

Supporting Information

Phase control of quasi-2D perovskite thin films by adding 3D

MAPbI₃ in precursor solution

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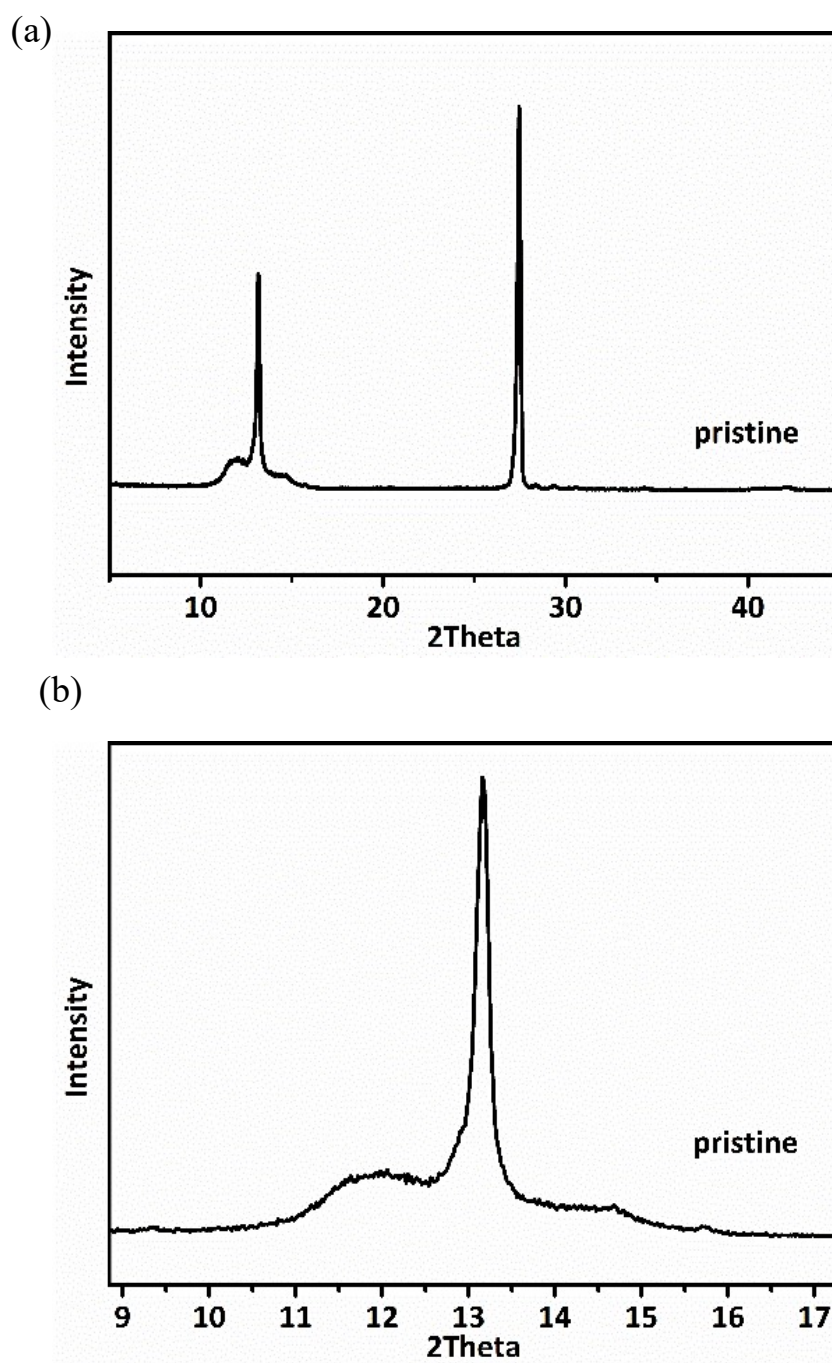


Figure. S1. (a) The XRD patterns of pristine ACI perovskite films and (b) partial enlarged XRD patterns of pristine ACI perovskite films

(a)

(b)

(c)

Figure. S2. The amplified SEM images of (a) pristine ACI film, (b) ACI film with 0.1 M 3D MAPbI₃ added, (c) ACI film with 0.1 M MAI+PbI₂. The scale bar is 100 nm.

Table S1. Fitted parameters for the TRPL decay traces of ACI perovskite films with different amounts of 3D MAPbI₃ added in precursor.

Amount of 3D additions (M)	Average lifetime (ns)	τ_1 (ns)	τ_2 (ns)
0	242.23	95.22	427.83
0.05	266.24	116.16	535.03
0.1	343.98	146.66	992.27
0.35	31.97	14.97	184.93

Table S2. Summary of the photovoltaic parameters of the p-i-n structure perovskite solar cells with different amounts of 3D MAPbI₃ addition.

Amount of 3D additions (M)	V _{oc} (V)	J _{sc} (mA•cm ⁻²)	FF (%)	PCE (%)
0	0.975	15.33	69.56	10.40
0.05	1.005	15.77	73.21	11.61
0.1	1.032	17.31	77.38	13.82
0.35	0.951	16.95	73.53	11.85

