Electronic Supplementary Material (ESI) for Nanoscale.

Supporting Online Material for

Solvent-molecule-mediated manipulation of crystalline grains for efficient planar binary lead and tin triiodide perovskite solar cells

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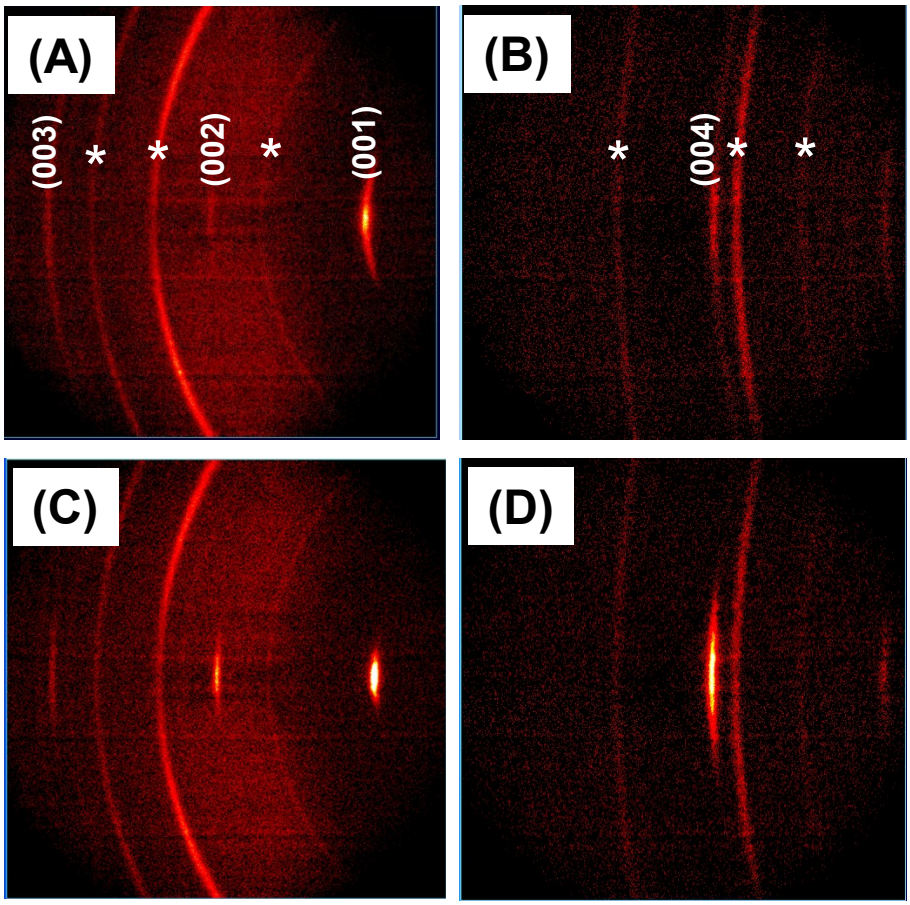

Fig. S1. The first frame (2θ from 10° to 40°) and the second frame (2θ from 40° to 70°) of 2D X-ray diffraction patterns of the $Sn_{0.1}Pb_{0.9}I_2$ (A and B) and $Sn_{0.25}Pb_{0.75}I_2$ (C and D) films. The scale of 2θ increases from right to left.

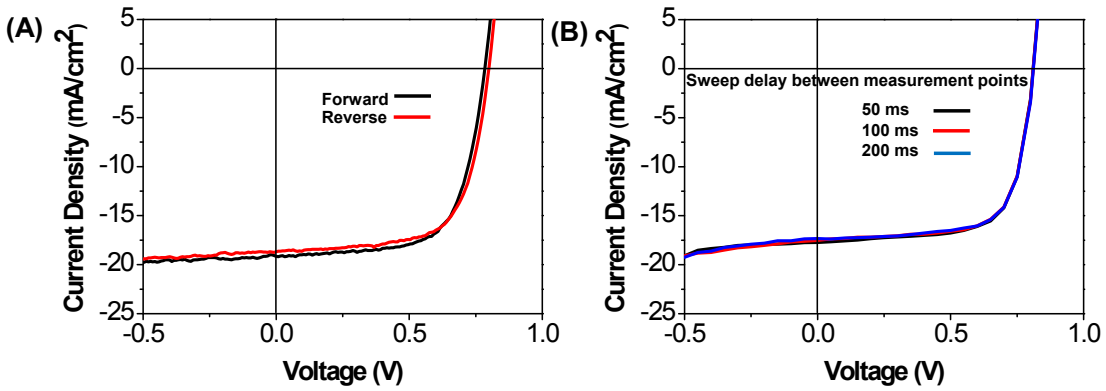

Fig. S2. Photocurrents of typical $CH_3NH_3Sn_{0.25}Pb_{0.75}I_3$ perovskite solar cells measured (A) with the forward and reverse voltage scans and (B) with the sweep delays of 50, 100, and 200 ms between measurement points, corresponding to the scan rates of 0.14, 0.07 and 0.04 V/s, respectively. The perovskite layers prepared via thermal plus DMSO vapor-assisted annealing. The forward scan is defined as the scan direction from small to large voltage.

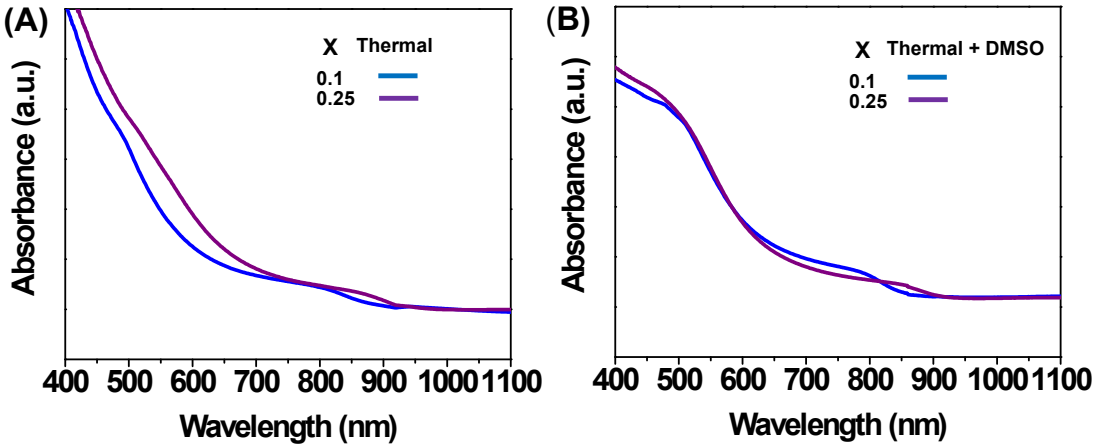

Fig. S3. The UV-Vis spectra of $CH_3NH_3Sn_{0.1}Pb_{0.9}I_3$ and $CH_3NH_3Sn_{0.25}Pb_{0.75}I_3$ films prepared via (A) only-thermal and (B) thermal plus DMSO vapor-assisted thermal annealing.