Table S1 Comparison the performance of the state-of-the-art PSCs of the same type reported in the literature (PCEs denote champion values).

PSCs	PCE (%)	J_{sc} (mA cm^{-2})	V_{oc} (V)	*FF*	Ref.
ITO/SnO_2+g-C_3N_5/CsFAMA+g-C_3N_5/spiro-MeOTAD/Ag	22.34	23.97	1.18	0.79	This work
ITO/SnO_2+g-C_3N_5/$MAPbI_3$+g-C_3N_5/spiro-MeOTAD/Ag	20.68	23.04	1.14	0.79	This work
FTO/TiO_2/$MAPbI_3$+g-C_3N_4/spiro-MeOTAD/Ag	19.49	24.31	1.07	0.74	1
FTO/TiO_2/$MAPbI_3$+U-C_3N_4/spiro-MeOTAD/Ag	18.72	23.41	1.06	0.75	2
FTO/SnO_2/$MAPbI_3$+g-C_3N_3/spiro-MeOTAD/Au	19.91-	22.43	1.12	0.78	3
FTO/SnO_2+Sulfur-doped g-C_3N_4/CsFAMA/spiro-MeOTAD/Ag	20.38	23.43	1.13	0.76	4
FTO/SnO_2/CsFAMA+SWCNTs /spiro-MeOTAD/Au	16.10	20.70	1.13	0.69	5
ITO/SnO_2/CsFAMA+PTI/spiro-MeOTAD/Au	19.07	21.84	1.13	0.77	6
ITO/TiO_2/$MAPbI_3$+ $Ti_3C_2T_x$/spiro-MeOTAD/Au	17.41	22.26	1.03	0.76	7
FTO/SnO_2: Eu^{3+} /$MAPbI_3$: Eu^{3+} /spiro-MeOTAD/Ag	20.14	22.57	1.13	0.79	8
ITO/TiO_2+Gd^{3+}/CsFAMA+ DRCN5T /spiro-MeOTAD/Ag	20.53	23.61	1.12	0.78	9