

Supporting Information

Improved Carriers Injection Capacity in Perovskite Solar Cells by Introducing A-site Interstitial Defects

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Table S1 EDX identified element percentages in the perovskite films.

K Content	Element Percentages				
	K	Ti	Sn	I	Pb
x=0	--	9.06	13.47	58.52	18.95
x=0.1	1.14	6.63	11.07	61.46	19.70
x=0.2	2.69	4.74	8.04	63.59	20.93
x=0.3	5.13	5.30	6.56	62.51	20.50
x=0.5	10.66	4.47	6.84	58.96	19.06

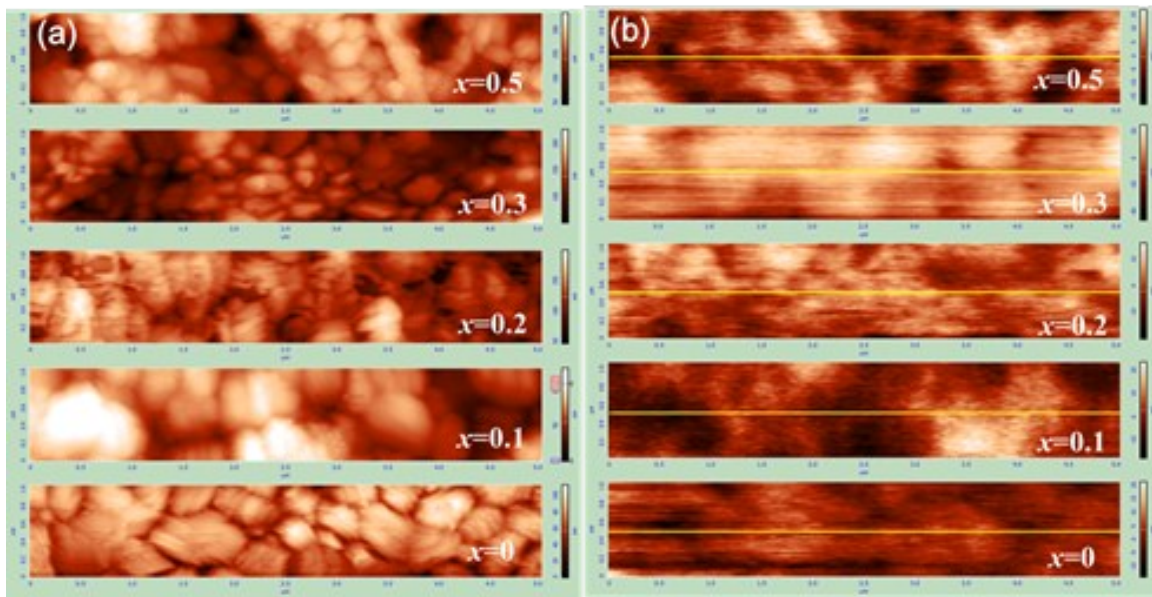


Figure S1 Kelvin Probe Force Microscopy images of the K^+ substituted perovskite films. (a) Top morphology images (b) the contact potential difference images of the corresponding area. The scanning range is $5 \times 1 \mu\text{m}$ for each sample.

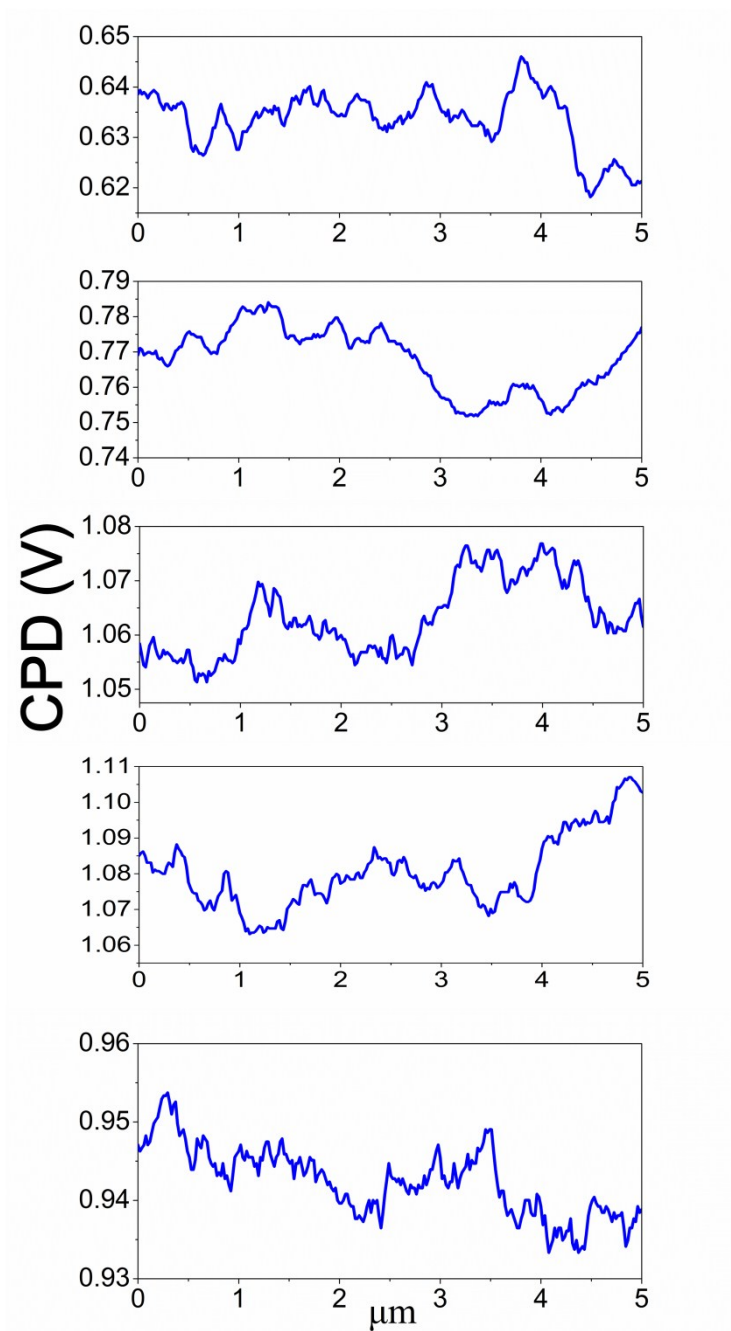


Figure S2 CPD data curves of each sample (Yellow line in Figure S1), from bottom to top: $x=0, 0.1, 0.2, 0.3$ and 0.5 .

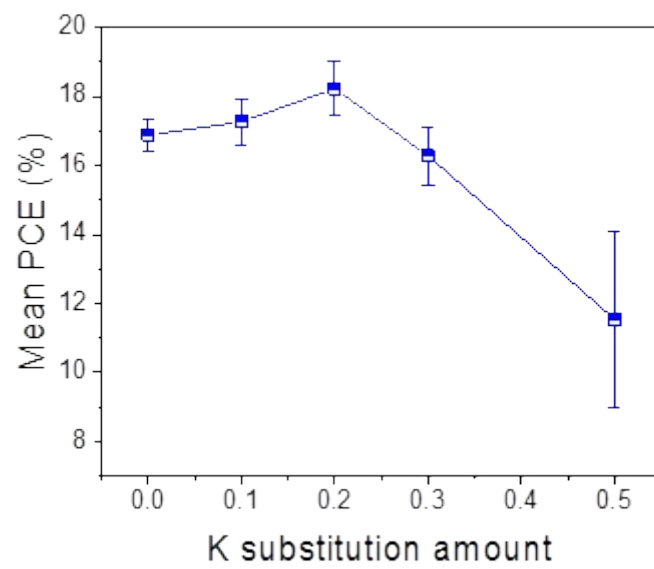


Figure S3 Statistics curves of the average PCEs of MA_{1-x}K_xPbI₃ solar cells

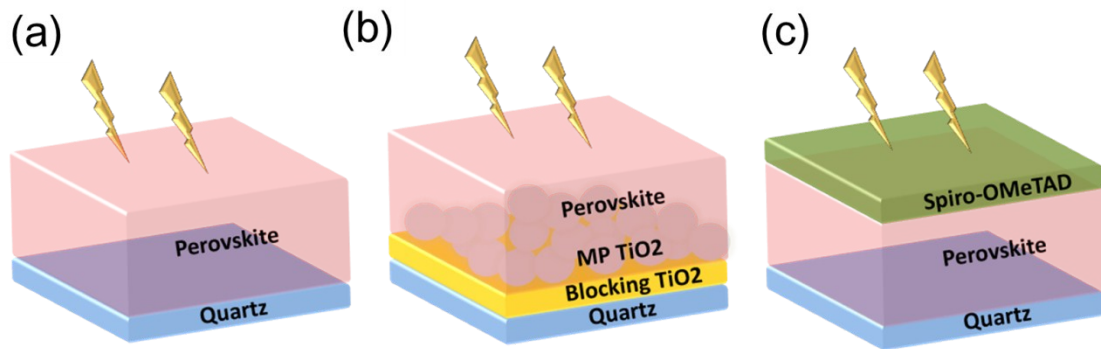


Figure S4 Schematic diagram of thin film configuration for TRPL test. (a) Bare perovskite (b) perovskite with ETL and (c) perovskite with HTL

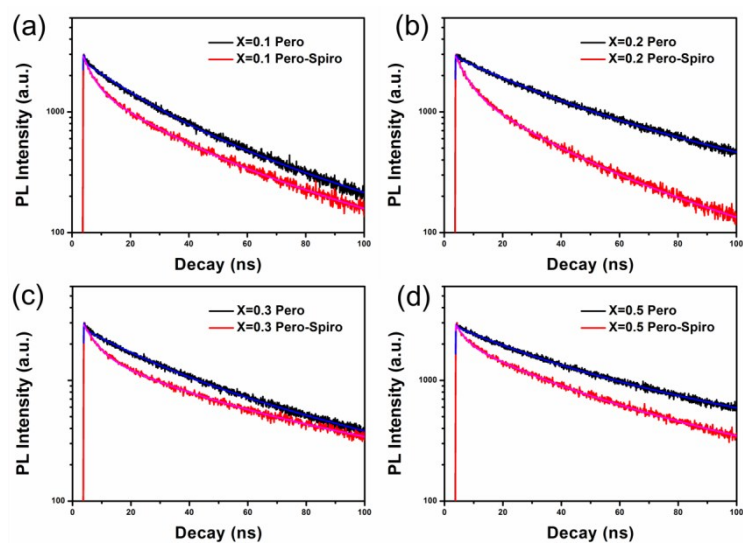


Figure S5 TRPL profile and the fitted lines of the bare perovskite and perovskite-HTL film.

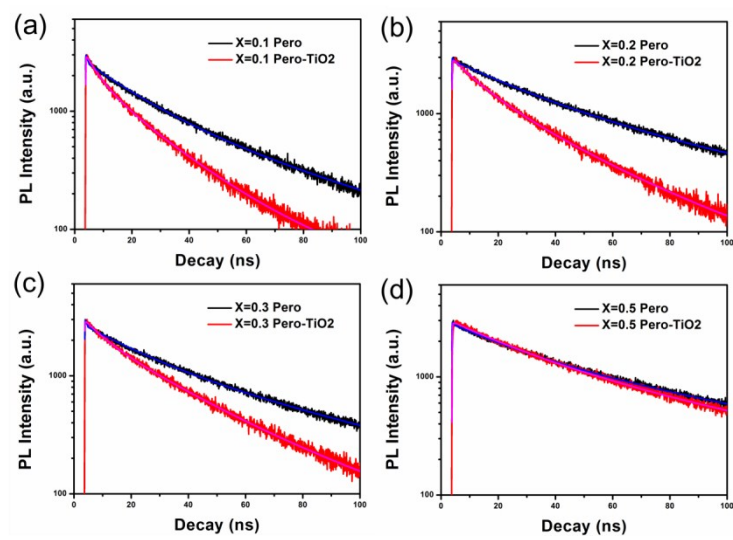


Figure S6 TRPL profile and the fitted lines of the bare perovskite and perovskite-ETL film.