

Supporting Information for

Interfacial Voids Trigger Carbon-Based, All-Inorganic CsPbIBr₂ Perovskite Solar Cells with Photovoltage Exceeding 1.33 V

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Supplementary Figures and Table

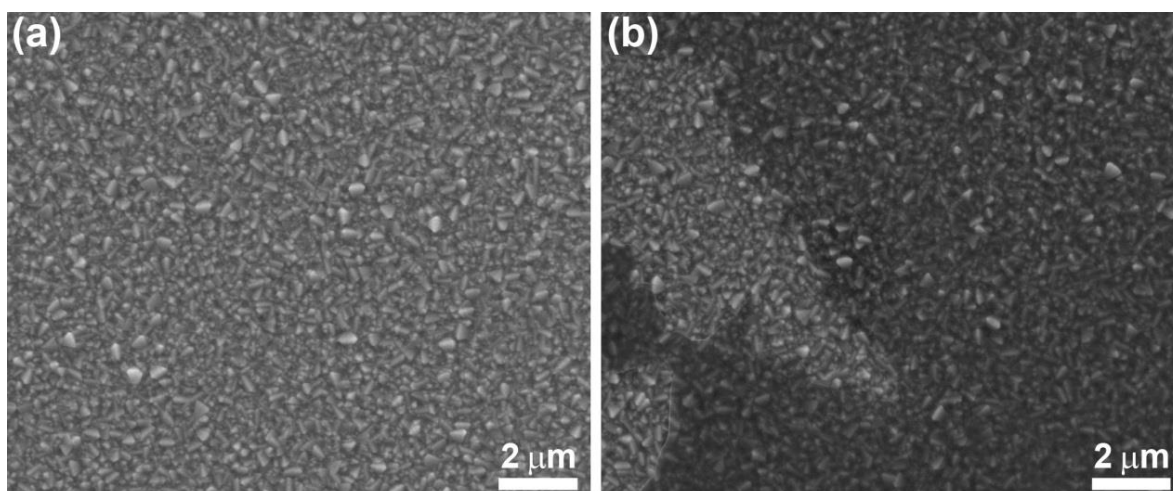


Fig. S1 SEM images of FTO/TiO₂ substrates: **a** without and **b** with loading of PEAI species. The dark area in panel **b** indicates the loading of PEAI species

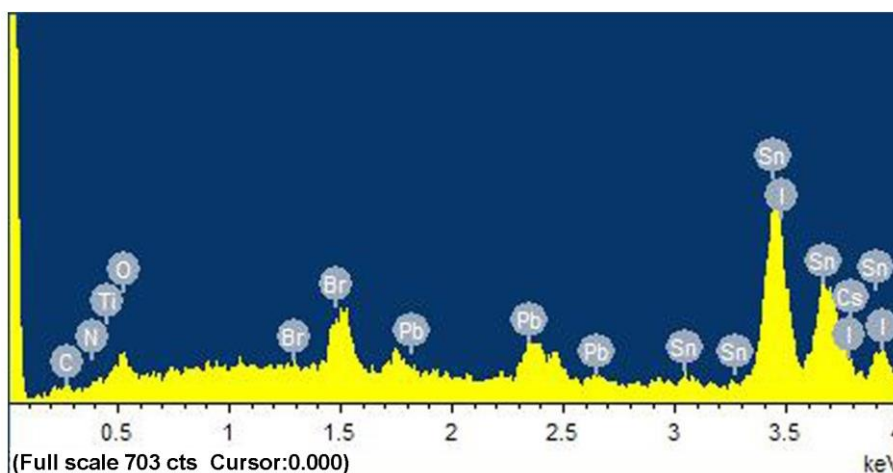


Fig. S2 EDS spectra of CsPbIBr₂ film deposited on FTO/TiO₂ substrate with loading of PEAI species.

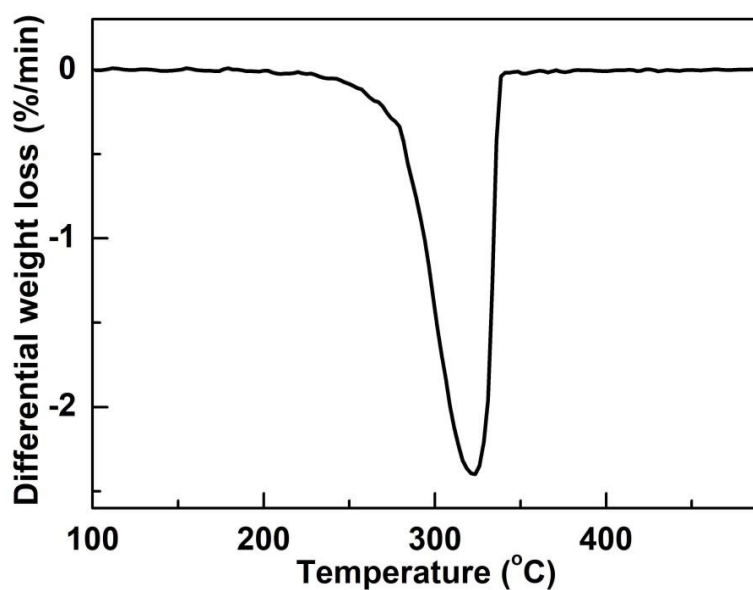


Fig. S3 Differential thermogravimetric curve PEAI powder as a function of applied temperature

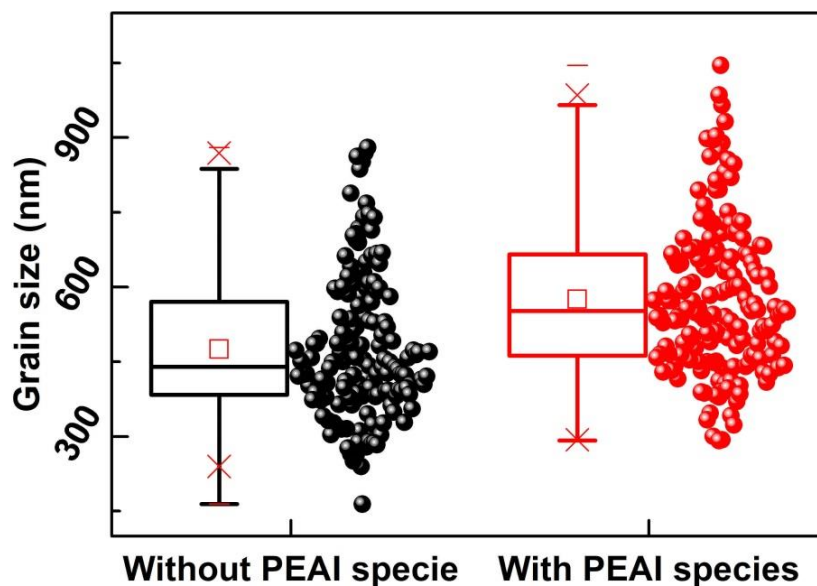


Fig. S4 Statistical grain sizes of CsPbIBr₂ films deposited on FTO/TiO₂ substrates without and with loading of PEAI species

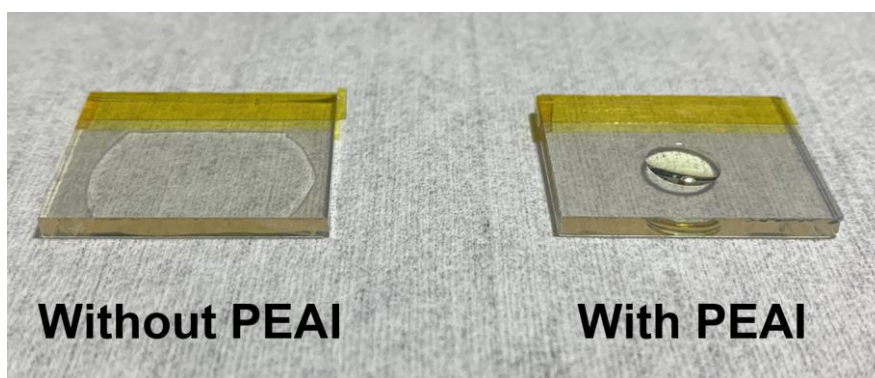


Fig. S5 Optical images of CsPbIBr₂ precursor on FTO/TiO₂ substrates without and with loading of PEAI species

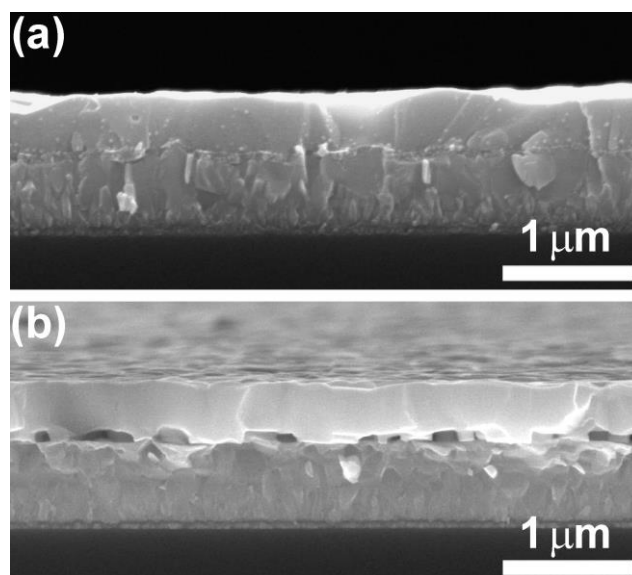


Fig. S6 High-resolution cross-sectional SEM images of CsPbIBr₂ films deposited on FTO/TiO₂ substrates: **a** without and **b** with loading of PEAI species

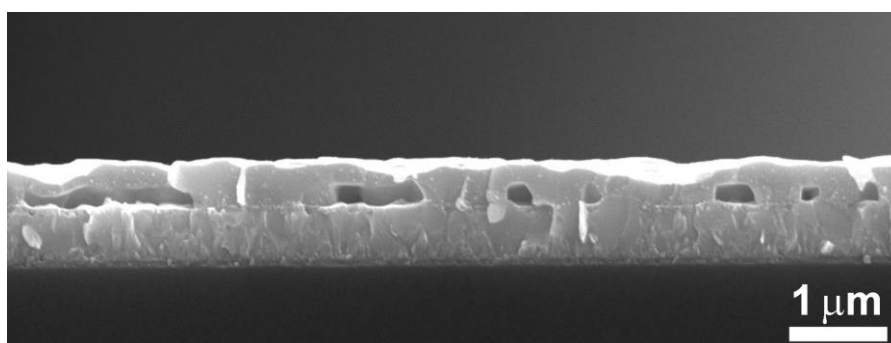


Fig. S7 Cross-sectional SEM image of CsPbIBr₂ film prepared with 10 mg mL⁻¹ PEAI solution

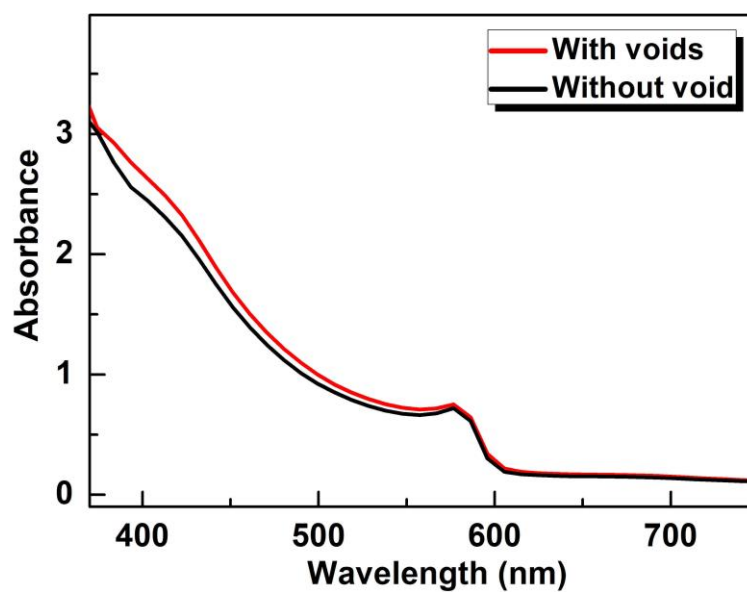


Fig. S8 UV-vis absorption spectra collected from the side of FTO glass for CsPbIBr₂ films without and with interfacial voids, respectively, wherein the detection beam streams from the top surface of CsPbIBr₂ films

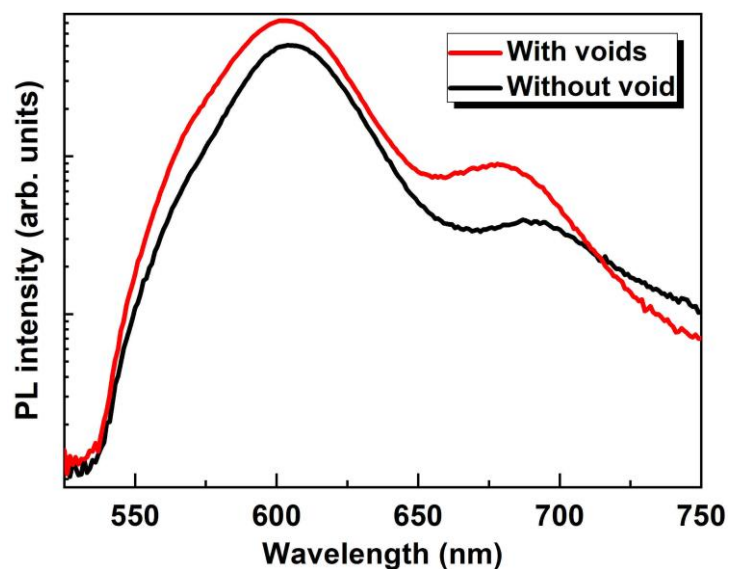


Fig. S9 Logarithmic-scale steady-state PL spectra of CsPbIBr₂ films without and with interfacial voids on insulating glass substrates instead of FTO/TiO₂ substrates

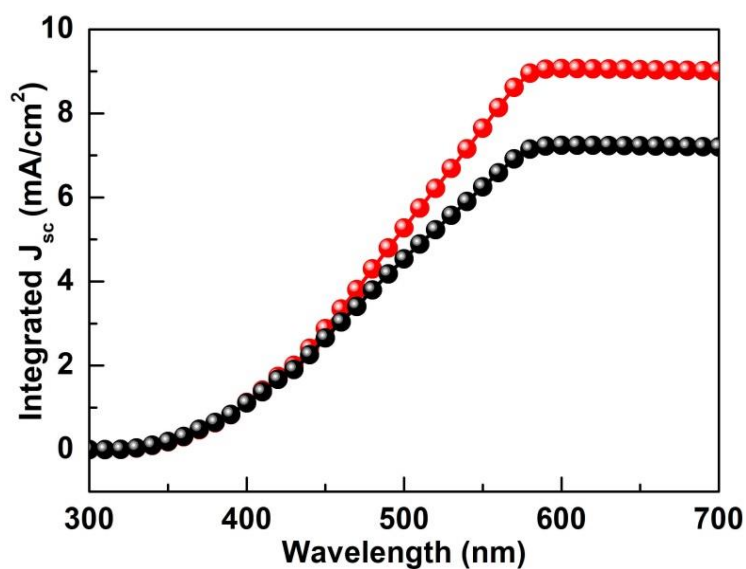


Fig. S10 Integrated J_{sc} curves of the champion cells based on CsPbIBr₂ films without and with interfacial voids

Table S1 Fitted parameters of (100) and (200) XRD peaks of CsPbIBr₂ films without and with interfacial voids

Samples	Peak of (100) plane			Peak of (200) plane		
	Position	Intensity	FWHM	Position	Intensity	FWHM
Without void	15.13°	1072	0.163°	30.44°	1321	0.190°
With voids	15.14°	1680	0.126°	30.42°	1917	0.177°