Supporting Information

High efficiency MAPbI3-xClx perovskite solar cell via interfacial passivation

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Figure s1. The XRD of perovskite fabricated on different thickness LiF.

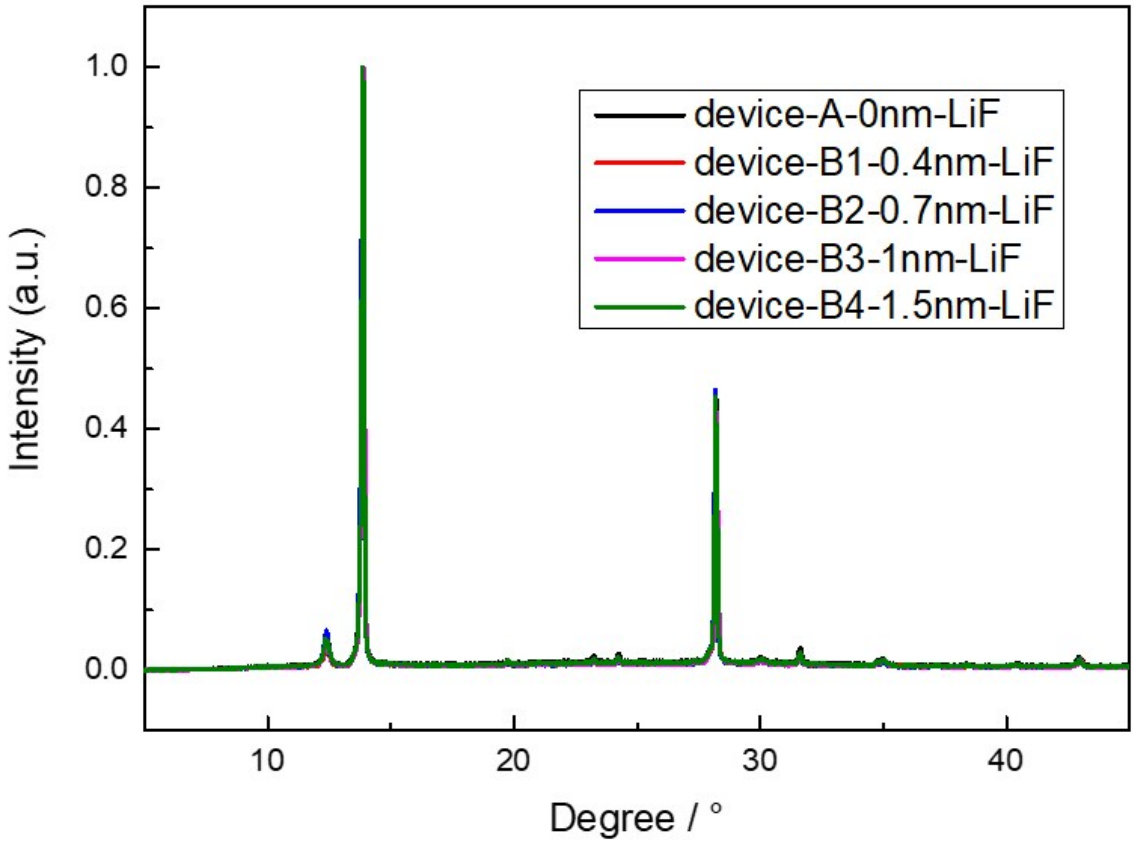
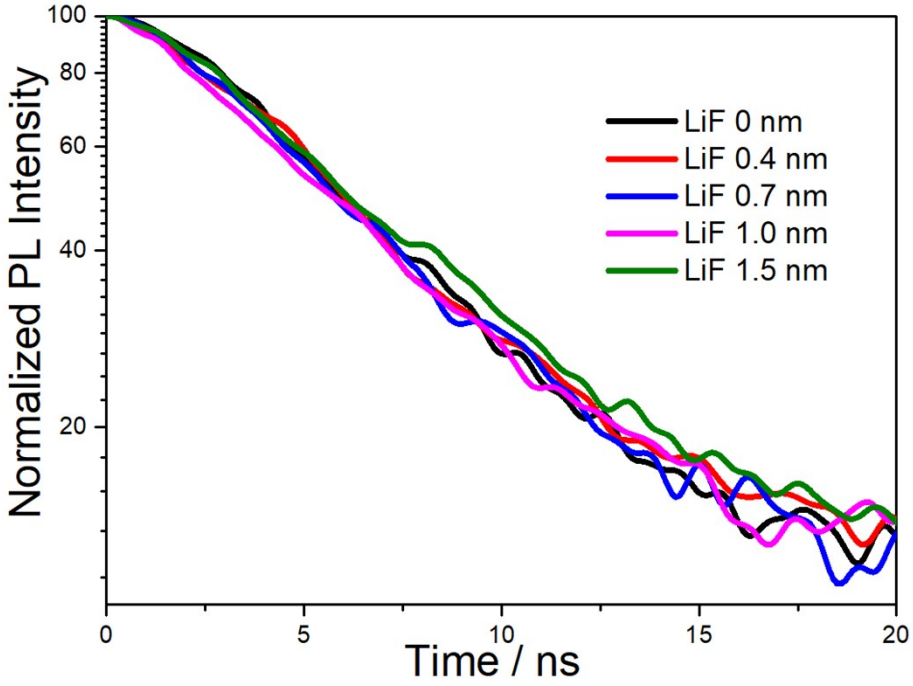
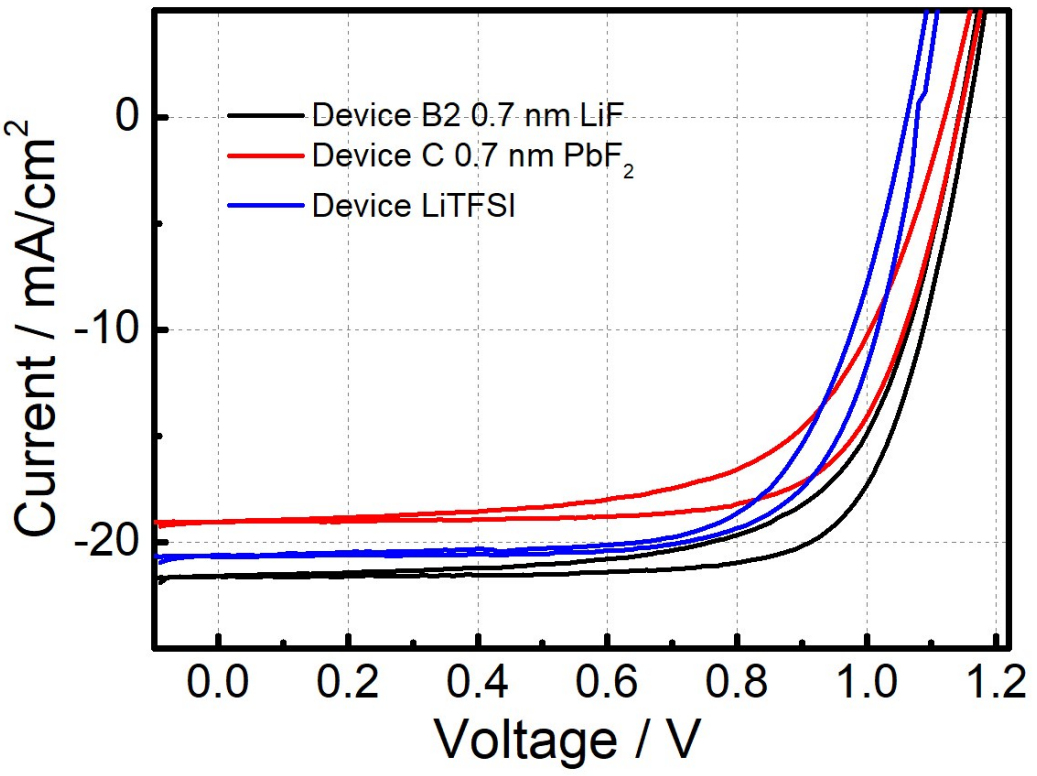


Figure s2. The PL lifetime of perovskite fabricated on different thickness LiF.



From the PL result, different devices show almost the same PL life time. It is well known that the PL life time are mainly determined by the perovskite bulk properties and the interfacial carrier transport. While the passivated the interfacial traps have small effect to the perovskite bulk properties, and also, it cannot enhance the interfacial carrier transport dramatically. So the PL life time shows few difference.

Figure s3. The IV of the LiTFSI device compared with 0.7 nm PbF_2 and 0.7 nm LiF Devices.



Supplementary Table 1. Performance of reported perovskite solar cellls based on SnO_2 electronic transport layer.

	Voc (V)	Jsc ($mA*cm^{-2}$)	FF (%)	Eff (%)	Perovskite types	SnO_2 processing tempure (℃)
1	1.112	22.8	75.78	19.21	$CH_3NH_3PbI_3$	200
2	1.147	22.03	77.4	19.56	$Cs_{0.056}FA_{0.76}MA_{0.15}PbI_{2.42}Br_{0.48}$	180
3	1.144	22.64	74.0	19.17	$(FAPbI_3)_{0.875}(CsPbBr_3)_{0.125}$	250
4	1.023	21.19	67.8	14.69	$CH_3NH_3PbI_3$	500
5	1.145	22.5	73.9	19.05	$Cs_{0.056}FA_{0.76}MA_{0.15}PbI_{2.42}Br_{0.48}$	180
6	1.07	22.8	70	17.0	$(FAPbI_3)_{0.875}(CsPbBr_3)_{0.125}$	450
7	1.13	22.58	78	19.8	$(FAPbI_3)_{0.85}(MAPbBr_3)_{0.15}$	250
8	1.06	21.4	67	15.3	$CH_3NH_3PbI_3$	Photonic Anneal
9	1.08	22.55	71	17.29	$CH_3NH_3PbI_3$	95
10	1.04	21.2	71.2	14.5	$CH_3NH_3PbI_3$	550
11	1.10	22.03	74.6	18.77	$CH_3NH_3PbI_3$	250
12	1.06	21.94	61.73	14.36	$CH_3NH_3PbI_{3-x}C_{lx}$	180
13	1.12	22.43	79.62	20.42	$CH_3NH_3PbI_3$	150
14	1.03	22.31	79	18.16	$CH_3NH_3PbI_3$	450
15	1.19	22.2	78.7	20.8	$(FAPbI_3)_{0.875}(MAPbBr_3)_{0.125}$	180
Our	1.16	21.7	73.1	18.3	$CH_3NH_3PbI_3$	

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