Efficient Ag-doped perovskite solar cells fabricated in ambient air

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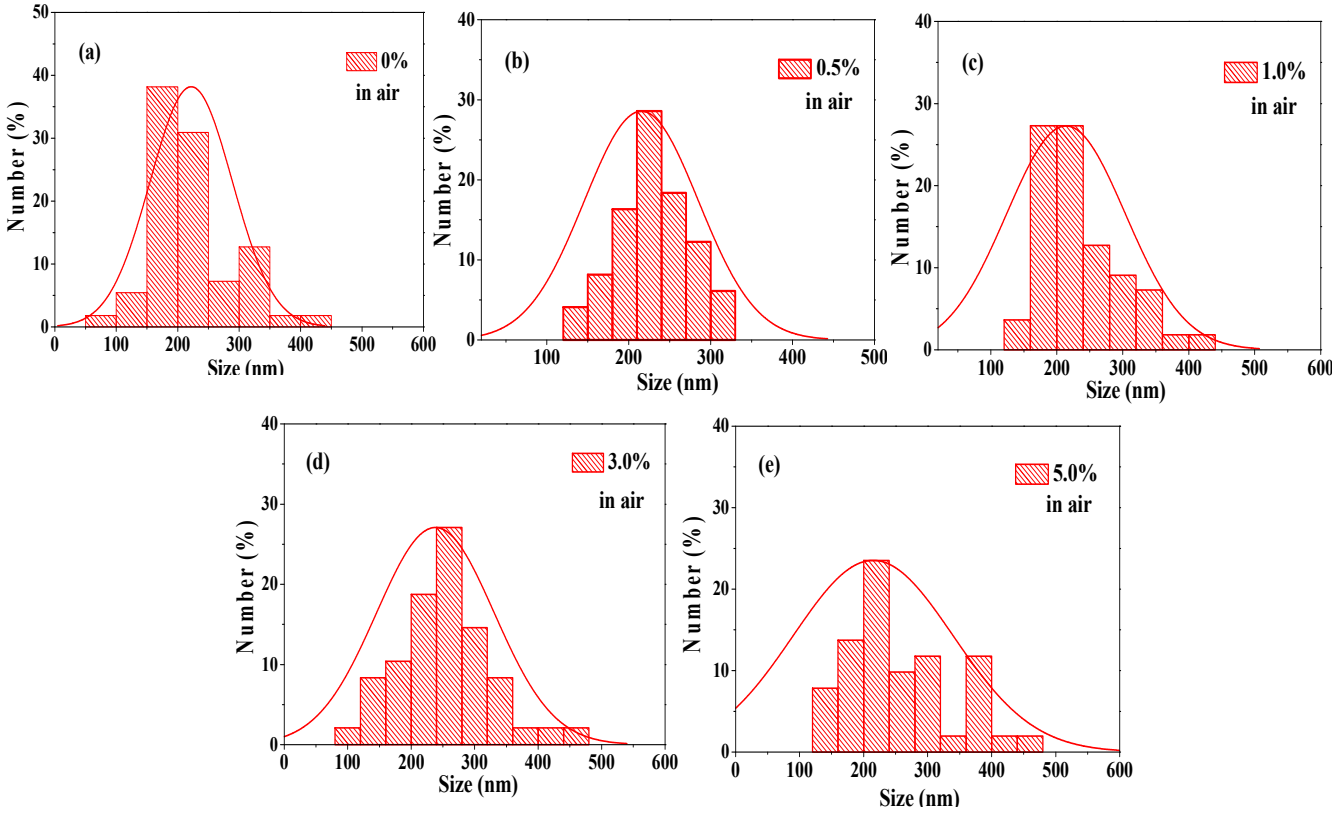


Figure S1. The statistical diagram of perovskite grain size with different Ag incorporation: (a) 0%, (b) 0.5%, (c) 1.0%, (d) 3.0% and (e) 5.0%.

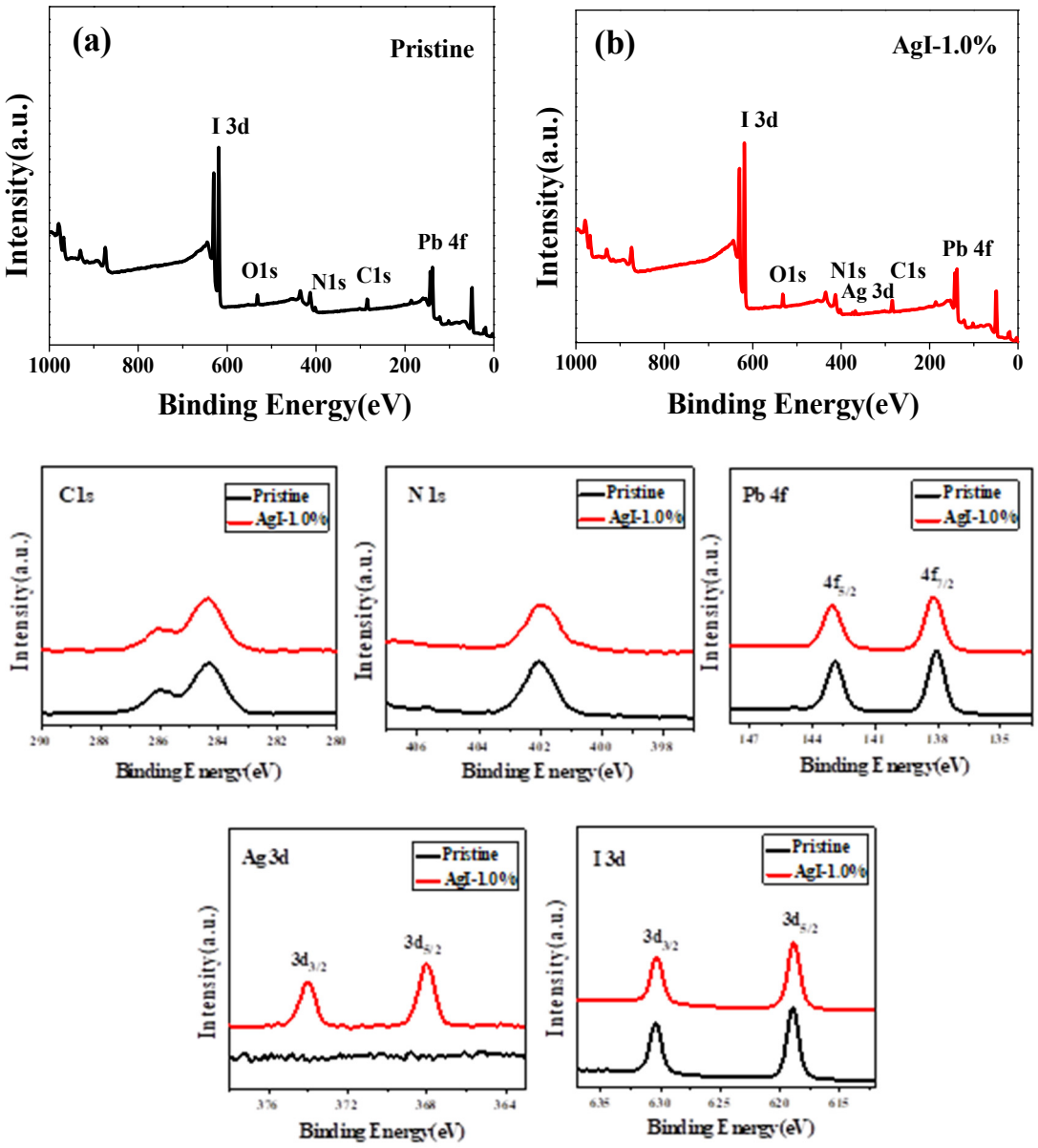


Figure S2. The XPS spectra of (a) pristine $MAPbI_3$ film and (b) 1.0% Ag-doped perovskite film, and the XPS for the elements C, N, Pb, Ag and I.

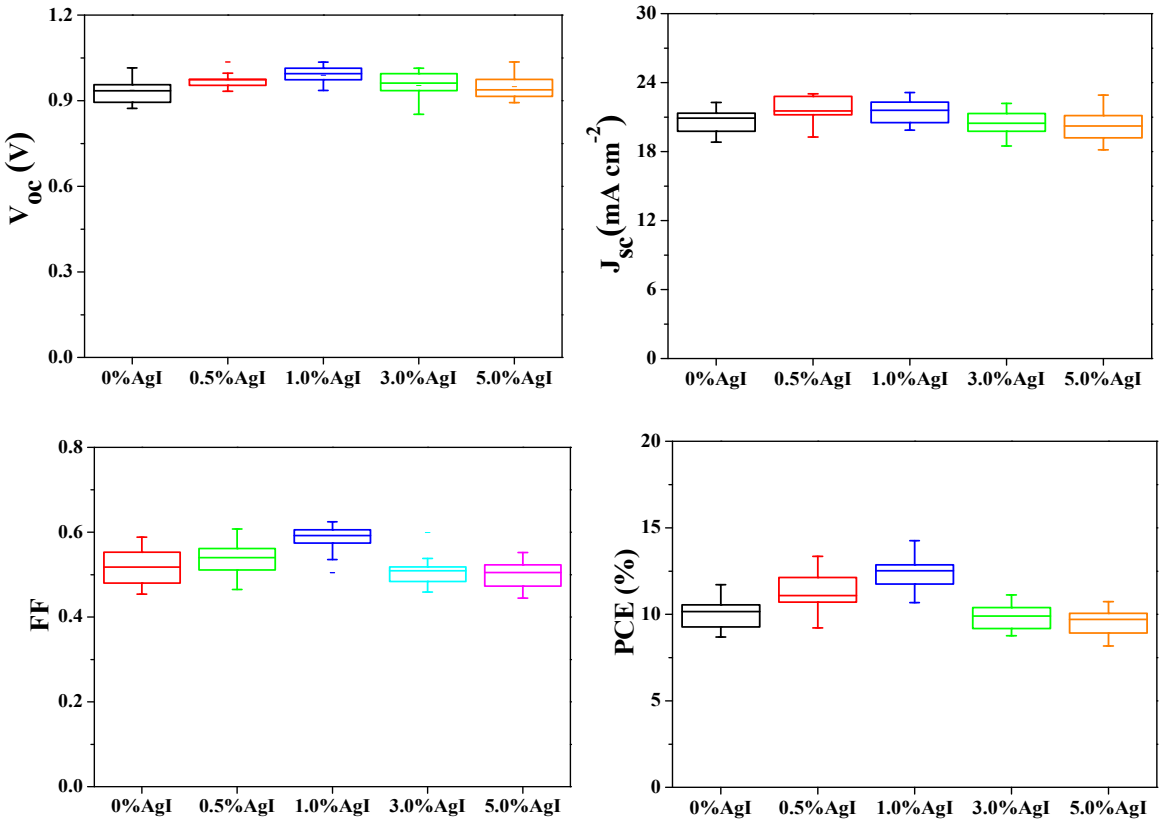


Figure S3. The distribution diagram of perovskite devices with Ag doping concentration from 0 to 5.0% in air with 30%-40% RH, data from 20 pieces per variable condition.

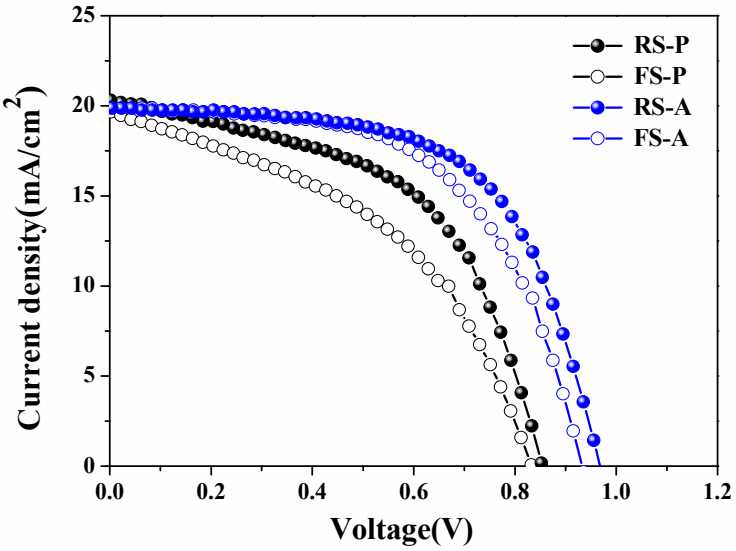


Figure S4. J-V curves of perovskite solar cells based on the FTO/c-TiO_2/m-TiO_2/perovskite/ spiro-OMeTAD /Ag

Table S1. Photovoltaic performances summary of the perovskite devices.

Samples	V_{oc} (V)	J_{sc} (mA/cm^2)	FF	PCE (%)
0% (P-RS)	0.872	20.31	0.514	9.10
0% (P-FS)	0.852	19.66	0.433	7.25
1.0% (A-RS)	0.976	19.88	0.602	11.68
1.0% (A-FS)	0.935	19.87	0.575	10.68

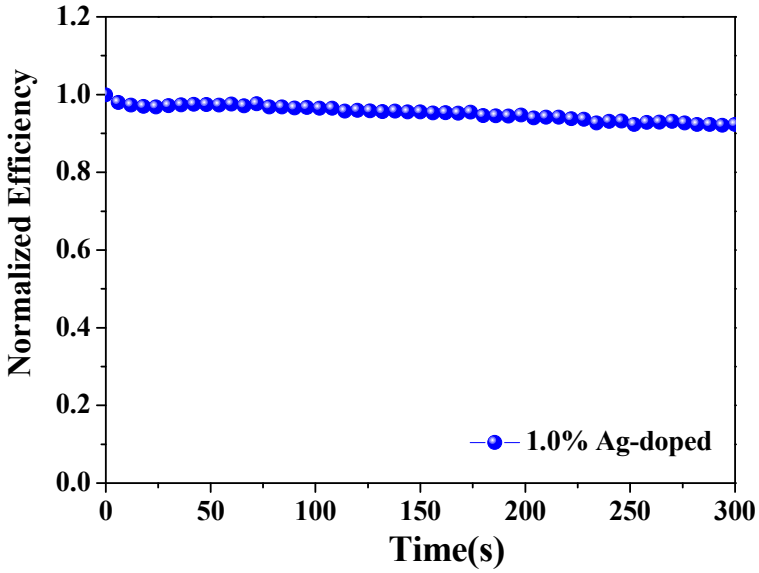


Figure S5. Steady power conversion efficiency curve of the 1.0% Ag-doped perovskite solar cell.