

Supplementary Information

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An electrode design rule for top-illuminated organic photovoltaics

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Method for calculating HOMO and LUMO levels:

To calculate the HOMO and LUMO levels from differential pulsed voltammetry the equations shown below were applied to the measured oxidation and reduction potentials to give the HOMO and LUMO respectively:

$$HOMO = -1.2 \times \left(1^{st} \text{ Oxidation } E_{\frac{1}{2} \text{ Material}} - E_{\frac{1}{2} \text{ Ferrocene}} \right) - 4.8$$

$$LUMO = -1.2 \times \left(1^{st} \text{ Reduction } E_{\frac{1}{2} \text{ Material}} - E_{\frac{1}{2} \text{ Ferrocene}} \right) - 4.8$$

Material	HOMO/ eV	LUMO/ eV
PC ₆₀ BM	-6.16	-3.78
PC ₇₀ BM	-6.05	-3.77

For both PC₆₀BM and PC₇₀BM the measured values are within the range reported in the literature using other measurement techniques.¹⁻¹⁰

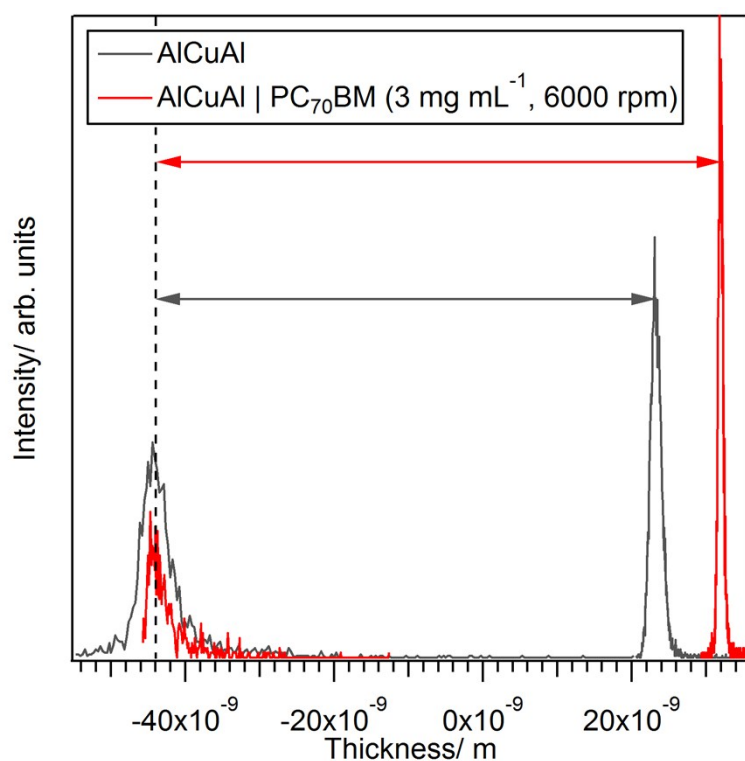


Figure S1: Step heights of AlCuAl and AlCuAl | PC₇₀BM films measured using atomic force microscopy, showing how the organic semiconductor film thickness was determined. In this case the PC₇₀BM solution concentration was 3 mg mL⁻¹, the spin speed was 6000 rpm and the film thickness was determined to be ~ 9 nm.

References

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