

Electronic Supplementary Information

Pyrrolo[3,4-g]quinoxaline-6,8-dione-based Conjugated Copolymers for Bulk Heterojunction Solar Cells with High Photovoltages

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Size Exclusion Chromatography (SEC) Measurement

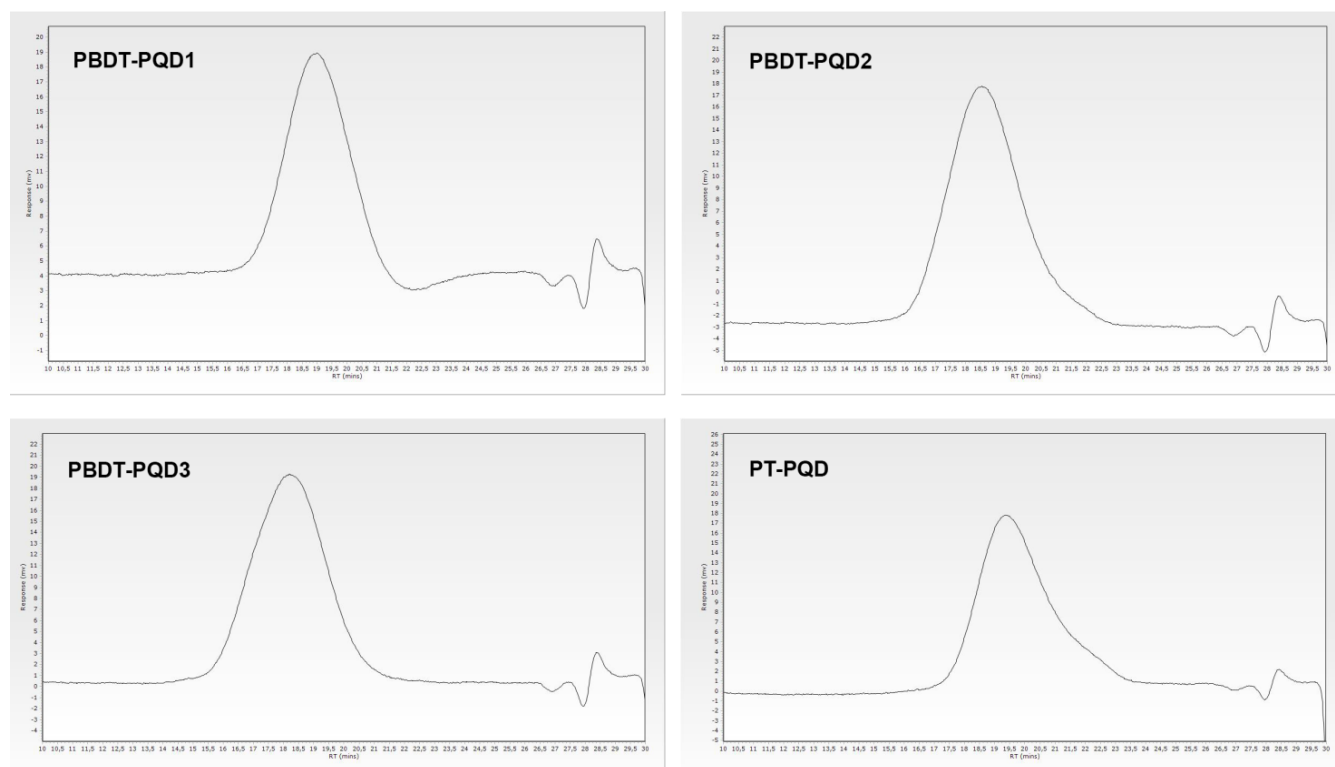


Fig. S1 SEC chromatographs of the four copolymers.

Cyclic Voltammetry (CV) Measurement

As shown in Fig. S2, the electrochemical properties of the four copolymers were characterized using cyclic voltammetry (CV) measurement. The CV measurement was carried out on a CH-Instruments 650A Electrochemical Workstation with platinum electrodes at a scan rate of 50 mV s^{-1} against an Ag/Ag^+ reference electrode with nitrogen-saturated solution of 0.1 M tetrabutylammonium hexafluorophosphate (Bu_4NPF_6) in anhydrous acetonitrile (CH_3CN). All potentials were calibrated with the standard ferrocene/ferrocenium redox couple. The HOMO levels were derived from the onset of oxidation (E_{ox}) of the CV curves, which were calculated according to the equations: $\text{HOMO} = -(E_{\text{ox}} + 5.13) \text{ eV}$. The reduction process of the four copolymers cannot be detected in the CV measurements.

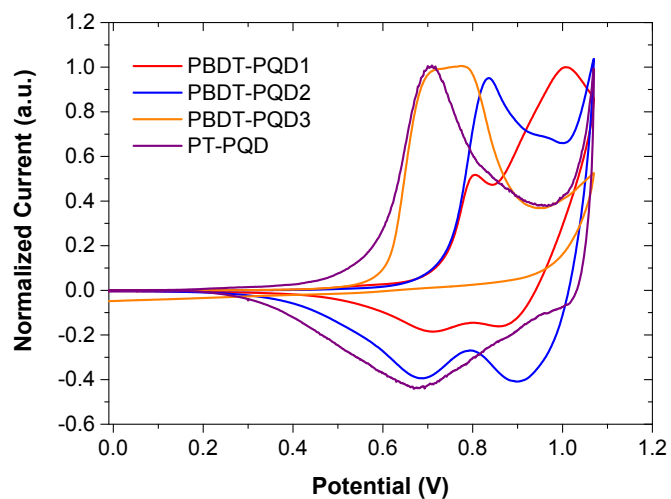


Fig. S2 Cyclic voltammetry (CV) plots of the four copolymers.

Table S1 Electrochemical properties of the copolymers from CV measurements.

Polymer	HOMO (eV)
PBDT-PQD1	−5.78
PBDT-PQD2	−5.78
PBDT-PQD3	−5.68
PT-PQD	−5.61

¹H and ¹³C NMR Spectra of the Compounds

