## **Supporting Information**

## Polymorph, Assembly, Luminescence and Semiconductor Properties of Quinacridone Derivative with Extended $\pi$ -Conjugated Framework

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Fig. S1 The UV-visible absorption (Abs) and fluorescence (FL) spectra of C8-QA and IDQA in dilute toluene solutions with concentration of  $3 \times 10^{-6}$  M.



**Fig. S2**  ${}^{1}H-{}^{1}H$  cosy spectrum of IDQA (30 mM in CDCl<sub>3</sub>).

Polymorph	D-H····A	D-H	Н•••А	D····A	∠DHA
red	C(5)-H(5)-O(1)	0.930	2.136	2.835	131.04
black	C(5)-H(5)-O(1)	0.930	2.132	2.843	132.43

Table S1. Hydrogen bond distances (Å) and angle (°) for two polymorphs.



Fig. S3 The UV-visible absorption spectra of two polymorphs.



Fig. S4 The fluorescence spectrum of polymorph red. Polymorph black is nonluminous.



Fig. S5 DSC curves of IDQA polymorphs.



Fig. S6 TGA curves of IDQA polymorphs.



Fig. S7 DSC curves of C8-QA and as-synthesized sample IDQA.



Fig. S8 TGA curves of C8-QA and as-synthesized sample of IDQA.



**Fig. S9** The powder XRD patterns of the as-synthesized sample and polymorphs simulated by using Mercury program based on the single-crystal X-ray diffraction data.



Fig. S10 Repeated cyclic voltammogram (5 cycles) of IDQA in CH<sub>2</sub>Cl<sub>2</sub> (0.1 M TBAPF) for oxidation.



Fig. S11 Current density-Voltage-Brightness characteristics of the OLED device.



Fig. S12 Current efficiency and power efficiency versus brightness of the OLED device.



**Fig. S13** The entire current density-voltage curve of the hole-dominating SCLC device with configuration of [ITO/IDQA (300 nm)/Au].



**Fig. S14** The current density-voltage curve of the electron-dominating SCLC device with configuration of [Al/IDQA (150 nm)/LiF/Al]. (a) the entire curve and (b) the positive curve.