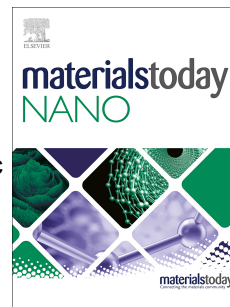


# Accepted Manuscript

Non-Fullerene Acceptors for Large-Open-Circuit-Voltage and High-Efficiency Organic Solar Cells

Bin Yang, Junchi Li, Chuanguang Wu, Hao Zhang, Anlian Pan, Jianghua Chen



PII: S2588-8420(18)30034-8

DOI: [10.1016/j.mtnano.2018.04.005](https://doi.org/10.1016/j.mtnano.2018.04.005)

Reference: MTNANO 6

To appear in: *Materials Today Nano*

Please cite this article as: Yang B., Li J., Wu C., Zhang H., Pan A. & Chen J., Non-Fullerene Acceptors for Large-Open-Circuit-Voltage and High-Efficiency Organic Solar Cells, *Materials Today Nano* (2018), doi: 10.1016/j.mtnano.2018.04.005.

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 proof before it is published in its final 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.

# Non-Fullerene Acceptors for Large-Open-Circuit-Voltage and High-Efficiency Organic Solar Cells

Bin Yang,<sup>1,2\*</sup> Junchi Li,<sup>1</sup> Chuanguang Wu,<sup>1</sup> Hao Zhang,<sup>1</sup>

Anlian Pan,<sup>1,2\*</sup> Jianghua Chen<sup>1,3</sup>

<sup>1</sup>*College of Materials Science and Engineering, Hunan University, Changsha, Hunan 410082, China*

<sup>2</sup>*Key Laboratory for Micro-Nano Physics and Technology of Hunan Province, Hunan University, Changsha, Hunan 410082, China*

<sup>3</sup>*Center for High Resolution Electron Microscopy, Hunan University, Changsha, Hunan 410082, China*

Corresponding Emails: yangb1@hnu.edu.cn; anlian.pan@hnu.edu.cn

**Keywords:** Non-fullerene acceptor; Organic solar cell; Open-circuit voltage; Charge transfer; Exciton dissociation

## Abstract

The development of fused ring-based non-fullerene acceptors has established a great competitiveness of solution-processed organic solar cells (OSCs) beyond other emerging solar photovoltaics. In this review, we highlight the recent progresses in non-fullerene OSCs that have shown high power conversion efficiencies along with large open-circuit voltages because of the low energy loss. By tailoring the molecular structures of non-fullerene acceptors, energy-level alignments between non-fullerene acceptors and the paired donors can be optimized, together with a complementary absorption covering a broad range of solar spectrum. Nanoscale morphological structure can be tuned by thermal annealing and solvent additive treatments to

Download English Version:

<https://daneshyari.com/en/article/6482699>

Download Persian Version:

<https://daneshyari.com/article/6482699>

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