

Author's Accepted Manuscript

Naphthobistriazole-Based Wide Bandgap Donor Polymers for Efficient Non-Fullerene Organic Solar Cells: Significant Fine-Tuning Absorption and Energy Level by Backbone Fluorination

Dongsheng Tang, Jiahui Wan, Xiaopeng Xu, Young Woong Lee, Han Young Woo, Kui Feng, Qiang Peng



PII: S2211-2855(18)30622-0
DOI: <https://doi.org/10.1016/j.nanoen.2018.08.059>
Reference: NANOEN2989

To appear in: *Nano Energy*

Received date: 27 June 2018
Revised date: 21 August 2018
Accepted date: 25 August 2018

Cite this article as: Dongsheng Tang, Jiahui Wan, Xiaopeng Xu, Young Woong Lee, Han Young Woo, Kui Feng and Qiang Peng, Naphthobistriazole-Based Wide Bandgap Donor Polymers for Efficient Non-Fullerene Organic Solar Cells: Significant Fine-Tuning Absorption and Energy Level by Backbone Fluorination, *Nano Energy*, <https://doi.org/10.1016/j.nanoen.2018.08.059>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of 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.

**Naphthobistriazole-Based Wide Bandgap Donor Polymers for
Efficient Non-Fullerene Organic Solar Cells: Significant Fine-Tuning
Absorption and Energy Level by Backbone Fluorination**

*Dongsheng Tang^a, Jiahui Wan^a, Xiaopeng Xu^a, Young Woong Lee^b, Han Young
Woo^{b,*}, Kui Feng^a, Qiang Peng^{a,*}*

^aKey Laboratory of Green Chemistry and Technology of Ministry of Education, College of Chemistry, and State Key Laboratory of Polymer Materials Engineering, Sichuan University, Chengdu 610064, P. R. China.

^bDepartment of Chemistry, Korea University, Seoul 136-713, Republic of Korea.

E-mail: qiangpengjohnny@yahoo.com

E-mail: hywoo@korea.ac.kr

Abstract

In this work, two wide bandgap polymers of PDTT-TZNT and PDTF-TZNT were developed by Stille-coupling of naphtho[1,2-c:5,6-c]bis(2-octyl-[1,2,3]triazole) (TZNT) acceptor unit with bithiophene (DTH) and fluorinated bithiophene (DTF), respectively. These polymers exhibited a wide bandgap over 1.84 eV. The fluorinated PDTF-TZNT had lower highest occupied molecular orbital HOMO level (-5.24 eV), higher molar absorption coefficient ($1.28 \times 10^5 \text{ M}^{-1} \text{ cm}^{-1}$), and higher molecular

Download English Version:

<https://daneshyari.com/en/article/10135862>

Download Persian Version:

<https://daneshyari.com/article/10135862>

[Daneshyari.com](https://daneshyari.com)