Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Templated Synthesis of $CsPbBr_3$ Nanowire Arrays Toward Low Current Drift and Stable X-ray Detector

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Fig. S1 Random crystallization structures on the surface of $CsPbBr_3$ films without quartz glass.

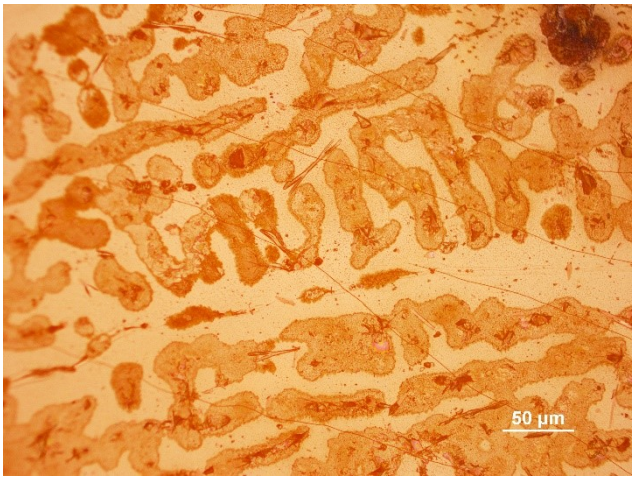

Fig. S2 Polycrystalline layer on the top of $CsPbBr_3$ films.

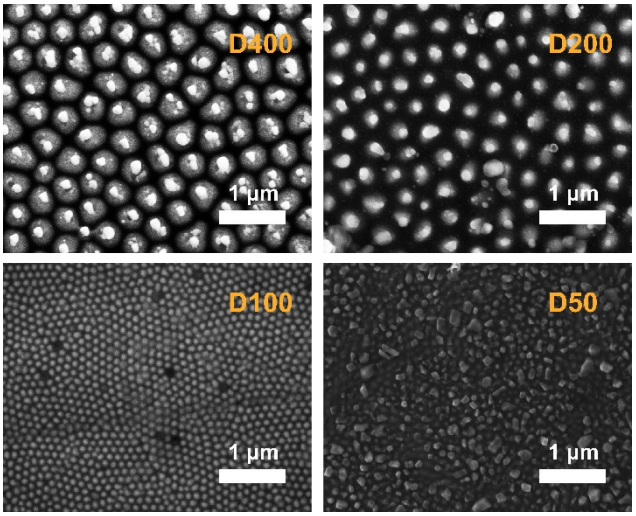

Fig. S3 Surface SEM images of D400, D200, D100 and D50 in the secondary-electron mode.

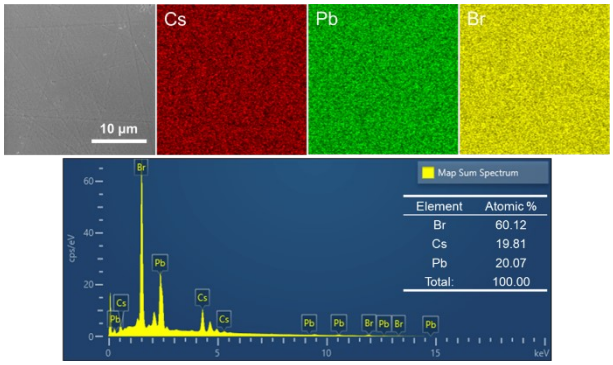

Fig. S4 Energy dispersive spectrum analysis of $CsPbBr_3$ films.

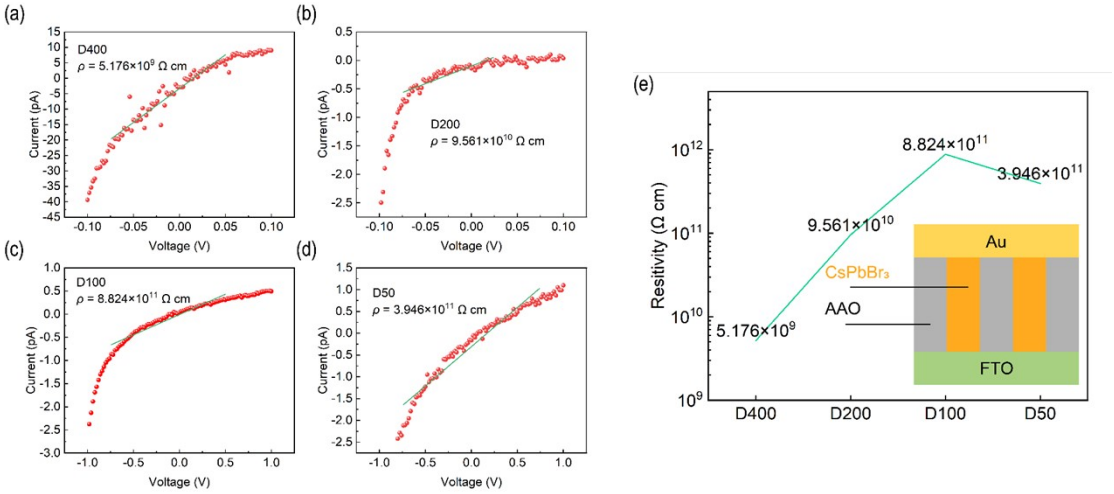

Fig. S5 (a-d) Low-voltage *I-V* characteristics and resistivity: (a) D400, (b) D200, (c) D100 and (d) D50. (e) FTO/AAO-$CsPbBr_3$/Au structure and resistivity versus pore size.

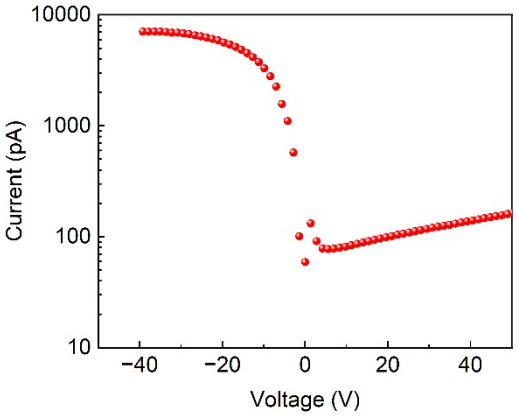

Fig. S6 *I-V* curves of D400.

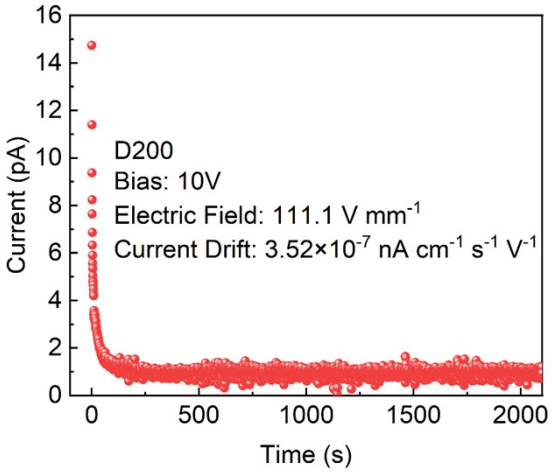

Fig. S7 Dark current drift of D200 at a bias of 10 V.

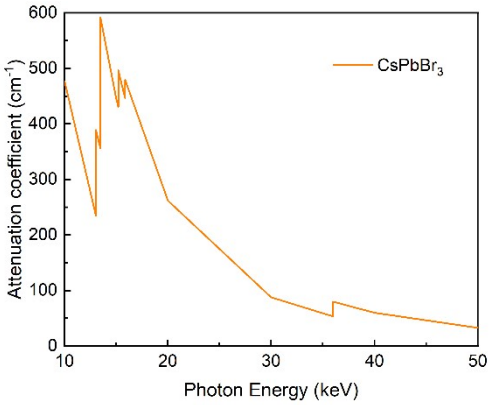

Fig. S8 Attenuation coefficient of $CsPbBr_3$ for photons with energy of 10-50 keV.

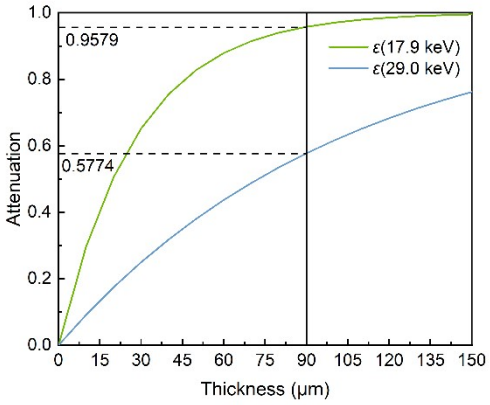

Fig. S9 Attenuation rate of $CsPbBr_3$ for X-rays.

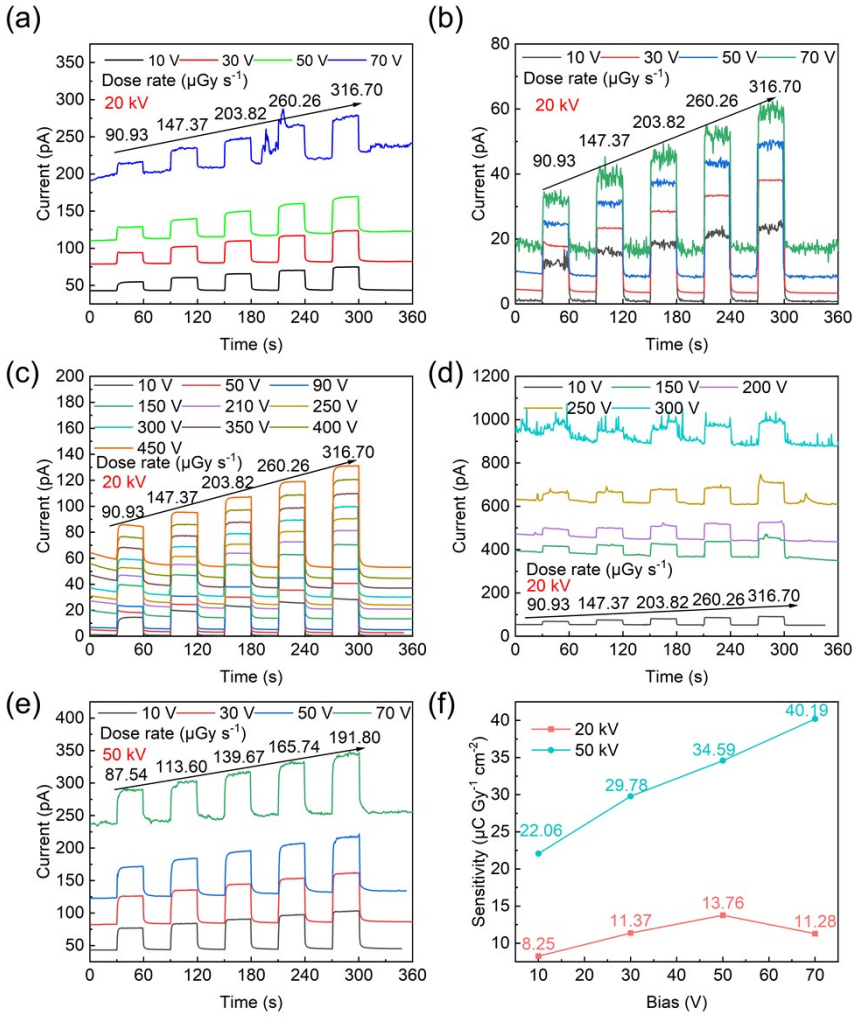

Fig. S10 (a-d) X-ray response of AAO-$CsPbBr_3$ films (a) D400, (b) D200 (c) D100 and (d) D50 at 20 kVp. (e) X-ray response of D400 at 50 kVp. (f) Sensitivity versus of D400.

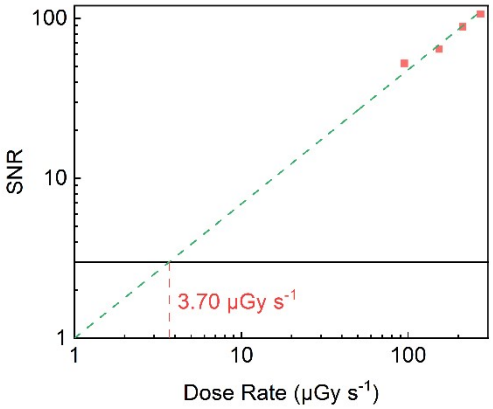

Fig. S11 The detection limit of AAO-$CsPbBr_3$ columnar crystal films.

Table S1 Calibrated and actual absorbed dose rates at different tube voltages and tube current.

Tube voltage (kV)	Tube current (μA)	Calibrated dose rate (μGy s^{-1})	Actual absorbed dose rate (μGy s^{-1})
20	30	94.92	90.93
	50	153.84	147.37
	70	212.76	203.81
	90	271.68	260.25
	110	330.60	316.70
50	30	151.61	87.54
	40	196.75	113.60
	50	241.90	139.67
	60	287.04	165.74
	70	332.19	191.80

Table S2 Calibrated dose rates for SNR calculation.

Tube voltage (kV)	Tube current (μA)	Calibrated dose rate (μGy s^{-1})
20	30	90.93
	50	147.37
	70	203.81
	90	260.25