Supporting Information

Planar Perovskite Solar Cells with 15.75% Power Conversion Efficiency by Cathode and Anode Interfacial Modification

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Fig. S1 (a) The extinction spectra of Ag-NPs solution. Calculated electric field profiles in Ag-NPs (0.05 wt%) doped PEDOT:PSS for (b) at 427 nm, (c) at 508 nm and (d) at 627 nm.
Fig. S2 (a) Absorption and (b) transmittance spectra of PEDOT:PSS films with and without Ag NPs (0.05 wt%).
Fig. S3 AFM top images of (a) pristine PEDOT:PSS, (b) Ag-NPs (0.01 wt%) doped PEDOT:PSS, (c) Ag-NPs (0.03 wt%) doped PEDOT:PSS, (d) Ag-NPs (0.05 wt%) doped PEDOT:PSS, (e) Ag-NPs (0.07 wt%) doped PEDOT:PSS films.
Fig. S4 AFM 3D images of (a) pristine PEDOT:PSS, (b) Ag-NPs (0.01 wt%) doped PEDOT:PSS, (c) Ag-NPs (0.03 wt%) doped PEDOT:PSS, (d) Ag-NPs (0.05 wt%) doped PEDOT:PSS, (e) Ag-NPs (0.07 wt%) doped PEDOT:PSS films.
Fig. S5 SEM images of CH$_3$NH$_3$PbI$_3$-$x$Cl$_x$ crystal films on (a) PEDOT:PSS, (b) PEDOT:PSS-Ag NPs (0.01 wt%), (c) PEDOT:PSS-Ag NPs (0.03 wt%), (d) PEDOT:PSS-Ag NPs (0.05 wt%), and (e) PEDOT:PSS-Ag NPs (0.07 wt%).
Fig. S6 $J$-$V$ curve of a device using reverse (1.1 V $\rightarrow$ 0 V) and forward scan (0 V $\rightarrow$ 1.1 V), respectively.