

Accepted Manuscript

Article

Doping-free tandem white organic light-emitting diodes

Baiquan Liu, Lei Wang, Hong Tao, Miao Xu, Jianhua Zou, Honglong Ning,
Junbiao Peng, Yong Cao

PII: S2095-9273(17)30432-2
DOI: <http://dx.doi.org/10.1016/j.scib.2017.08.021>
Reference: SCIB 206

To appear in: *Science Bulletin*

Received Date: 22 June 2017
Revised Date: 5 August 2017
Accepted Date: 9 August 2017

Please cite this article as: B. Liu, L. Wang, H. Tao, M. Xu, J. Zou, H. Ning, J. Peng, Y. Cao, Doping-free tandem white organic light-emitting diodes, *Science Bulletin* (2017), doi: <http://dx.doi.org/10.1016/j.scib.2017.08.021>

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.



Article

Received 22 June, 2017; Revised 5 August, 2017; Accepted 9 August, 2017

Doping-free tandem white organic light-emitting diodes

Baiquan Liu, Lei Wang, Hong Tao, Miao Xu, Jianhua Zou, * Honglong Ning, Junbiao Peng,*
and Yong Cao

Institute of Polymer Optoelectronic Materials and Devices, State Key Laboratory of
Luminescent Materials and Devices, South China University of Technology, Guangzhou
510640, China

Corresponding Author

E-mail: zou1007@gmail.com (J. Zou); E-mail: psjbpeng@scut.edu.cn (J. Peng).

Abstract

Tandem white organic light-emitting diodes (WOLEDs) are of great research interest since they can greatly boost the performance compared with the single-unit counterparts. However, their structures are more complicated than those of single-unit OLEDs. Besides, to achieve high performance, the doping technology is required to tandem OLEDs, particularly for tandem WOLEDs, further complicating the structures. Herein, doping-free tandem WOLEDs, for the first time, have been demonstrated. By managing an effective doping-free charge generation layer to interconnect doping-free emitting layers/charge transport layers, high-performance doping-free tandem WOLEDs have been developed. The blue-yellow device accomplishes the simplified structure/short fabrication time/ reduced cost/ high efficiency/ low efficiency roll-off/low voltage/high luminance trade-off, which cannot be achieved by previous tandem WOLEDs. Remarkably, the efficiency (81.2 cd A^{-1}) is ~2-fold higher than

Download English Version:

<https://daneshyari.com/en/article/5788550>

Download Persian Version:

<https://daneshyari.com/article/5788550>

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