## **Supporting Information**

## Interface Enginnering toward Enhanced Efficiency of Planar Perovskite Solar Cells

Lu-Lu Jiang,<sup>a,b</sup> Shan Cong,<sup>a</sup> Yan-Hui Lou,<sup>\*a</sup> Qing-Hua Yi,<sup>a</sup> Jun-Tong Zhu,<sup>a</sup> Heng Ma,<sup>b</sup> and Gui-Fu Zou<sup>\*a</sup>

<sup>a</sup> College of Physics, Optoelectronics and Energy & Collaborative Innovation Center of Suzhou Nano Science and Technology, Soochow University, Suzhou 215006, China.

<sup>b</sup> College of Physics and Electronic Engineering, Henan Normal University, Xinxiang 453007, China

Address all correspondence to the authors. Email: zouguifu@suda.edu.cn; yhlou@suda.edu.cn

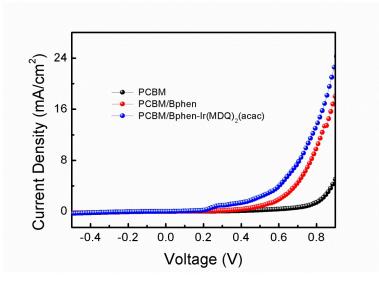


Fig. S1 J-V characteristics measured under the forward bias in the dark.

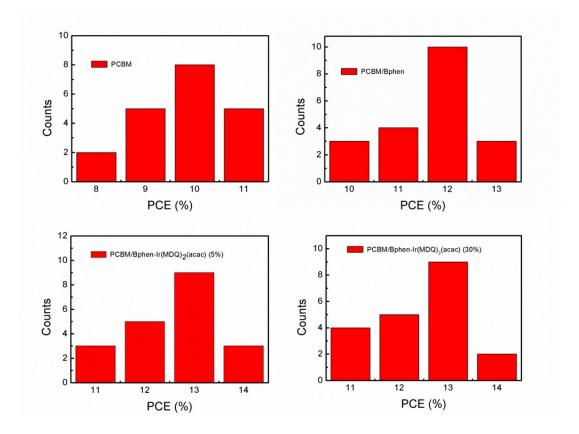


Fig. S2 Histogram of PCEs measured from 20 devices.

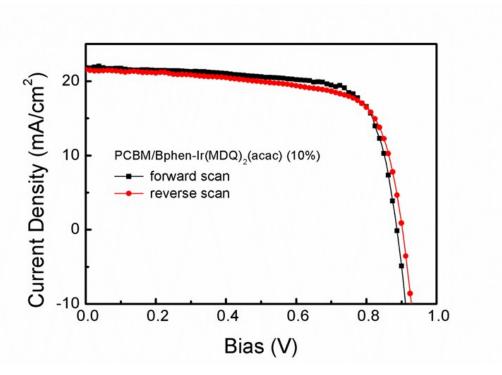


Fig. S3 Current-voltage characteristics of the conventional planar PSCs with Bphen-Ir(MDQ)<sub>2</sub>(acac) (10 wt%) under different scan directions. The *J-V* characteristics of the PSCs with Bphen:Ir(MDQ)<sub>2</sub>(acac) have no sharply contrasted in the different scan directions. the device exhibited lower Hysteresis. It indicated that the dual effect of Bphen:Ir(MDQ)<sub>2</sub>(acac) on the planar PSCs: the role as electrode buffer layer bring about more favorable contact and as electron transporting layer provides more efficient pathways for electron extraction from perovskite to electrode.