

Supplemental Data

Molecular Orientation and Field-effect Transistors of a Rigid Rod Conjugated Polymer Thin Films

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Table. S I Conformational assignment of some characteristic bands in region of 700-1700 cm^{-1} for TA-PPE.

Frequency/ cm^{-1}	Vibration assignment	Conformational assignment
1515	$\nu(\text{C}=\text{C})$	in-plane-stretching vibrations of $\text{C}=\text{C}$ in phenyl ring
1467	$\delta(\text{CH}_2)$	deformation vibrations of CH_2 in side chains
1431	$\nu(\text{C}=\text{C})$	in-plane-stretching vibrations of $\text{C}=\text{C}$ in phenyl ring
1220	$\nu_{\text{as}}(\text{ph-O-C})$	stretching vibration of ph-O-C

Table. S II Ratios of Corresponding Bands in RAIR and TIR spectra of TA-PPE thin films.

	R_{RAIR}	R_{TIR}
I_{1515}/I_{1467}	1.53	0.94
I_{1431}/I_{1467}	2.24	1.28
I_{1220}/I_{1467}	3.11	1.86

I_x represents the intensity of band at $x \text{ cm}^{-1}$, while the R_{RAIR} and R_{TIR} are the ratio of typical bands vs the reference band (at 1467 cm^{-1}) in RAIR spectrum and TIR spectrum.

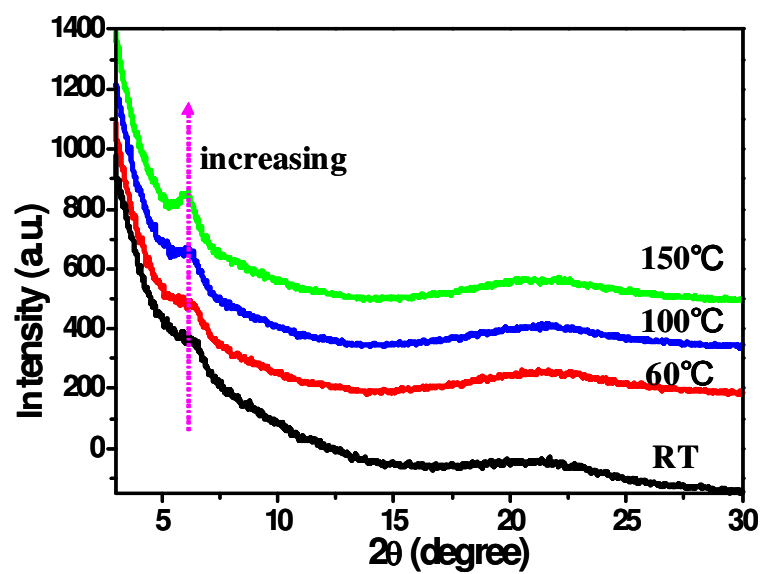


Figure S1. *In situ* out-of-plane GIXD profiles of the thin drop-cast TA-PPE films under different annealed temperatures (incidence angle fixed at 0.3°).