

Formation of large crystalline domains in semiconducting polymer with semi-fluorinated alkyl side chains and application to high-performance thin-film transistors

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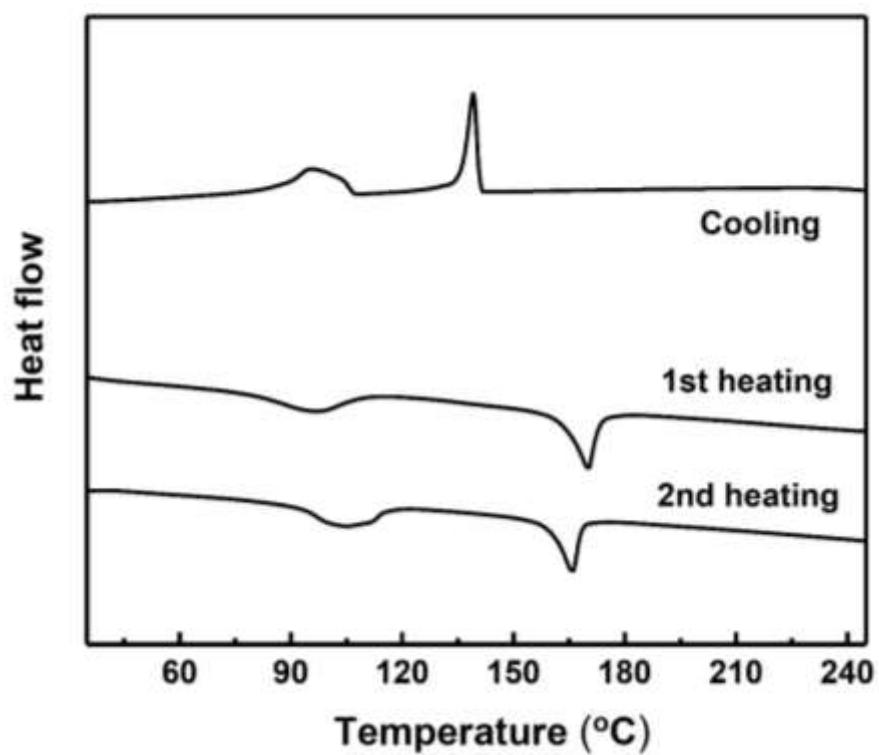


Figure S1. DSC curves of PC12TV12T without SFA side chains

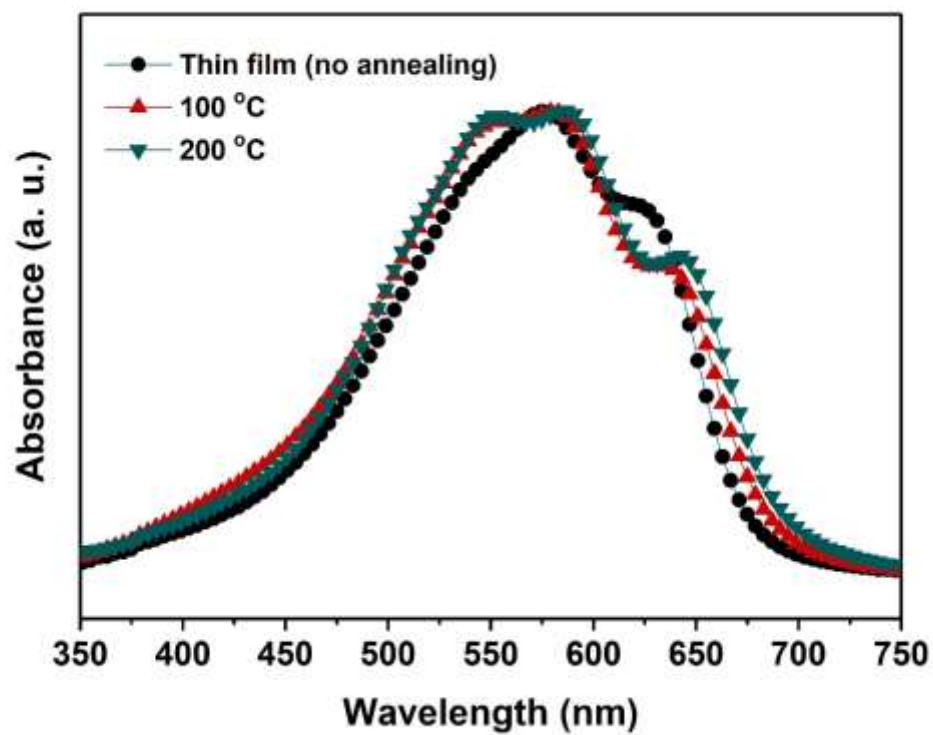


Figure S2. UV-Vis absorption spectra of the PC12TVC5FT thin films depending on annealing temperature.

No annealing

Contact angle : 109°

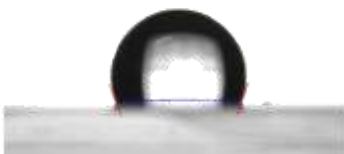
Surface energy : 8.21mN/m



100 °C

Contact angle : 110°

Surface energy : 7.81mN/m



200 °C

Contact angle : 112°

Surface energy : 7.05mN/m

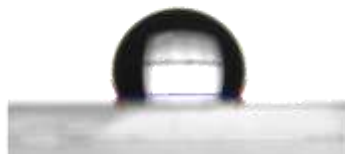


Figure S3. Change of contact angle depending on the annealing temperature of PC12TVC5F7T thin films.

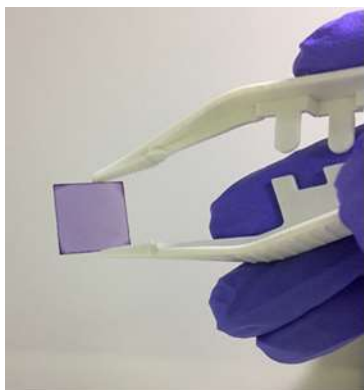


Figure S4. Film images as a function of annealing temperatures.

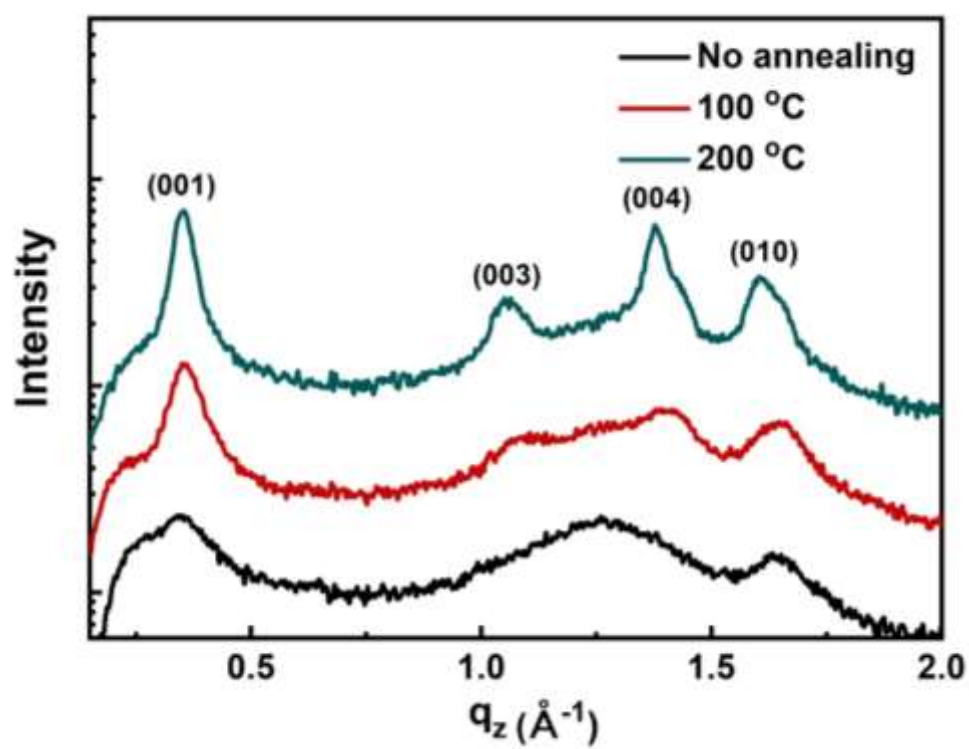


Figure S5. In-plane X-ray diffraction patterns of PC12TVC5F7T.

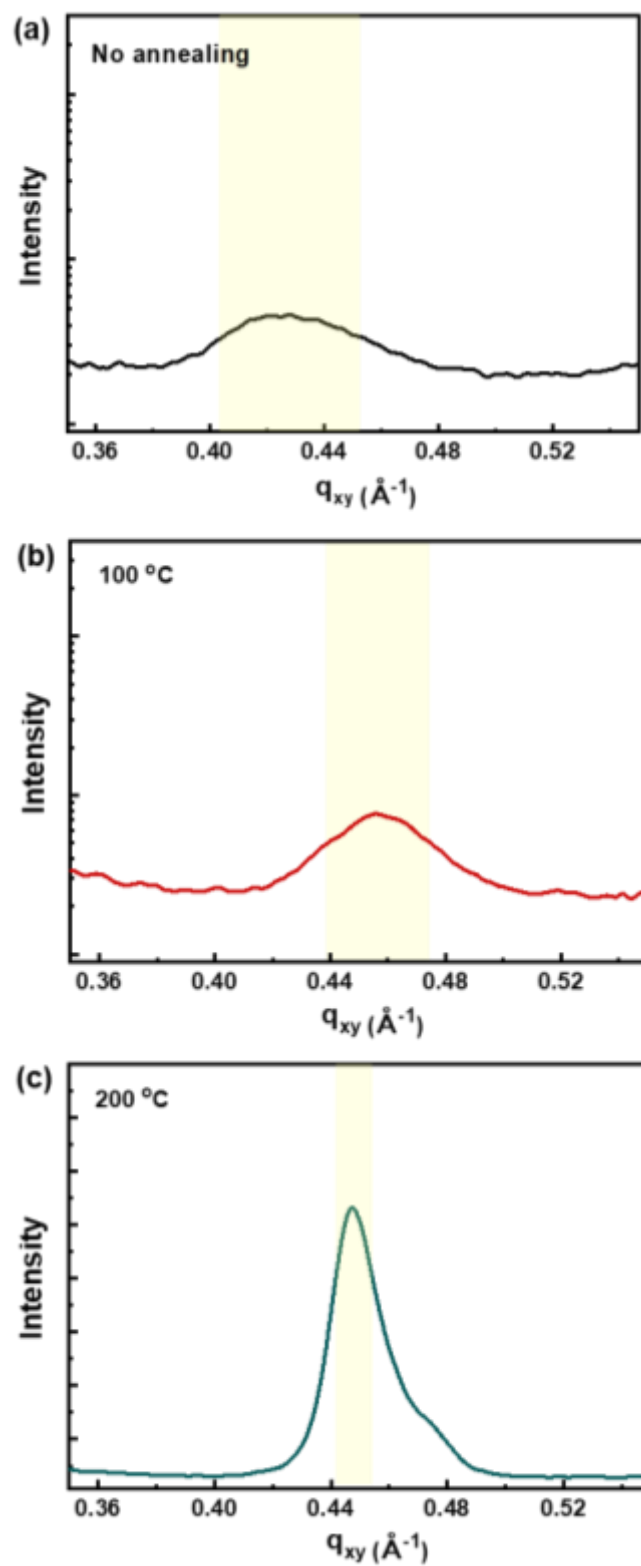


Figure S6. FWHM of (200) peaks in out-of-plane directions for (a) no annealing films, (b) 100 °C film, and (c) 200 °C film.

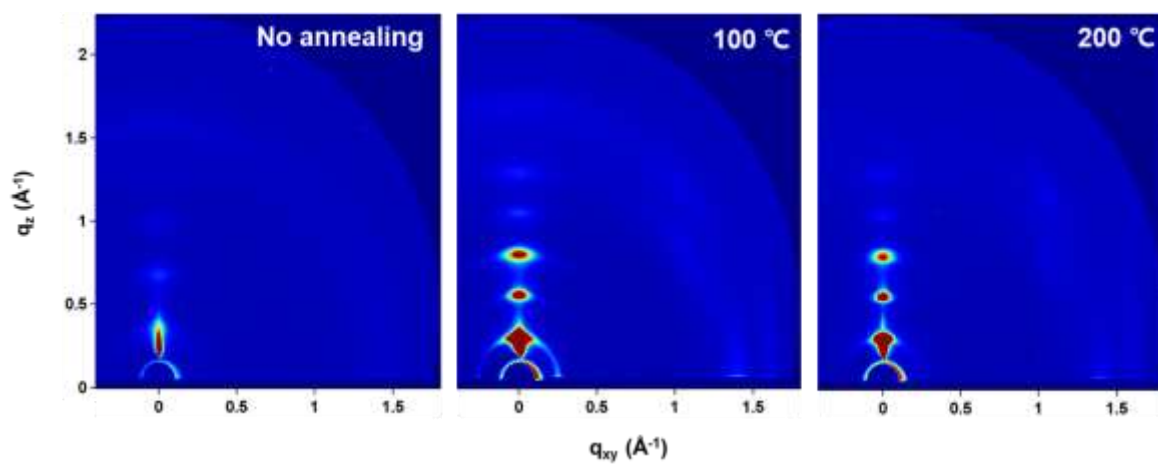
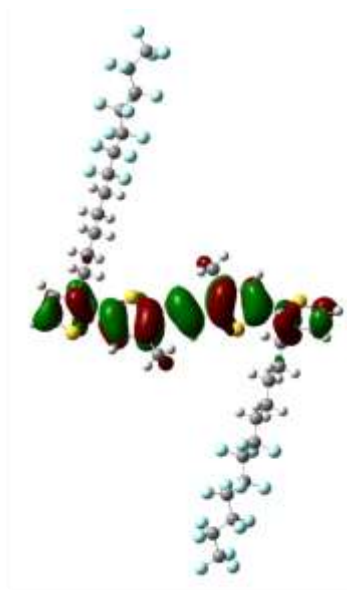


Figure S7. 2D GIWAXS images of PC12TVC12T annealed at different temperatures.

Table S1 The crystallographic parameters of PC12TVC5FT

		Out of plane					In plane			
		(100)	(200)	(300)	(400)	(500)	(001)	(003)	(004)	(010)
No annealing	Q (\AA^{-1})	0.214	0.419	0.634	-	-	0.345	-	-	1.637
100 °C	Q (\AA^{-1})	0.222	0.455	0.681	0.904	1.116	0.359	1.085	1.414	1.661
200 °C	Q (\AA^{-1})	0.226	0.447	0.669	0.890	1.116	0.353	1.050	1.376	1.603

HOMO



LUMO

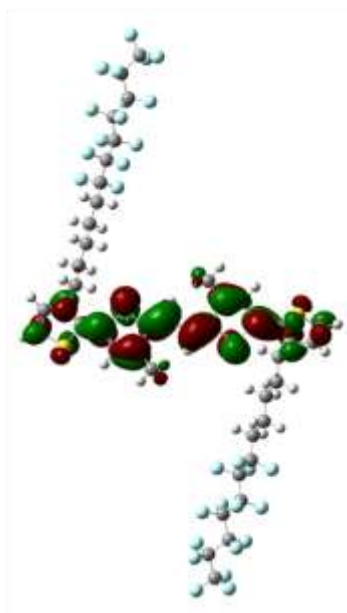


Figure S8. HOMO and LUMO electron density plots of optimized geometries for PC12TVC5F7T

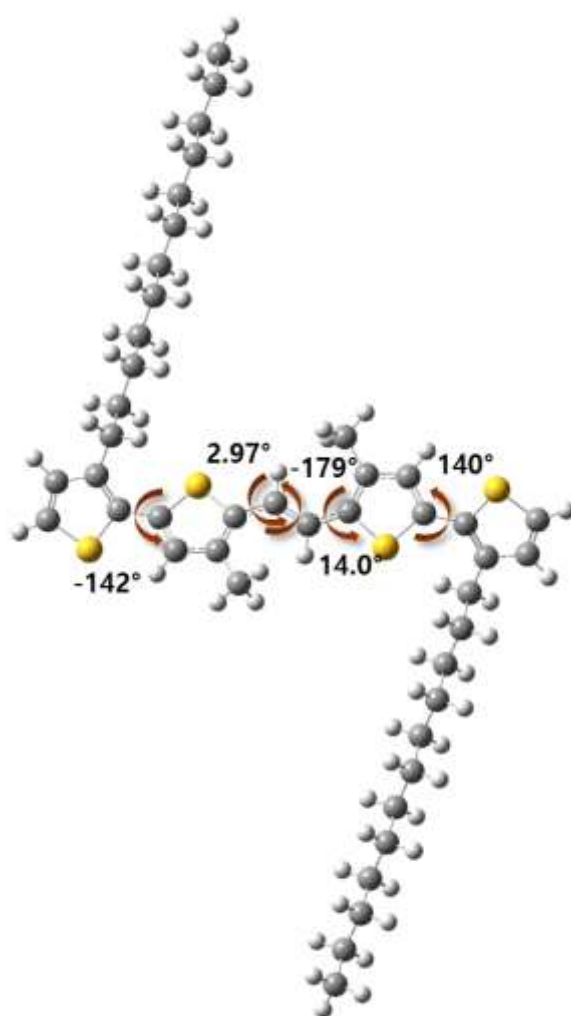
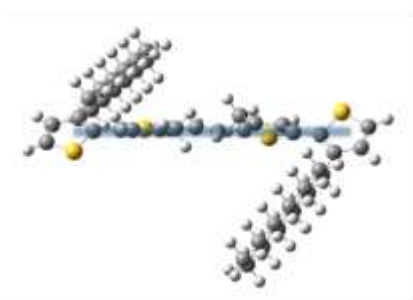
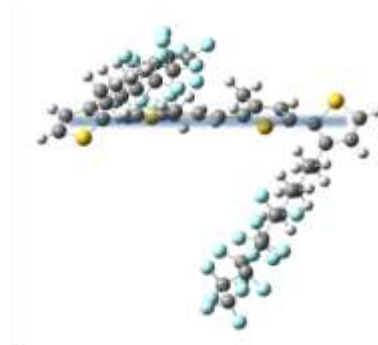


Figure S9. DFT Calculated dihedral angels of PC12TV12T without SFA side chains



PC12TVC12T



PC12TVC5F7T

Figure S10. Side view of DFT calculations of PC12TV12T and PC12TVC5F7T