

This is a repository copy of Correlating nanoscale morphology with device performance in conventional and inverted PffBT4T-2OD:PC71BM polymer solar cells.

White Rose Research Online URL for this paper: http://eprints.whiterose.ac.uk/156039/

Version: Supplemental Material

Article:

Yan, Y., Li, W., Cai, F. et al. (7 more authors) (2018) Correlating nanoscale morphology with device performance in conventional and inverted PffBT4T-2OD:PC71BM polymer solar cells. ACS Applied Energy Materials, 1 (7). pp. 3505-3512. ISSN 2574-0962

https://doi.org/10.1021/acsaem.8b00727

This document is the Accepted Manuscript version of a Published Work that appeared in final form in ACS Applied Energy Materials, copyright © American Chemical Society after peer review and technical editing by the publisher. To access the final edited and published work see https://doi.org/10.1021/acsaem.8b00727

Reuse

Items deposited in White Rose Research Online are protected by copyright, with all rights reserved unless indicated otherwise. They may be downloaded and/or printed for private study, or other acts as permitted by national copyright laws. The publisher or other rights holders may allow further reproduction and re-use of the full text version. This is indicated by the licence information on the White Rose Research Online record for the item.

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



Supporting Information

Correlating Nanoscale Morphology with Device Performance in Conventional and Inverted PffBT4T-2OD:PC₇₁BM Polymer Solar Cells

Yu Yan¹, Wei Li¹, Feilong Cai¹, Jinlong Cai¹, Zhiwei Huang¹, Robert S. Gurney¹, Dan Liu¹,

David G. Lidzey², Andrew J. Pearson³, Tao Wang^{1*}

Yu Yan¹, Wei Li¹, Feilong Cai¹, Jinlong Cai¹, Robert S. Gurney¹, Dan Liu¹, David G. Lidzey²,

Andrew J. Pearson³, Tao Wang^{1*}

¹ School of Materials Science and Engineering, Wuhan University of Technology, Wuhan, 430070, China

² Department of Physics and Astronomy, University of Sheffield, Sheffield, S3 7RH, UK

³ Cavendish Laboratory, University of Cambridge, JJ Thomson Avenue, Cambridge, CB3
0HE, UK

^{*} E-mail: twang@whut.edu.cn

Table S1 Summary of the content of C, S at surface extracted from XPS spectra.

Samples	Treatments	S	С	C/S	Ratio of
					fullerene:polymer
Glass/PEDOT:PSS/AC	VA	4.65	89.47	19.24	2.5
	TA	5.09	89.04	17.49	3.3
	MA	1.47	87.77	59.71	1/3
Glass/TiO ₂ /AC	VA	4.6	89.94	19.55	2.5
	TA	5.18	89.06	17.19	3.5
	MA	1.32	89.42	67.47	1/3.5

100 VA TA 80 MA Abs. (a.u.) 60 40 20 0 600 700 400 500 800 Wavelength (nm)

Figure S1. UV-Vis spectra of PffBT4T-2OD:PC₇₁BM cast on Glass/PEDOT:PSS substrate.

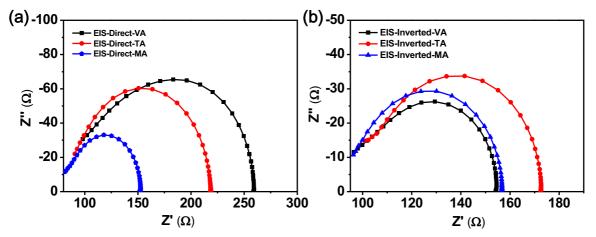


Figure S2. Nyquist plots of impedance spectra under 1.0 sun irradiation for (a) direct and (b) inverted configurations.