

Supporting information

Rubrene Single Crystal Solar Cells and the Effect of Crystallinity on Interfacial Recombination

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KEYWORDS. *Rubrene, Single crystal, solar cell, interface recombination.*

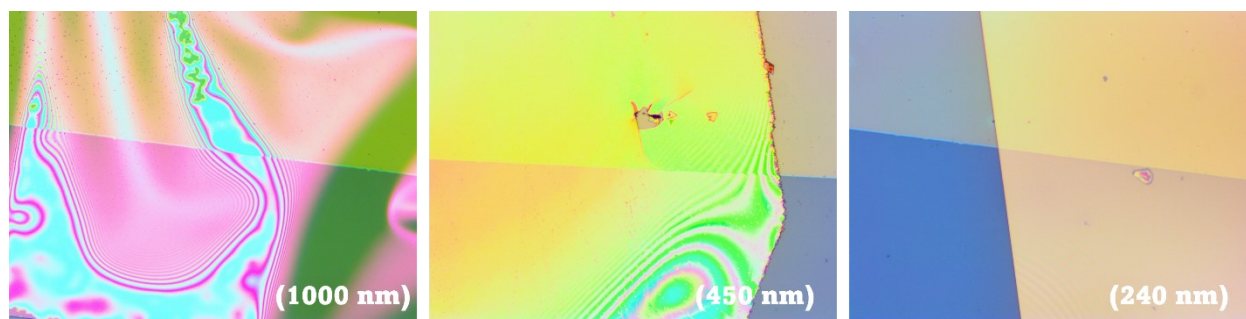


Figure S1. Optical Microscope images of Rubrene single crystals with varied thickness.

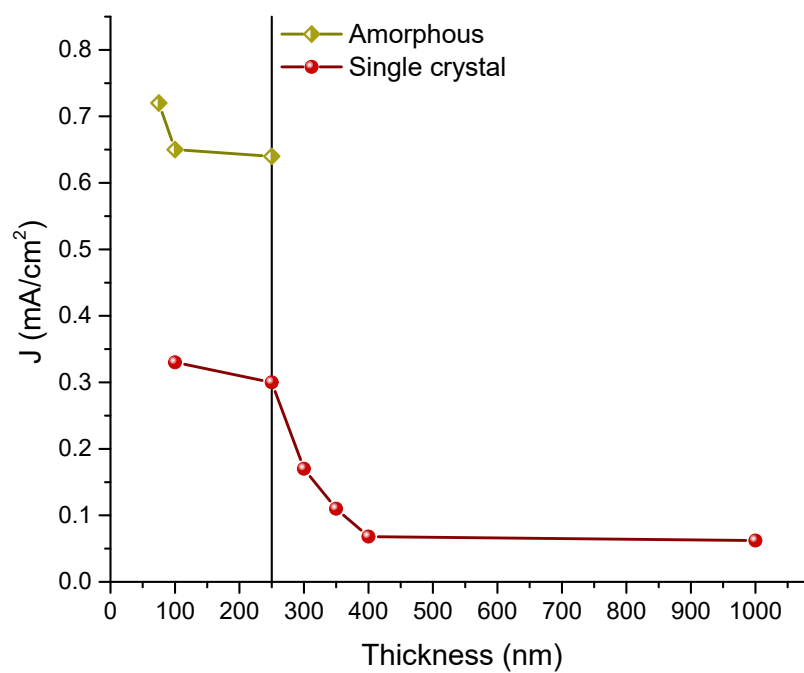


Figure S2. Optimum thickness comparison for single crystal and thin film layer of rubrene for inverted bilayer organic solar cells.

Table S1. Extracted solar cell parameters from illuminated J-V characteristics of rubrene single crystal solar cells.

Sample	J _{sc} (mA/cm ²)	V _{oc} (mV)	FF	PCE (%)
250 nm	0.3	600	0.57	0.1
300 nm	0.17	590	0.48	0.05
350 nm	0.11	570	0.44	0.03
400 nm	0.068	580	0.51	0.02
1000 nm	0.062	500	0.39	0.01

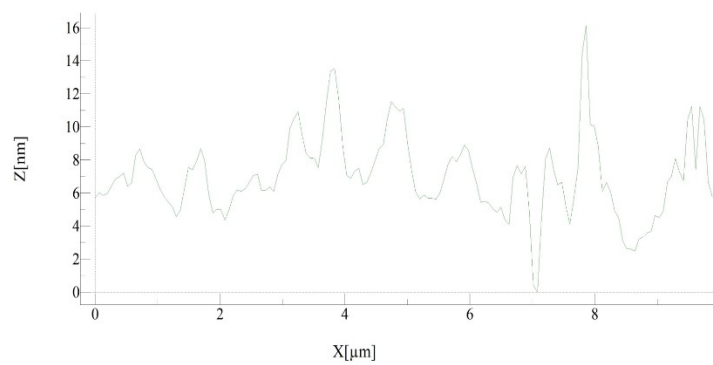
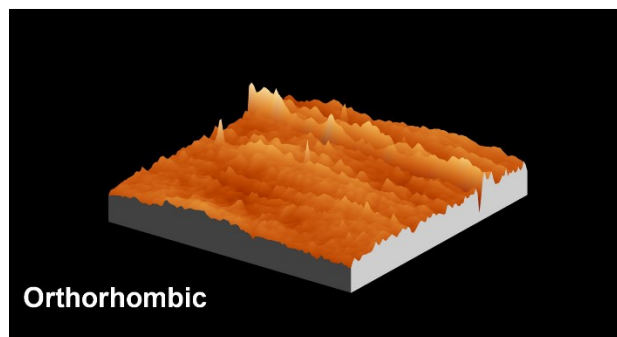
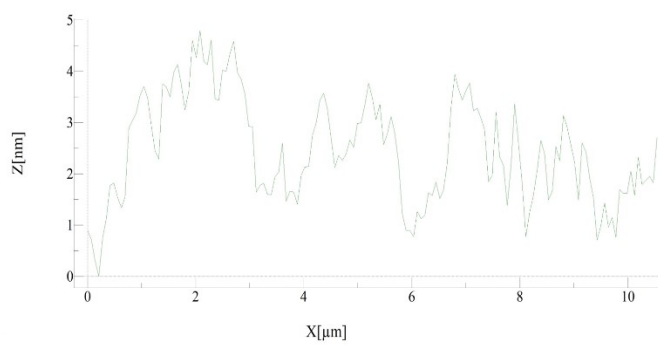
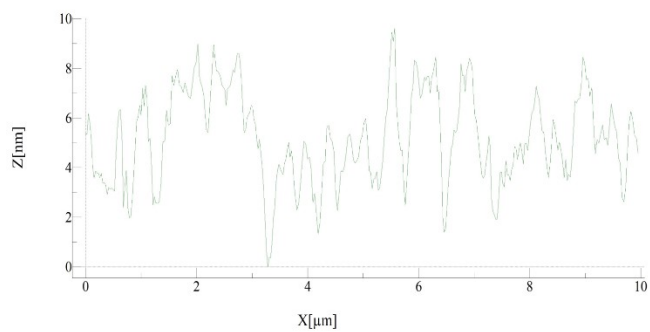
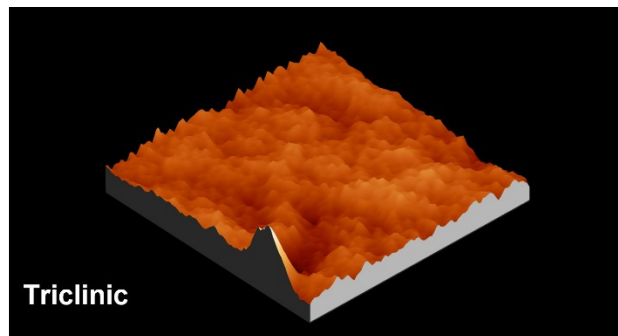
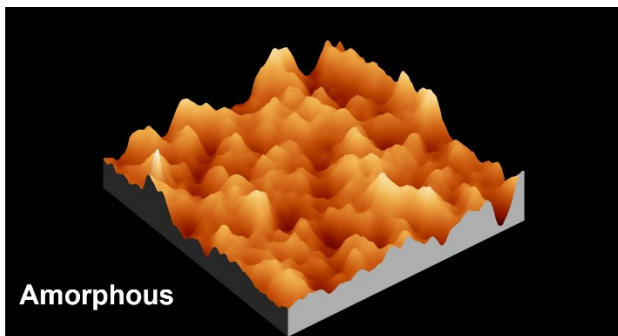


Figure S3. 3D AFM images and surface profile of rubrene amorphous, triclinic and orthorhombic films.

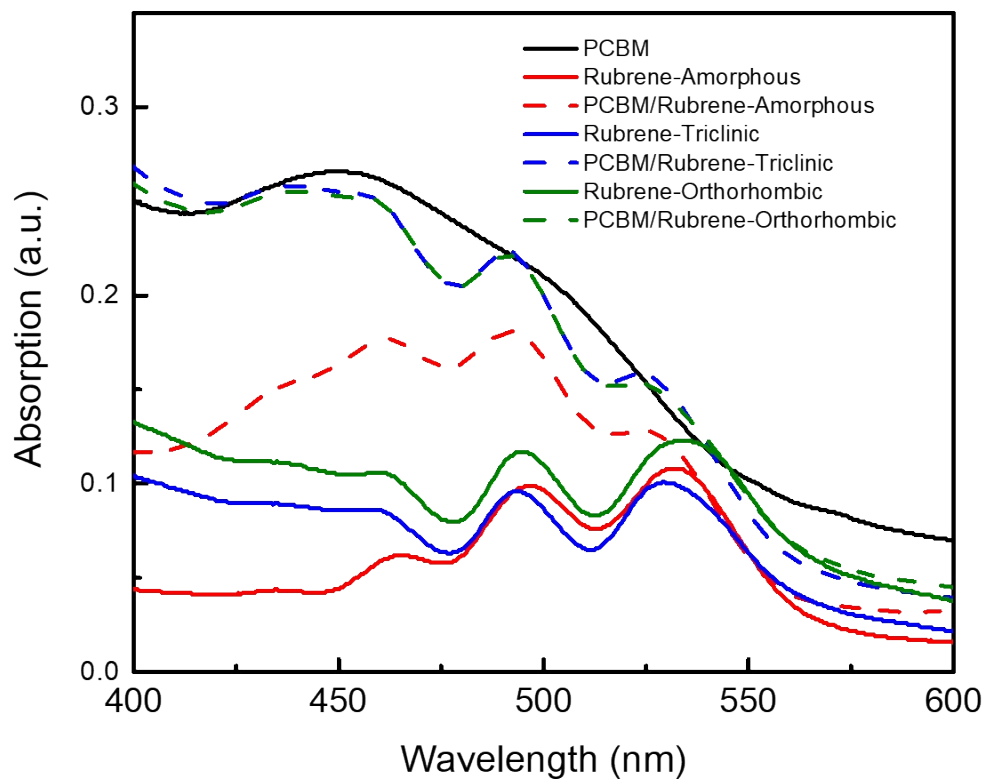


Figure S4. The absorption in PCBM, PCBM/rubrene-amorphous, PCBM/rubrene-triclinic, PCBM/rubrene-orthorhombic films as a function of wavelength.

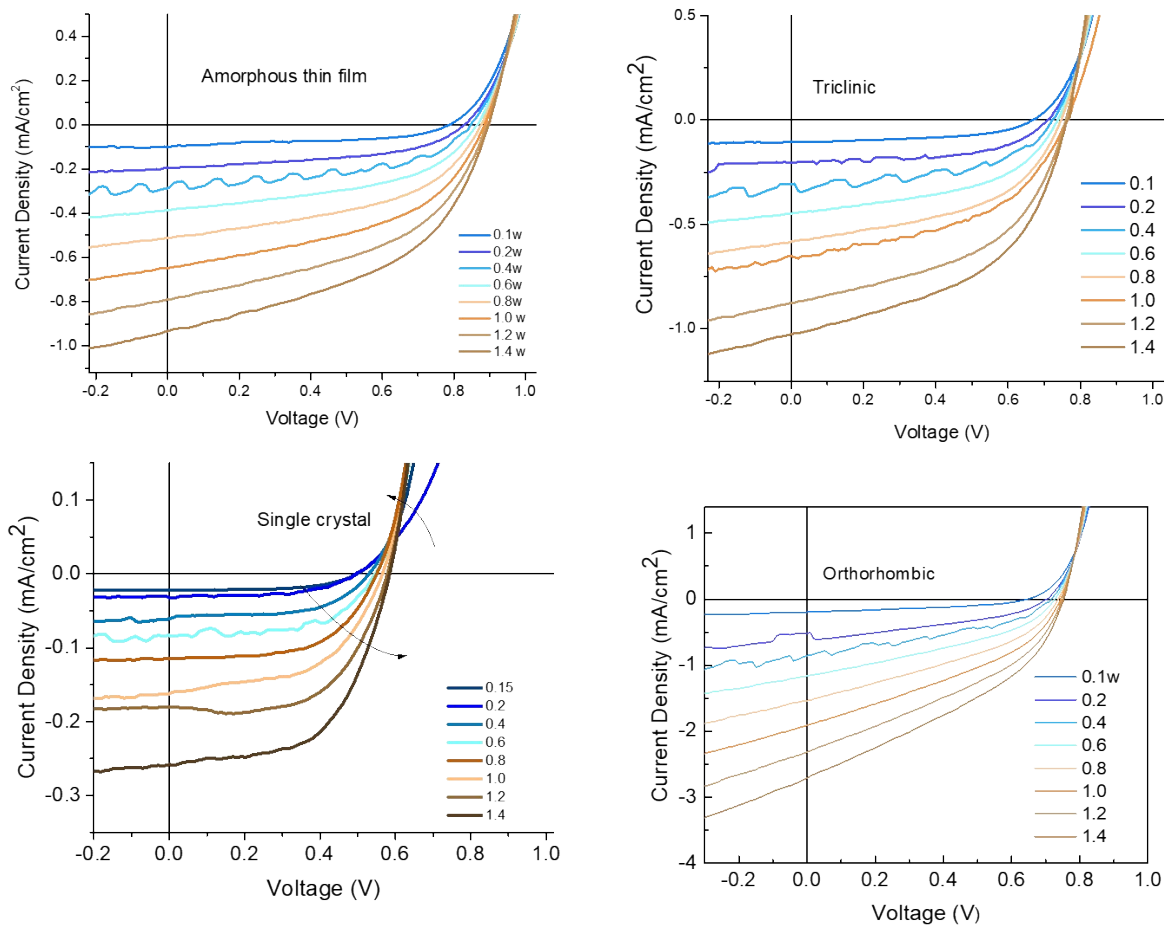


Figure S5. J-V curve were taken under different light intensity.