Electronic Supplementary Material (ESI) for Nanoscale.
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Supplementary Information

Room-Temperature, Solution-Processable Organic Electron Extraction Layer for High-Performance Planar Heterojunction Perovskite Solar Cells

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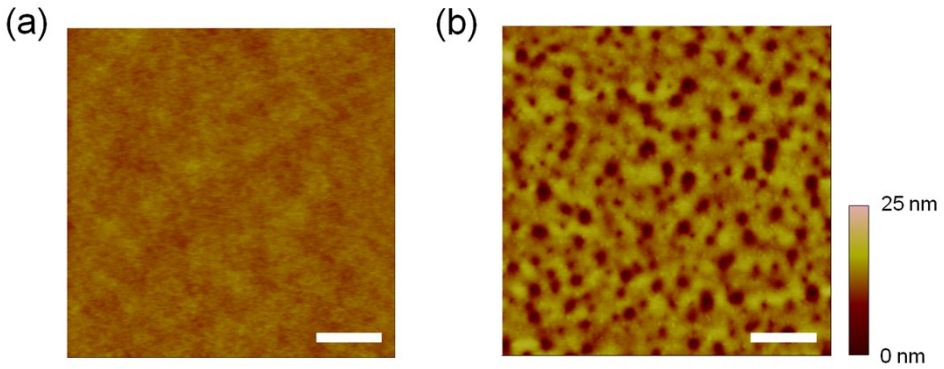

Figure S1. Atomic force microscopy images of FPI-PEIE and $PC_{61}BM$ on FPI-PEIE (scale bar: 1μm).

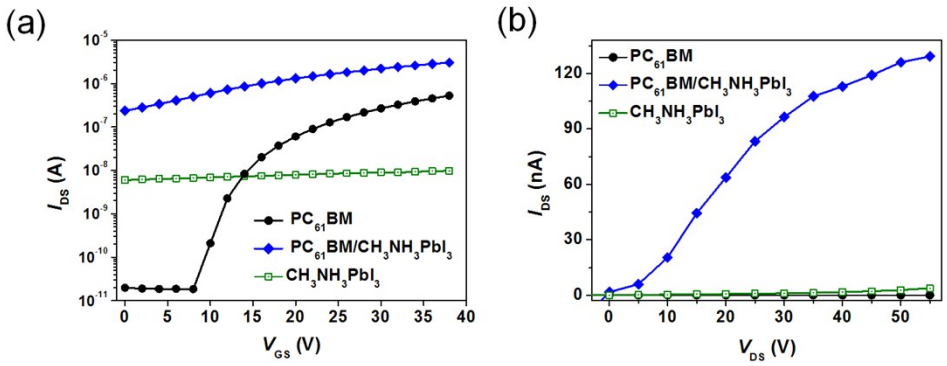

Figure S2. (a) Transfer characteristics of field-effect transistors based on pristine $PC_{61}BM$ (circles), pristine $CH_3NH_3PbI_3$ (squares) and $PC_{61}BM/CH_3NH_3PbI_3$ (diamonds), and (b) output characteristics of field-effect transistors based on pristine $PC_{61}BM$ (circles), pristine $CH_3NH_3PbI_3$ (squares) and $PC_{61}BM$/ $CH_3NH_3PbI_3$ (diamonds) at zero gate voltage.

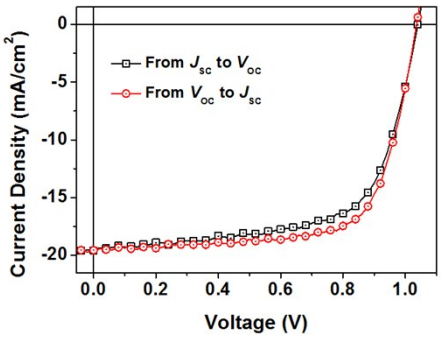

Figure S3. *J–V* characteristics of the studied $CH_3NH_3PbI_3$ solar cell based on FPI-PEIE/$PC_{61}BM$ layer under AM 1.5G irradiation at 100 mW cm^{-2}. The scan rate is 0.05 V s^{-1}.

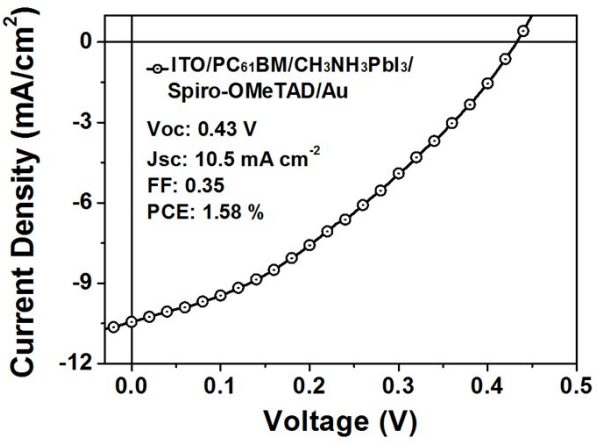

Figure S4. *J–V* characteristics of the control perovskite solar cell using a single $PC_{61}BM$ layer as the EEL under AM 1.5G irradiation at 100 mW cm^{-2}.