

# Interfacial engineering of printable bottom back metal electrodes for full-solution processed flexible organic solar cells\*

Hongyu Zhen<sup>1, 2, †</sup>, Kan Li<sup>1, 3</sup>, Yaokang Zhang<sup>1</sup>, Lina Chen<sup>1</sup>, Liyong Niu<sup>1</sup>, Xiaoling Wei<sup>1</sup>, Xu Fang<sup>4</sup>, Peng You<sup>5</sup>, Zhike Liu<sup>5</sup>, Dongrui Wang<sup>1</sup>, Feng Yan<sup>5</sup>, and Zijian Zheng<sup>1, †</sup>

<sup>1</sup>Nanotechnology Center, Institute of Textiles and Clothing, the Hong Kong Polytechnic University, Hong Kong SAR, China

<sup>2</sup>College of Materials Science and Engineering, Fujian Key Laboratory of Polymer Materials, Fujian Normal University, Fuzhou 350007, China

<sup>3</sup>College of Science, Center for Optics & Optoelectronics Research, Zhejiang University of Technology, Hangzhou 310014, China

<sup>4</sup>State Key laboratory of modern optical Instrumentation, Zhejiang University, Hangzhou 310027, China

<sup>5</sup>Department of Applied Physics, the Hong Kong Polytechnic University, Hong Kong SAR, China

## Notes:

The authors declare no competing financial interest.

Table S1. RMS roughness of the PAMD metals and interface modification layers on the PAMD metals obtained from AFM test.

Metal electrode	Scan area	Pure metal	With PEI	With CF ZnO	With Me ZnO	With CF ZnO/PEI	With ME ZnO/PEI
PAMD-Ag	$1 \times 1 \mu\text{m}^2$	12.0 nm	4.2 nm	2.7 nm	8.0 nm	0.7 nm	2.9 nm
PAMD-Ag	$10 \times 10 \mu\text{m}^2$	12 nm	6.0 nm	4.8 nm	12.0 nm	4.8 nm	8.2 nm
PAMD-Cu	$1 \times 1 \mu\text{m}^2$	0.3 nm	0.9 nm	–	2.5 nm	–	3.0 nm
PAMD-Cu	$10 \times 10 \mu\text{m}^2$	1.9 nm	2.5 nm	–	5.4 nm	–	4.5 nm

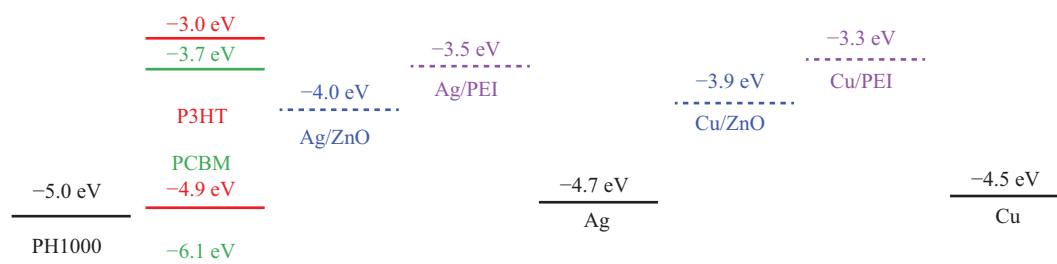


Fig. S1. Energy level diagrams of the organic solar cells based on the PAMD metal electrode.

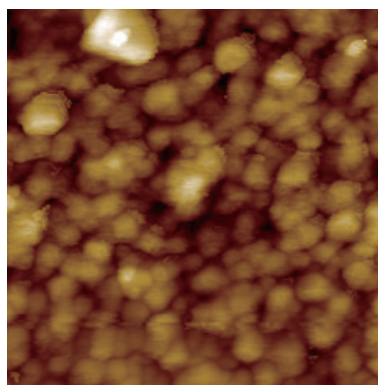


Fig. S2. AFM images ( $1 \times 1 \mu\text{m}^2$ ) of the PAMD-Ag.

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† Corresponding author. Email: [rainy\\_ch@126.com](mailto:rainy_ch@126.com), [zijian.zheng@polyu.edu.hk](mailto:zijian.zheng@polyu.edu.hk)

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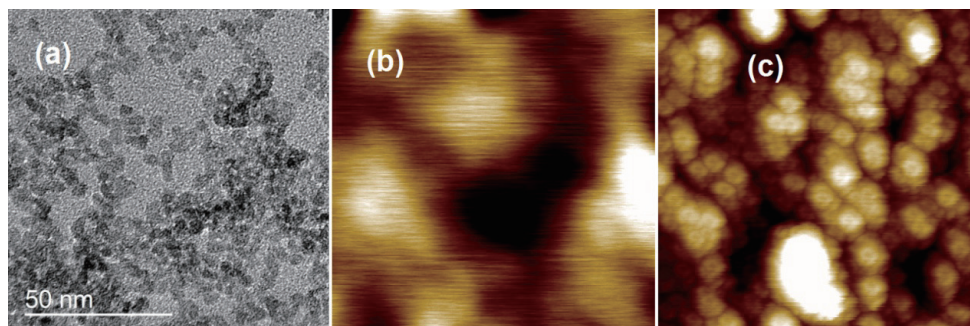


Fig. S3. (a) TEM images of the ZnO nanoparticles and AFM images ( $1 \times 1 \mu\text{m}^2$ ) of CF-ZnO (b) and ME-ZnO (c) spin-coated on PAMD-Ag.

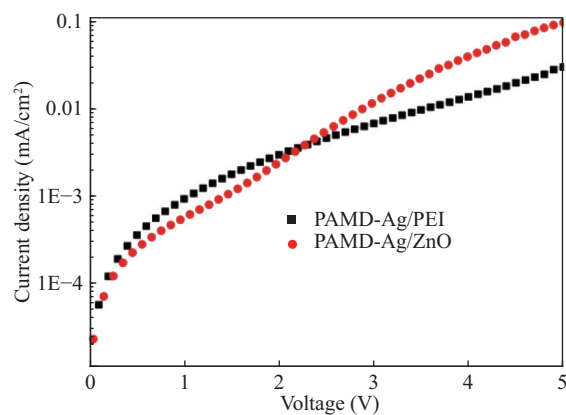


Fig. S4.  $J$ - $V$  characteristics of the electron-only devices based on PAMD-Ag.

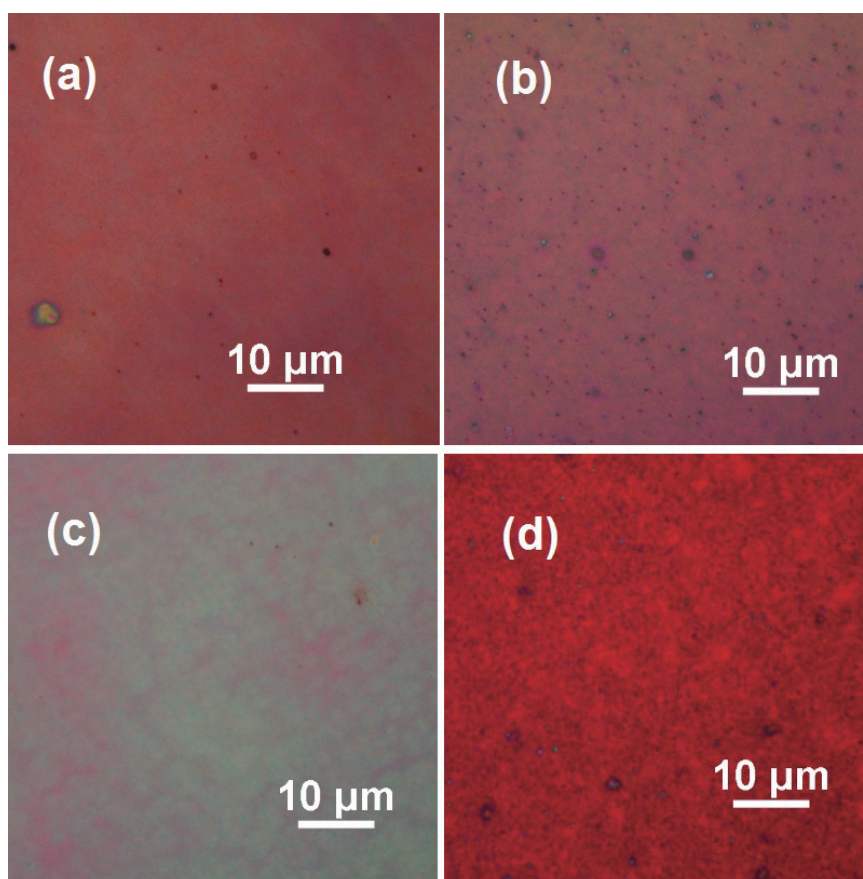


Fig. S5. Optical images of (a) PAMD-Ag/PEI/P3HT:PCBM, (b) PAMD-Ag/PEI/P3HT:PCBM/PH1000, (c) PAMD-Ag/ZnO/P3HT:PCBM, and (d) PAMD-Ag/ZnO/P3HT:PCBM/PH1000 after 500 bending cycles.