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Supplementary Materials

Phase Behavior and Role of Organic Additives for Self-Doped $CsPbI_3$ Perovskite Semiconductor Thin Films

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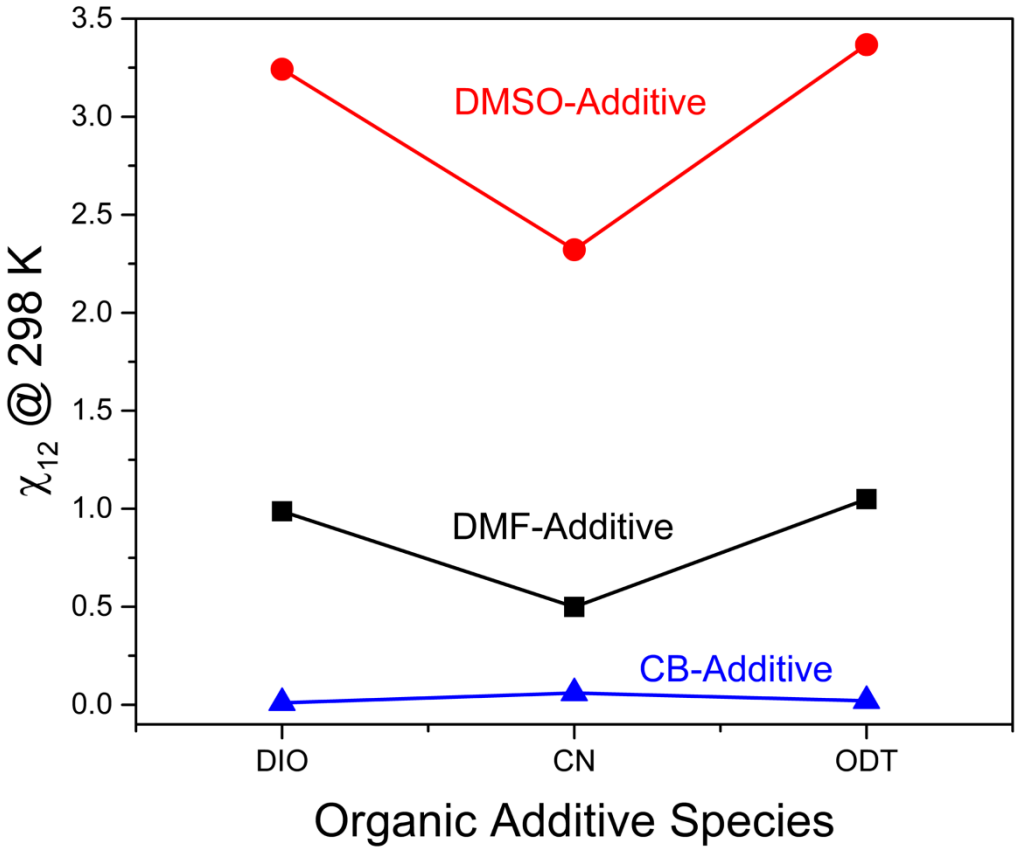

Figure S1. Flory-Huggins interaction parameter at 298 K as a function of organic additive species.

Table S1. Flory-Huggins χ_{12} interaction parameter at 298 K as a function of organic additive species.

	Binary additive-solvent system								
	DMF			DMSO			CB*		
	DIO	CN	ODT	DIO	CN	ODT	DIO	CN	ODT
χ_{12}	0.987	0.499	1.049	3.242	2.321	3.368	0.01	0.06	0.02

* Chlorobenzene (CB) is used as an antisolvent in this study.

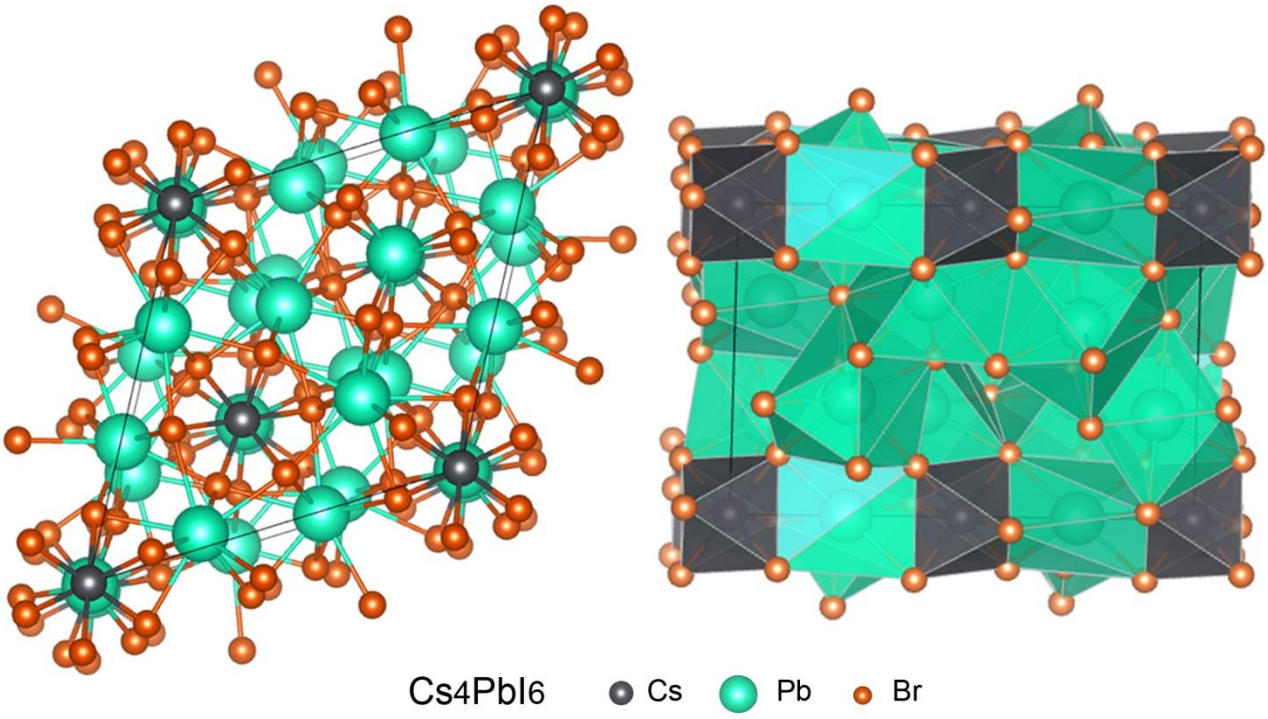

Figure S2. Crystal structure of trigonal Cs_4PbI_6 with space group R-3c.

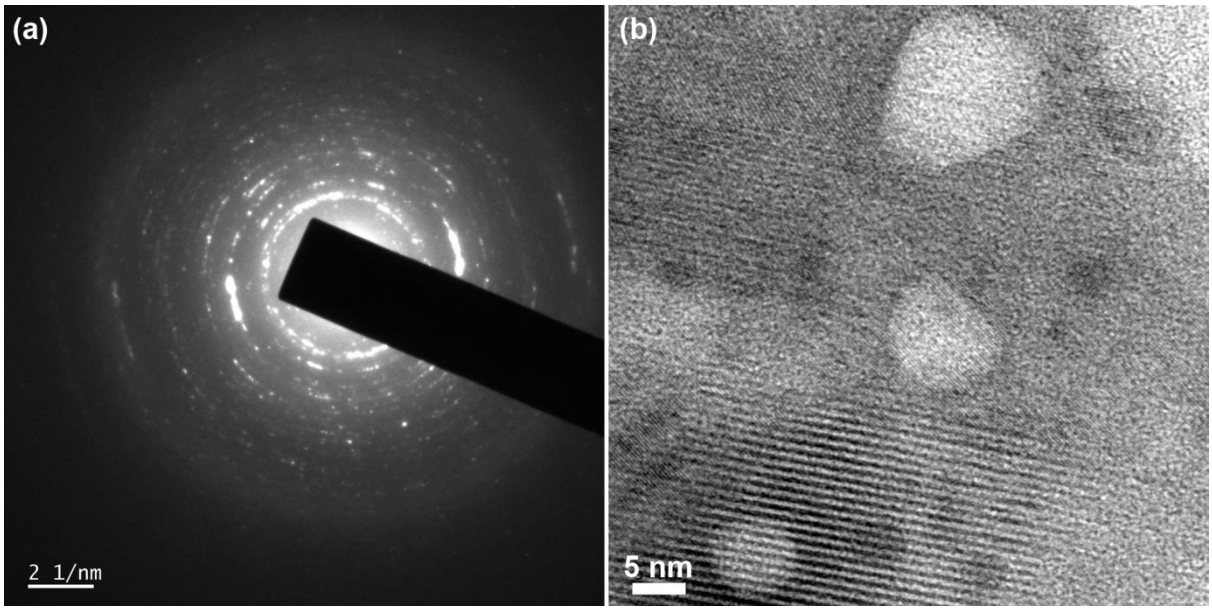

Figure S3. (a) Selected area diffraction pattern and (b) high-resolution TEM images of self-doped $CsPbI_3$ with the organic additive ODT.

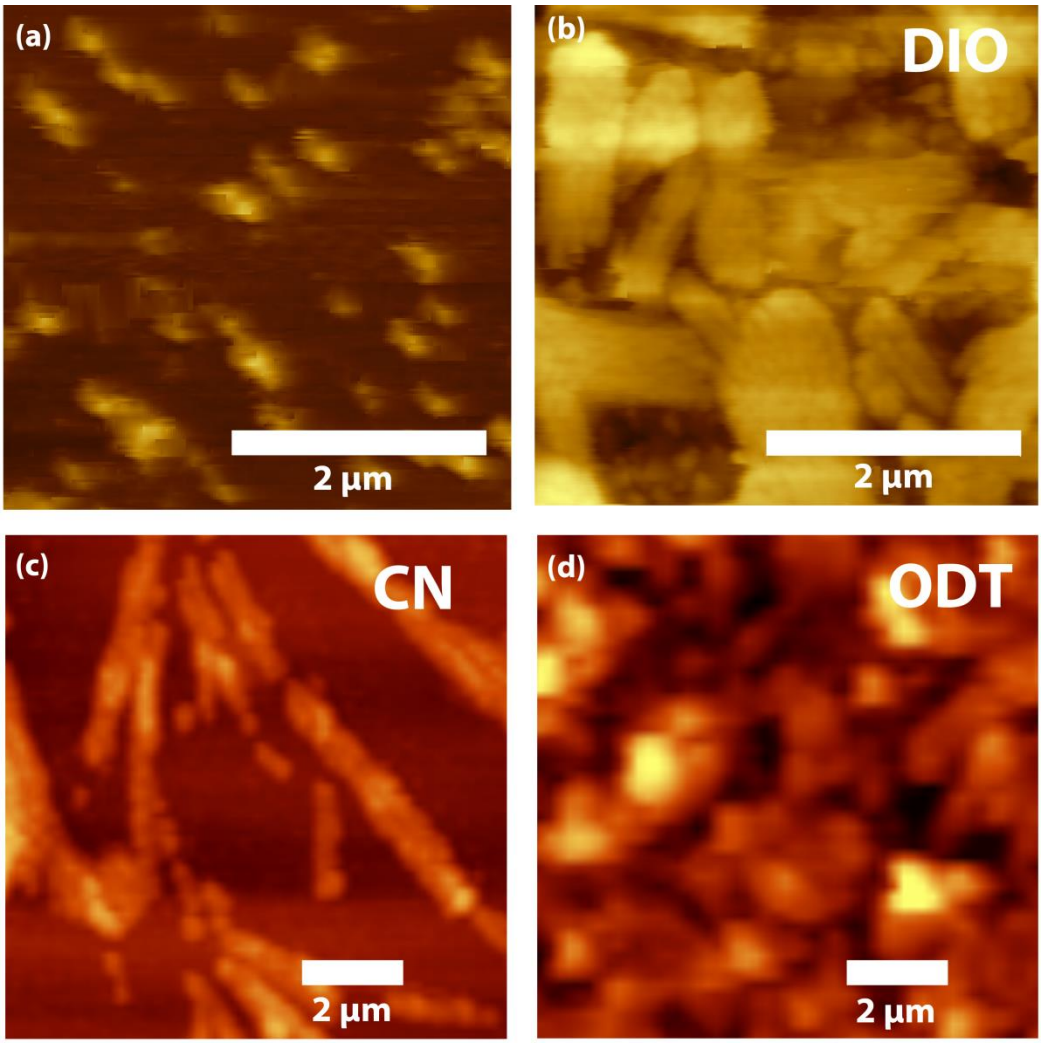

Figure S4. AFM tapping-mode height image. (a) Self-doped $CsPbI_3$ without any additive, (b) self-doped $CsPbI_3$ with DIO, (c) self-doped $CsPbI_3$ with CN, and (d) self-doped $CsPbI_3$ with ODT.