Methylammonium, formamidinium and ethylenediamine mixed triple-cation perovskite solar cells with high efficiency and remarkable stability

Zhiliang Chen,<sup>ab</sup> Xiaolu Zheng,<sup>a</sup> Fang Yao,<sup>a</sup> Junjie Ma,<sup>a</sup> Chen Tao,<sup>a\*</sup> and Guojia Fang,<sup>ab\*</sup>

<sup>a</sup>School of Physics and Technology, Wuhan University, Wuhan 430072, People's

Republic of China.

<sup>b</sup>Shenzhen Institute, Wuhan University, Shenzhen 518055, People's Republic of China.

*E-mail:* gjfang@whu.edu.cn

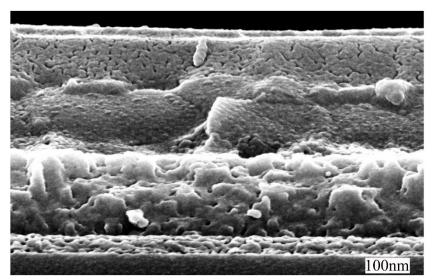


Fig. S1. Cross-sectional SEM image of the PSCs used in the present work.

Sample	$ au_1$	$B_1$	$ au_2$	$B_2$	$\tau_{\mathrm{avg}}$
	[ns]		[ns]		[ns]
0.0%	18.18	37.7%	53.80	62.3%	30.94
0.5%	18.94	37.28%	85.22	62.72%	36.98
1.0%	19.86	38.16%	89.06	61.84%	38.24
1.5%	21.55	33.79%	105.30	66.21%	45.52
2.0%	12.48	52.02%	69.55	47.98%	20.58
4.0%	8.15	57.12%	43.74	42.88%	12.52
6.0%	7.50	59.37%	46.60	40.63%	11.38
8.0%	6.51	63.8%	41.36	36.2%	9.37

**Table S1.** Fitted parameters of TRPL curves for the perovskite films deposited on FTO substrates.