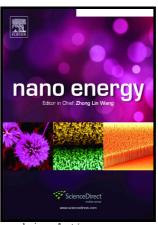
Author's Accepted Manuscript

Comparing the Device Physics, Dynamics and Morphology of Polymer Solar Cells Employing Conventional PCBM and Non-Fullerene Polymer Acceptor N2200

Jianyu Yuan, Wenping Guo, Yuxin Xia, Michael J. Ford, Feng Jin, Dongyang Liu, Haibin Zhao, Olle Inganäs, Guillermo C. Bazan, Wanli Ma



www.elsevier.com/locate/nanoenergy

PII: S2211-2855(17)30190-8

http://dx.doi.org/10.1016/j.nanoen.2017.03.050 DOI:

NANOEN1878 Reference:

To appear in: Nano Energy

Received date: 14 February 2017 Revised date: 27 March 2017 Accepted date: 27 March 2017

Cite this article as: Jianyu Yuan, Wenping Guo, Yuxin Xia, Michael J. Ford, Feng Jin, Dongyang Liu, Haibin Zhao, Olle Inganäs, Guillermo C. Bazan an Wanli Ma, Comparing the Device Physics, Dynamics and Morphology o Polymer Solar Cells Employing Conventional PCBM and Non-Fulleren Acceptor Polymer N2200, Nano Energy http://dx.doi.org/10.1016/j.nanoen.2017.03.050

This is a PDF file of an unedited manuscript that has been accepted fo publication. As a service to our customers we are providing this early version o the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain

ACCEPTED MANUSCRIPT

Comparing the Device Physics, Dynamics and Morphology of Polymer Solar Cells Employing Conventional PCBM and Non-Fullerene Polymer Acceptor N2200

Jianyu Yuan^{a*}, Wenping Guo^b, Yuxin Xia^c, Michael J. Ford^d, Feng Jin^b, Dongyang Liu^a, Haibin Zhao^{b*}, Olle Inganäs^c, Guillermo C. Bazan^d, Wanli Ma^{a*}

^aInstitute of Functional Nano & Soft Materials (FUNSOM), Jiangsu Key Laboratory for Carbon-Based Functional Materials and Devices, Soochow University ^bShanghai Ultra-precision Optical Manufacturing Engineering Research Center and Key Laboratory of Micro and Nano Photonic Structures (Ministry of Education), Department of Optical Science and Engineering, Fudan University ^cBiomolecular and Organic Electronics, IFM, Linköping University

^dCenter for Polymers and Organic Solids, Departments of Chemistry and Biochemistry, University of California, Santa Barbara

Muscrip

jyyuan@suda.edu.cn hbzhao@fudan.edu.cn wlma@suda.edu.cn

*Corresponding authors.

Abstract

Current all polymer solar cells still suffer from low fill factors (FF) and short-circuit current density (J_{sc}) compared with the conventional polymer/fullerene system. Herein in this work, devices using PTP8 as the electron donor and [70]PCBM as well as widely used polymer N2200 as the electron acceptor were systematically studied and compared. The major loss mechanisms in the all polymer solar cells were investigated to understand their relatively lower performance than the PTP8/fullerene system. By performing in-depth analysis on ultrafast transient transmission spectroscopy results, we estimated that in PTP8/N2200 device nearly half of the charges recombine geminately, which is confirmed as the major factor hindering the device performance of all polymer solar cells compared with polymer/fullerene

دريافت فورى ب متن كامل مقاله

ISIArticles مرجع مقالات تخصصی ایران

- ✔ امكان دانلود نسخه تمام متن مقالات انگليسي
 - ✓ امكان دانلود نسخه ترجمه شده مقالات
 - ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
 - ✓ امكان دانلود رايگان ۲ صفحه اول هر مقاله
 - ✔ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
 - ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات