Improving performance of $FAPbI_3$ perovskite solar cells by self-assembled monolayer

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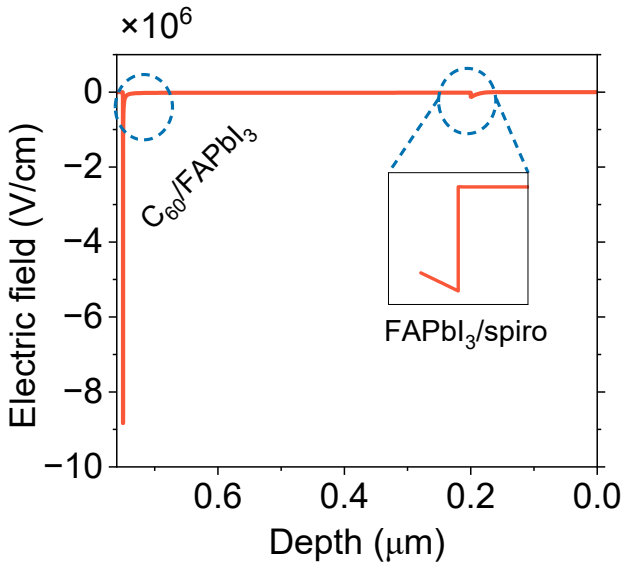

Figure S1: Electric field distribution across HPSC.

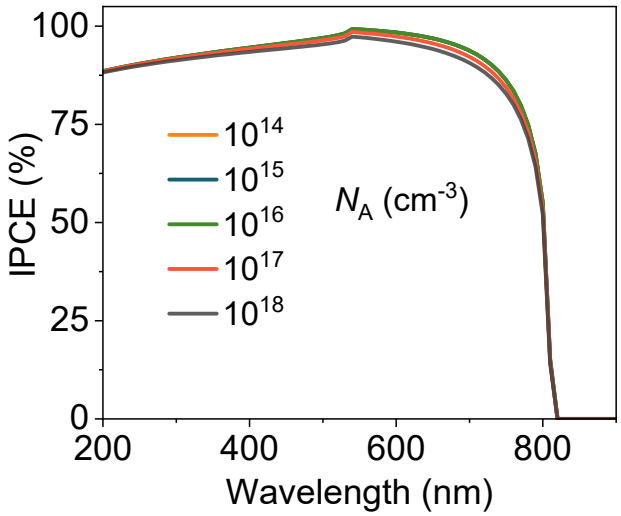

Figure S2: IPCE spectra of HPSC at different acceptor concentrations.

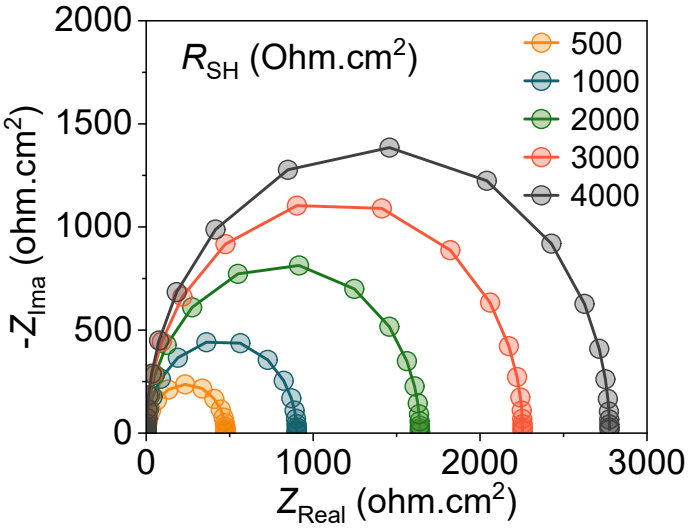

Figure S3: Nyquist plots of HPSC at different shunt resistances.

Table S1. The key parameters of PSC at interfaces.

Parameters/Interfaces	**C_{60}-SAM/$FAPbI_3$**	**$FAPbI_3$/spiro-OMeTAD**
Defect type	Neutral	Neutral
Capture cross section for electrons (cm^2)	1.0×10^{-19}	1.0×10^{-19}
Capture cross section for holes (cm^2)	1.0×10^{-19}	1.0×10^{-19}
Energetic Distribution	Single	single
Reference for defect energy level E_t	Above the highest E_V	Above the highest E_V
Energy with respect to reference (eV)	0.600	0.600
Total defect density (cm^{-2})	1.02×10^{12}	1.02×10^{12}