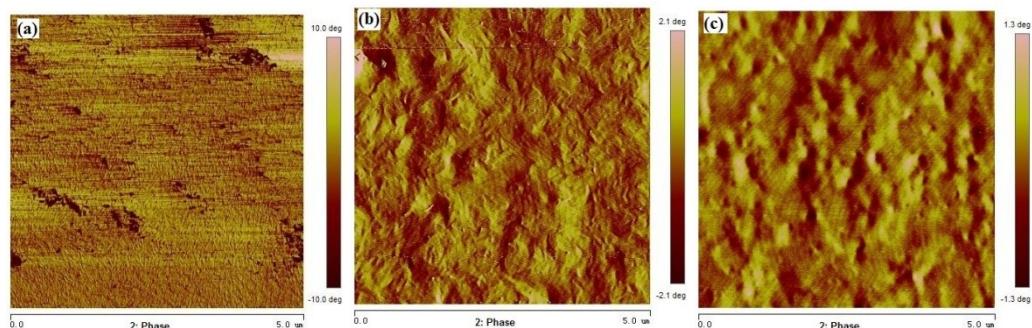
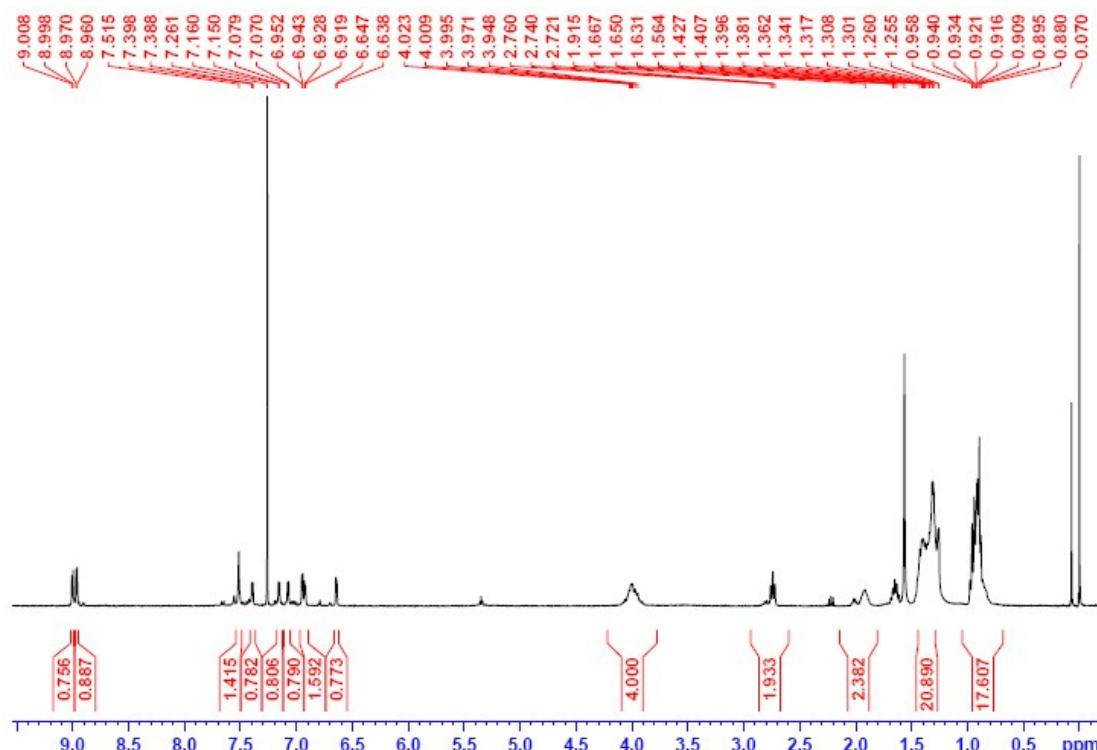


## Direct C-H arylation for various Ar-cored diketopyrrolopyrrole containing small molecules in solution-processed field-effect transistors†

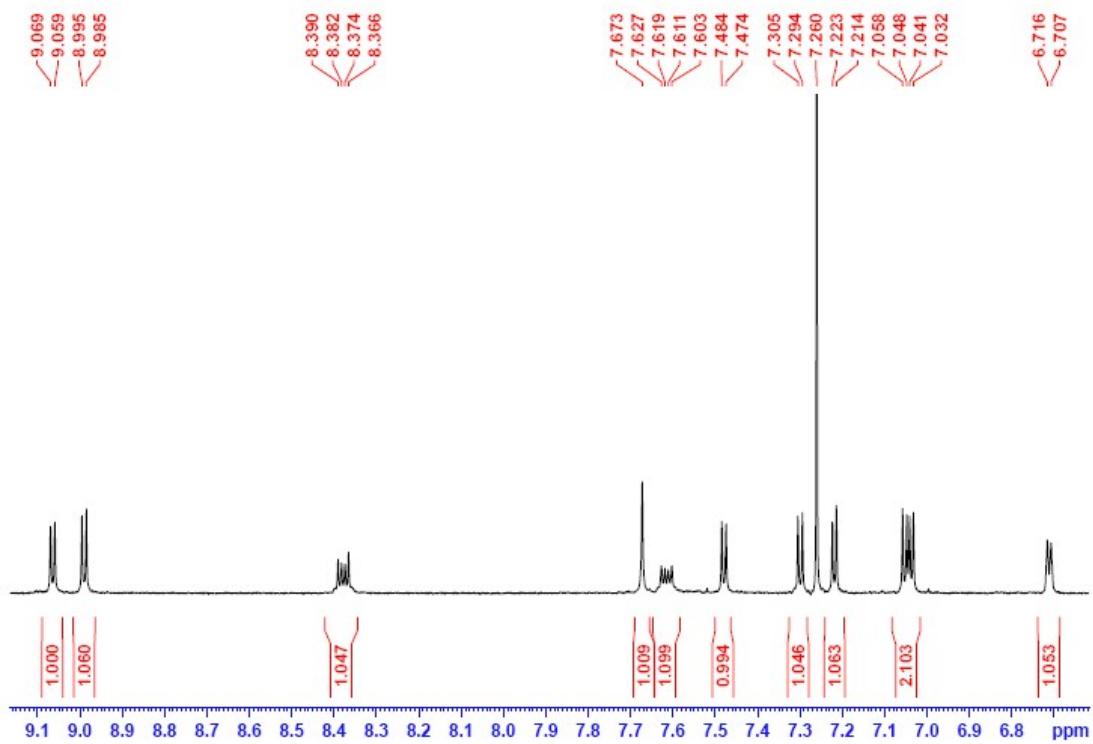
Shifan Wang,<sup>a</sup> Jie Yang,<sup>a</sup> Katharina Broch,<sup>b</sup> Jiri Novak,<sup>c</sup> Xudong Cao,<sup>a</sup> Jessica Shaw,<sup>ad</sup> Youtian Tao,<sup>\*a</sup> Yuanyuan Hu,<sup>\*b</sup> and Wei Huang<sup>\*a</sup>



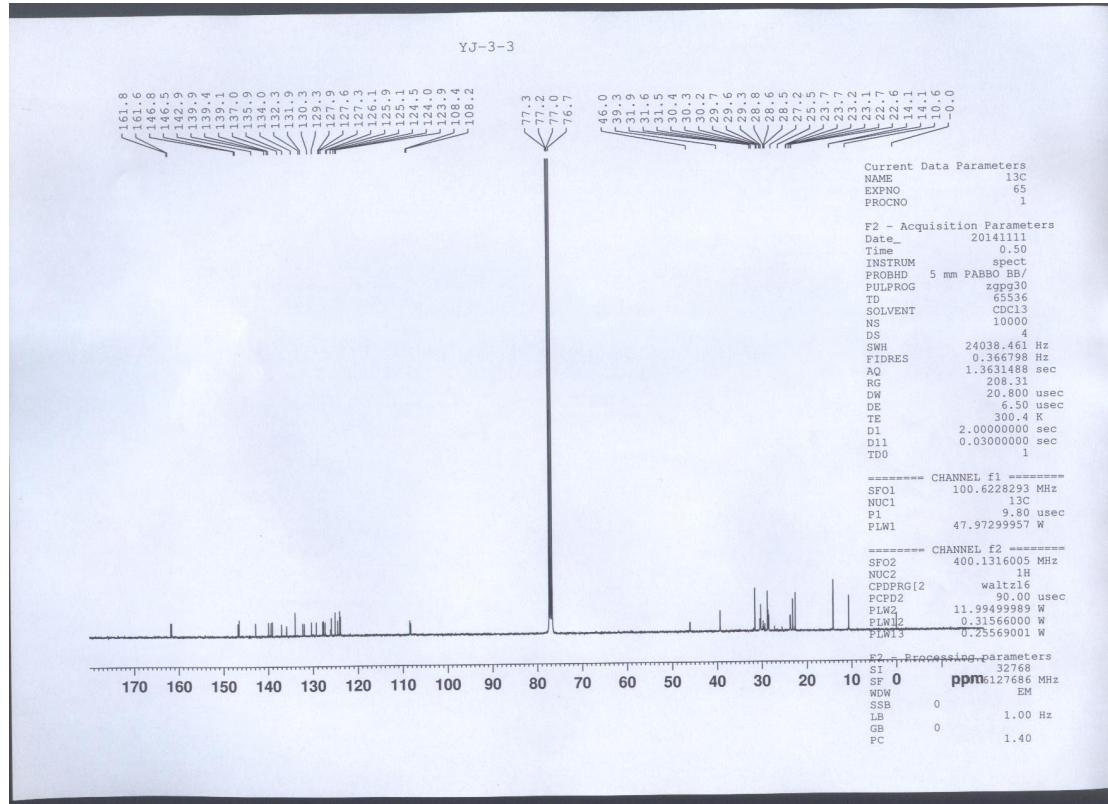
**Fig. S1** Phase images of (a) Ph(DPPT<sub>2</sub>)<sub>2</sub>, (b) NA(DPPT<sub>2</sub>)<sub>2</sub> and (c) Py(DPPT<sub>2</sub>)<sub>2</sub>



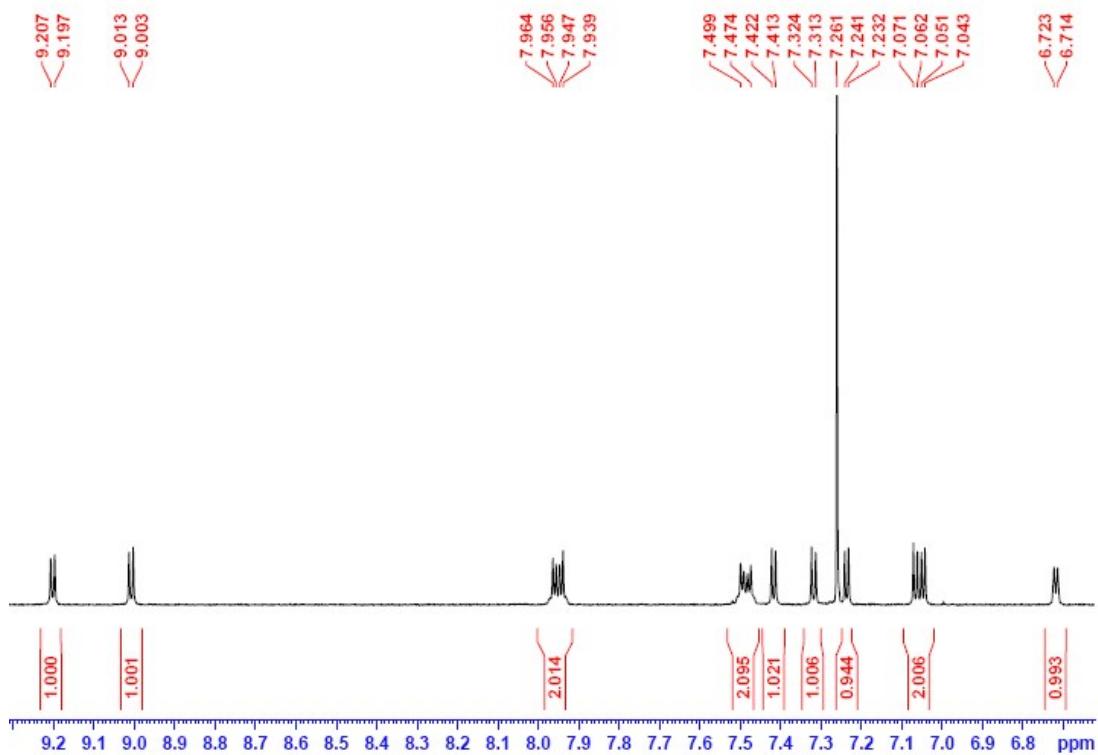
**Fig.S2** <sup>1</sup>H NMR spectra of Ph(DPPT2)2



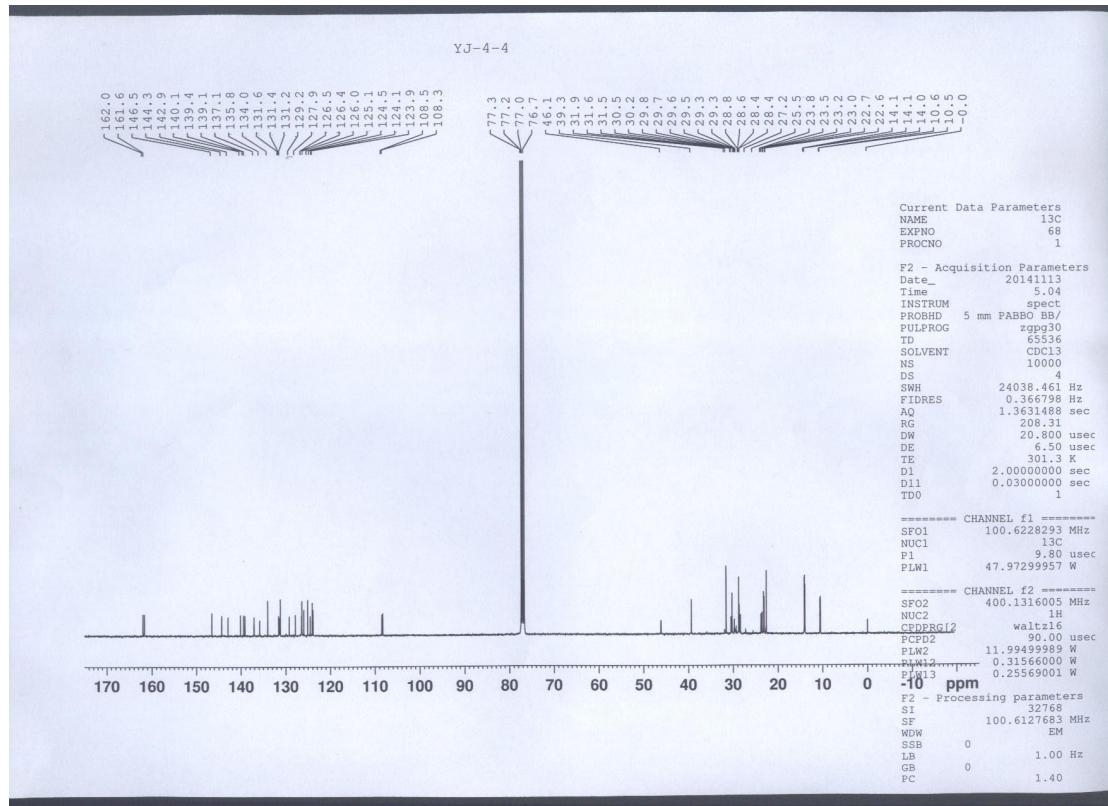
### Fig.S3 $^1\text{H}$ NMR spectra of NA(DPPT2)2



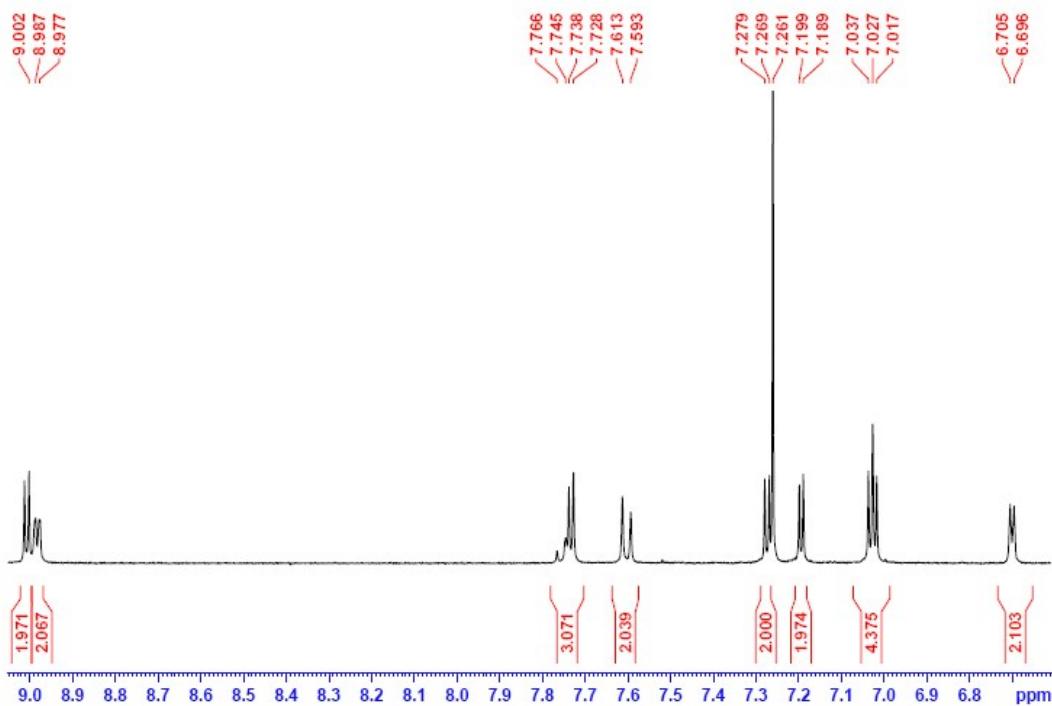
**Fig.S4**  $^{13}\text{C}$  NMR spectra of NA(DPPT2)2



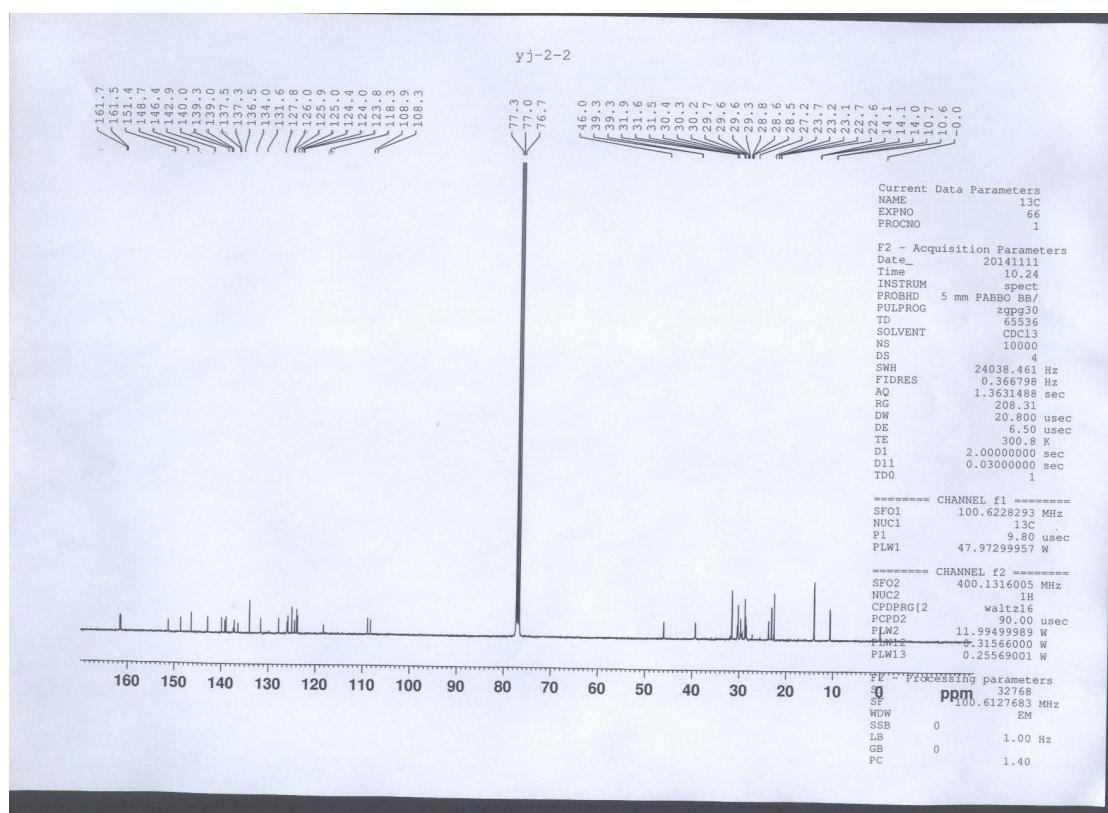
**Fig.S5**  $^1\text{H}$  NMR spectra of AN(DPPT2)2



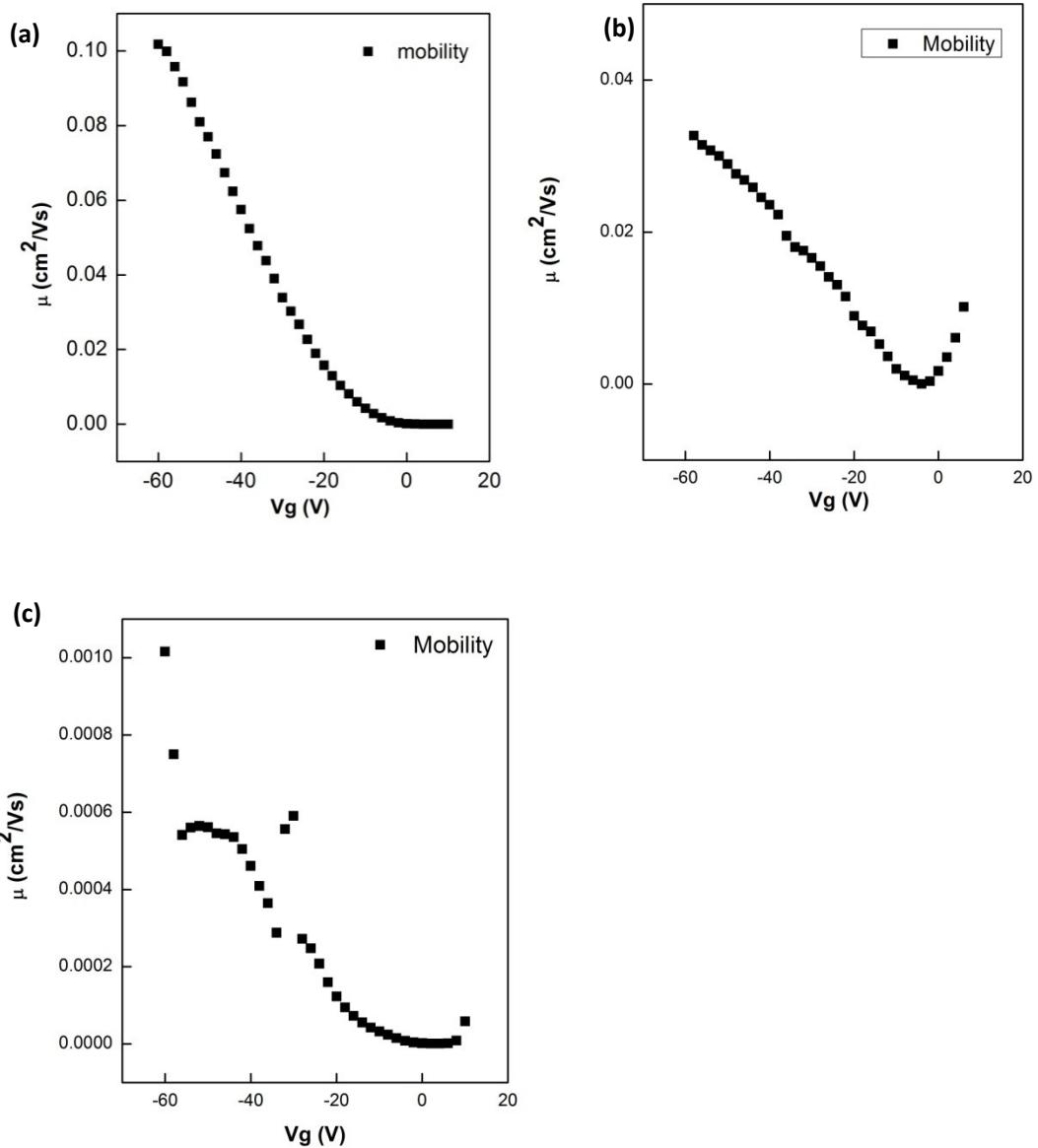
**Fig.S6**  $^{13}\text{C}$  NMR spectra of AN(DPPT2)2



**Fig.S7**  $^1\text{H}$  NMR spectra of Py(DPPT2)2



**Fig.S8**  $^{13}\text{C}$  NMR spectra of Py(DPPT2)2



**Fig.S9** the gate dependent mobility of materials (a) Ph(DPPT<sub>2</sub>)<sub>2</sub> (b) NA(DPPT<sub>2</sub>)<sub>2</sub> and (c) Py(DPPT<sub>2</sub>)<sub>2</sub> with Cytop as dielectric.