Supplementary material (ESI) for Journal of Materials Chemistry

Supporting Information for:

Dithienopyrrole-Based Donor-Acceptor Copolymers: Low Band-Gap Materials for Charge Transport, Photovoltaics and Electrochromism

Xuan Zhang, Timothy T. Steckler, Raghunath R. Dasari, Shino Ohira, William J. Potscavage, Shree Prakash Tiwari, Séverine Coppée, Stefan Ellinger, Stephen Barlow, Jean-Luc Brédas, Bernard Kippelen, John R. Reynolds, and Seth R. Marder

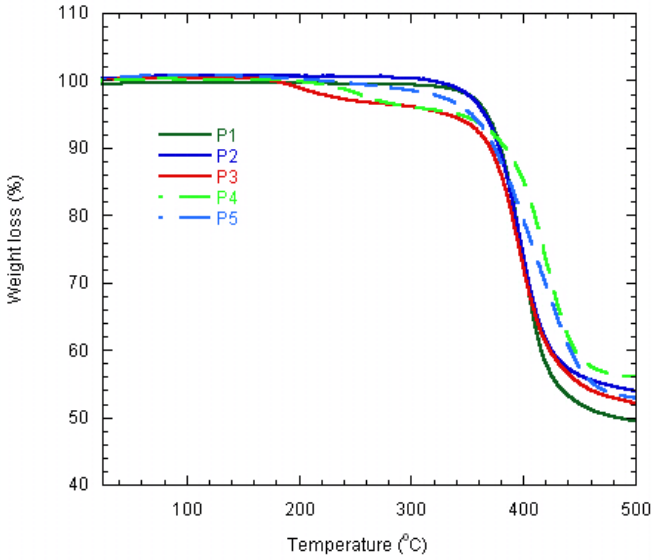


Figure S1 TGA curves of **P1-P5**

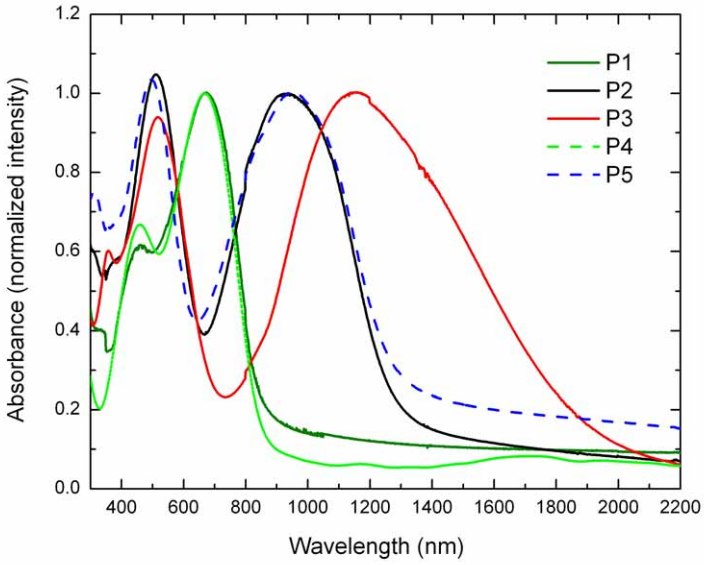
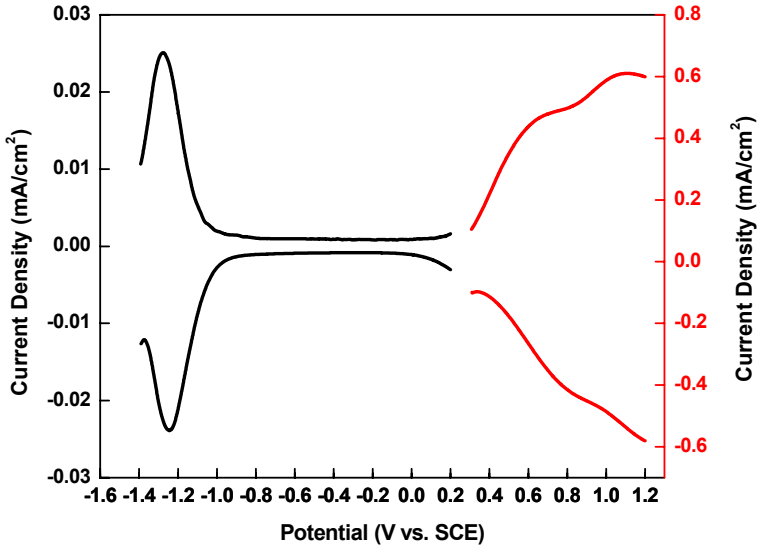


Figure S2 UV-vis-NIR spectra of **P1-P5** in thin films

a)



b)

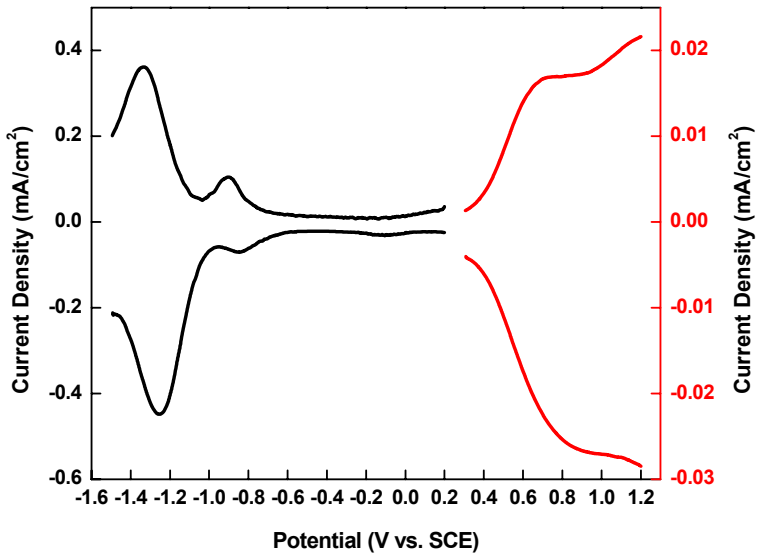


Figure S3. DPV of **P4-5** (a and b) on a Pt button with a step size of 2 mV and step time of 0.1 second.

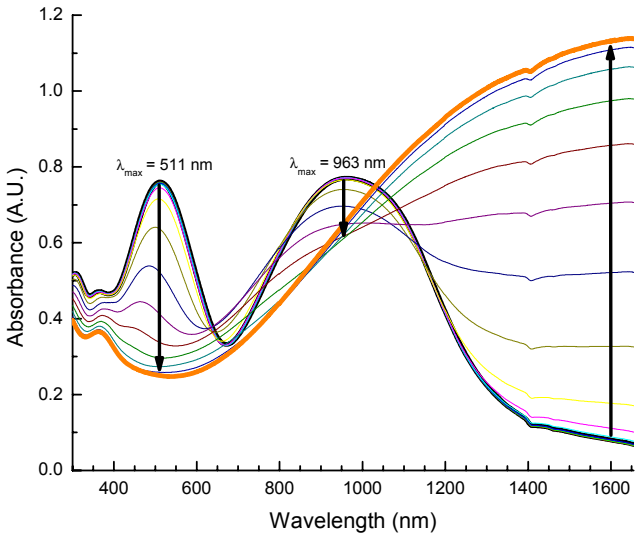


Figure S4a. Oxidative spectroelectrochemistry of **P2** spray-cast onto ITO, from -0.33 V to 1.07 V vs. SCE in 100 mV increments. Bold black line = neutral (-0.33 V) and bold orange line = oxidized state (1.07 V).

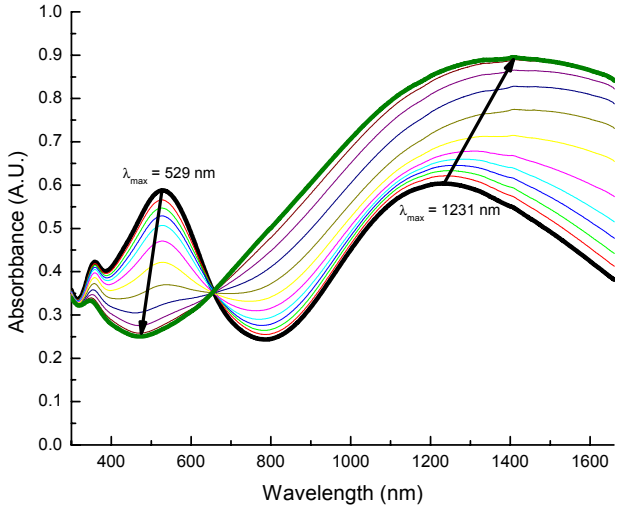


Figure S4b. Oxidative spectroelectrochemistry of **P3** spray-cast onto ITO, from -0.13 V to 0.97 V vs. SCE in 100 mV increments. Bold black line = neutral (-0.13 V) and bold olive green line = oxidized state (0.97 V).

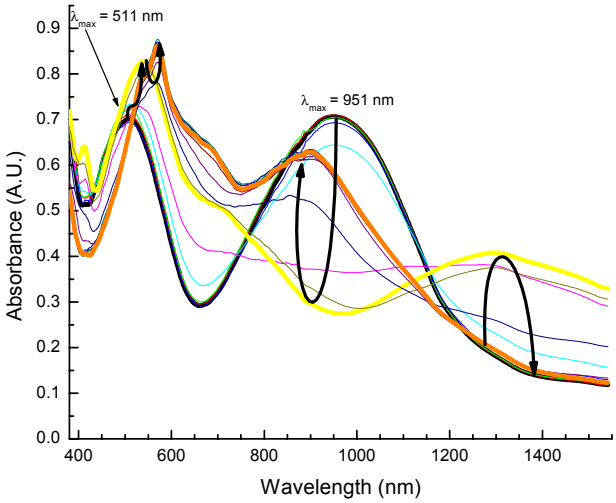


Figure S5a Reductive spectroelectrochemistry of **P2** spray-cast onto ITO, from -0.54 V to -1.94 V vs. SCE in 100 mV increments. Bold black line = neutral (-0.54 V), bold yellow line = first reduced state (-1.14 V), and bold orange line = second reduced state (-1.94 V).

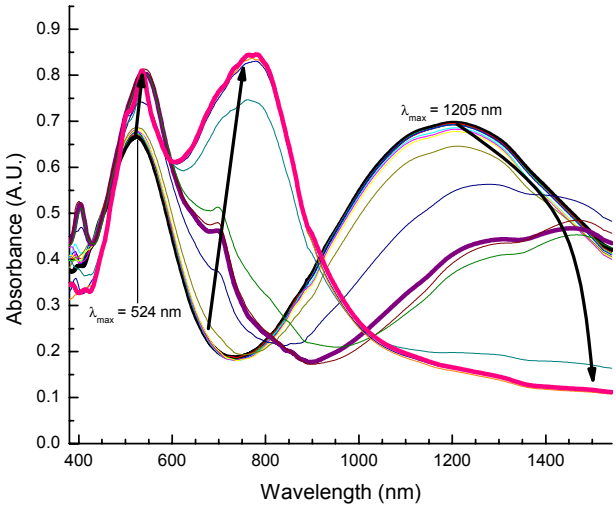
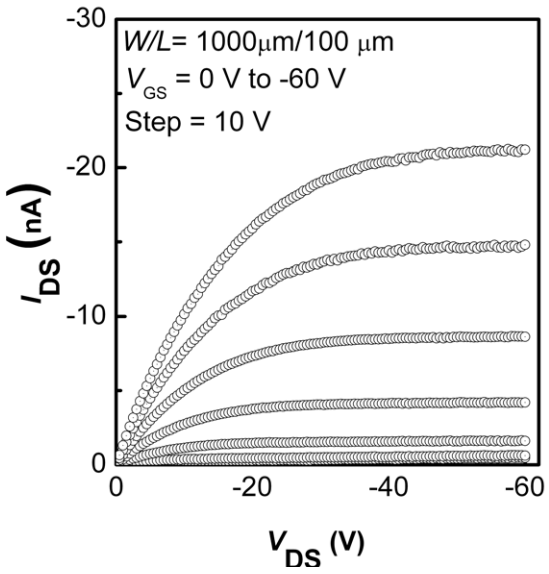


Figure S5b. Reductive spectroelectrochemistry of **P3** spray-cast onto ITO from 0.05 V to -1.45 V vs. SCE in 100 mV increments. Bold black line = neutral (0.05 V), bold purple line = first reduced state (-0.85 V), and bold pink line = second reduced state (-1.45 V).

a)



b)

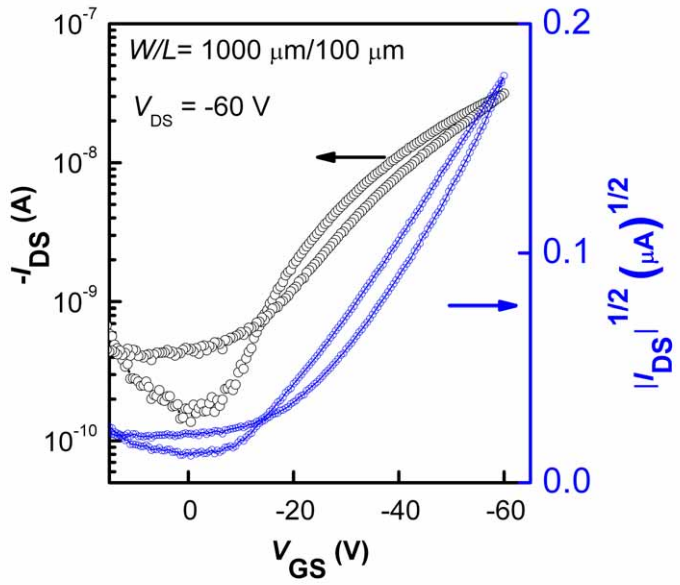
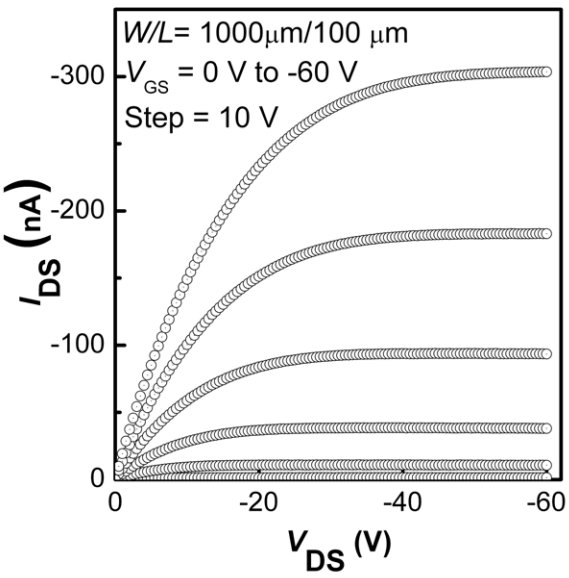


Figure S6. Output (a) and transfer (b) characteristics of an OFET based on **P4.**

a)



b)

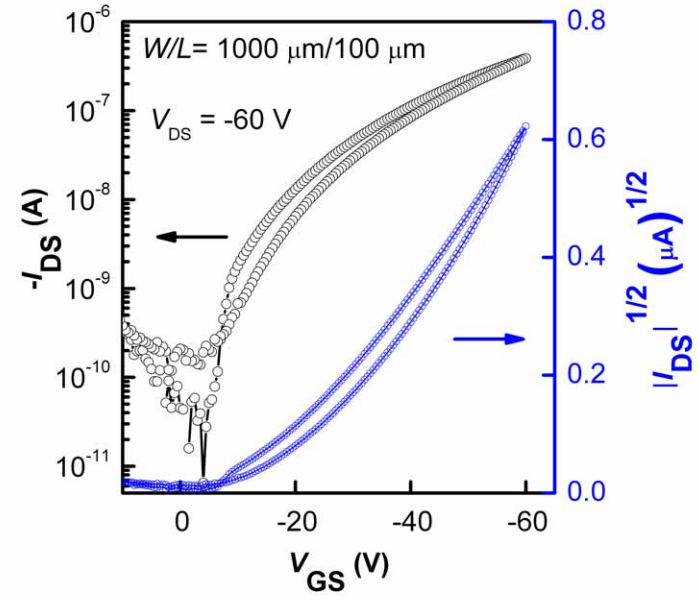


Figure S7. Output (a) and transfer (b) characteristics of an OFET based on **P5.**

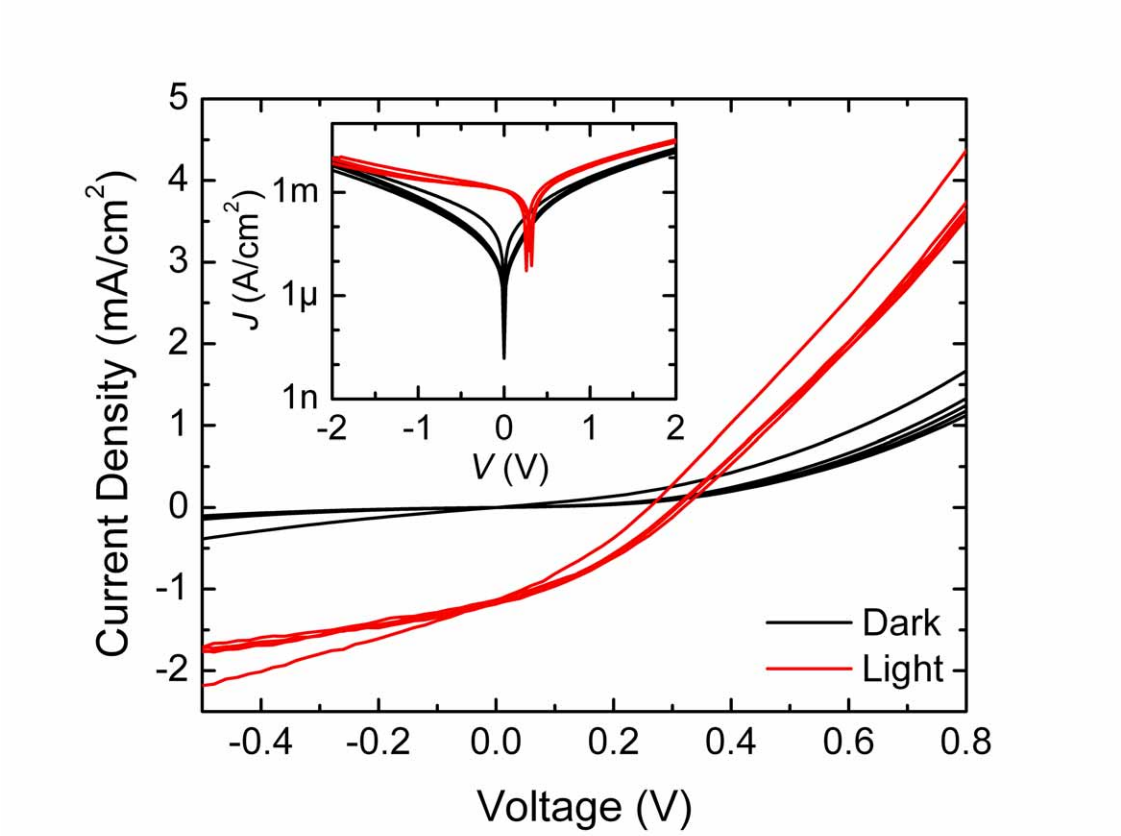


Figure S8. *J-V* characteristics of multiple cells measured in the dark (black line) and under illumination (red line) for films of PCBM blended with **P4** in a 1:1 weight ratio. (Inset shows the same data in a semilogarithmic plot)