

Photoluminescence Spectral Broadening, Chirality Transfer and Amplification of Chiral Perovskite Materials (R-X-p-mBZA)₂PbBr₄ (X= H, F, Cl, Br) Regulated by Van Der Waals and Halogen Atoms Interactions

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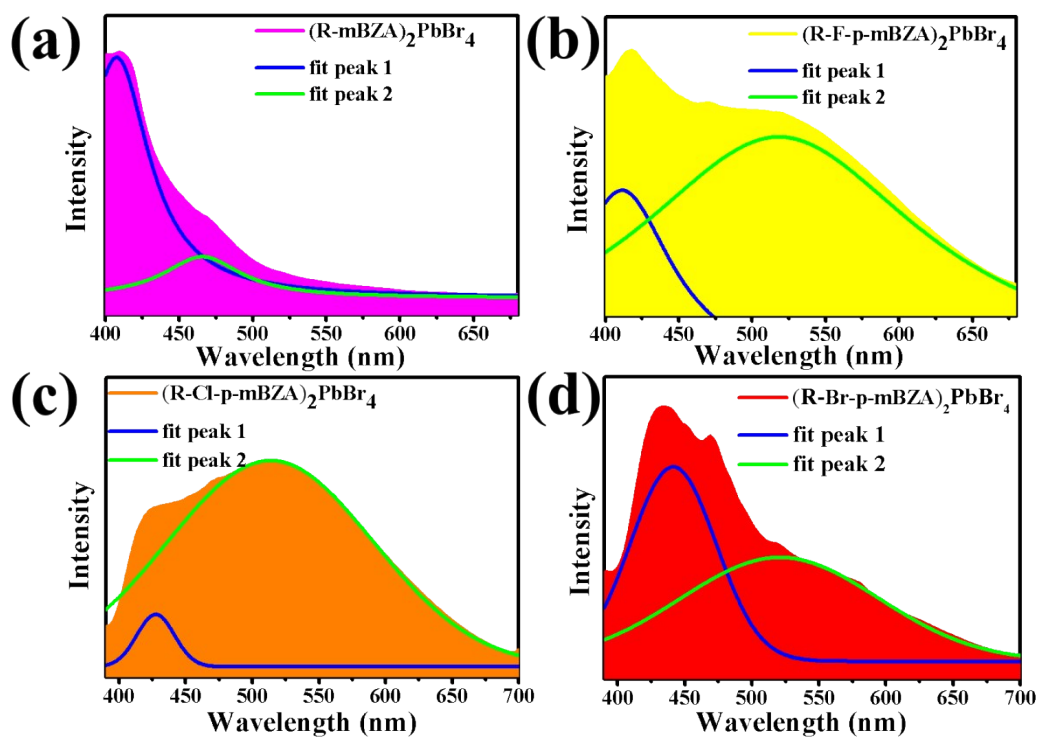


Figure S1. Photoluminescent spectrum of $(R-X-p-mBZA)_2PbBr_4$: X= H (a), F (b), Cl (c) and Br (d) fitted with Lorentz.

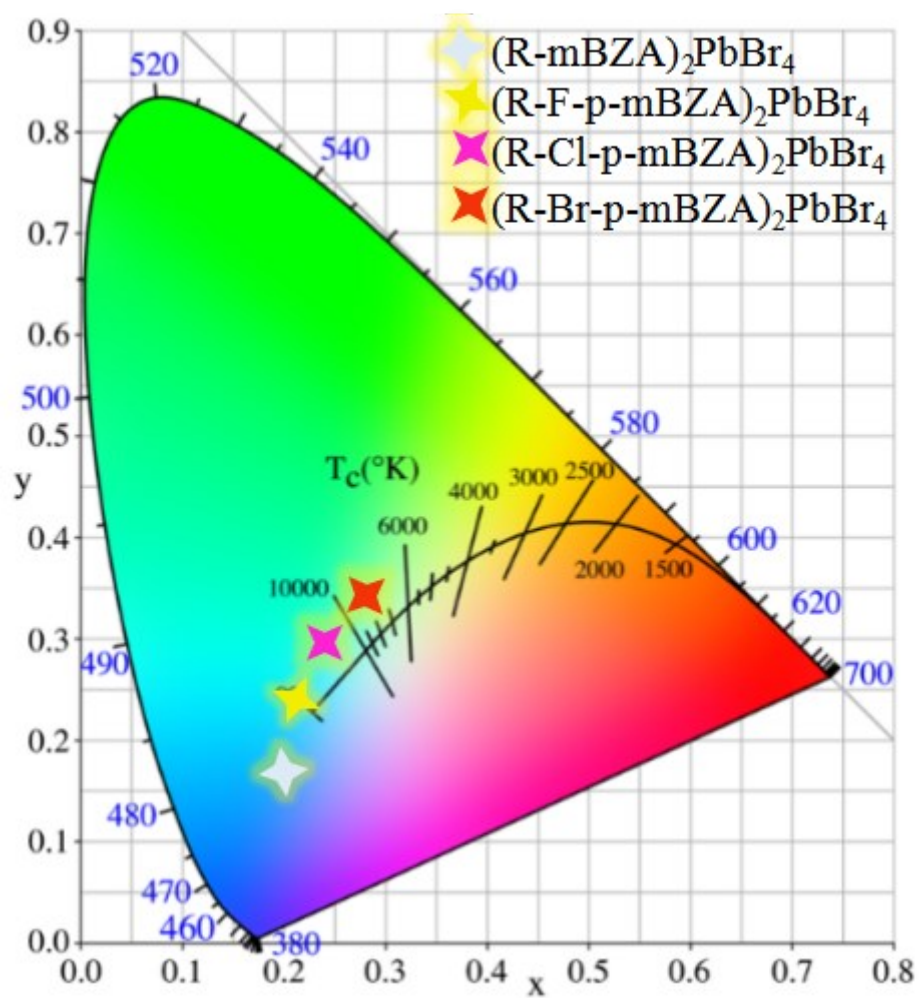


Figure S2. CIE color coordinates of $(\text{R-X-p-mBZA})_2\text{PbBr}_4$ ($\text{X} = \text{H}, \text{F}, \text{Cl}$ and Br).

Table S1. Photophysical data for the (R-X-p-mBZA)₂PbBr₄ (X= H, F, Cl, Br) powders.

	λ_{abs} (nm)	λ_{em} (nm)	FWHM (nm)
(R-mBZA) ₂ PbBr ₄	325	373	48.0
(R-F-p-mBZA) ₂ PbBr ₄	381	418	
(R-Cl-p-mBZA) ₂ PbBr ₄	220 / 374	514	189
(R-Br-p-mBZA) ₂ PbBr ₄	224 / 369	434 / 469	35.0 / 8.00

Table S2. Photophysical data of lifetime and quantum yield for the (R-X-p-PEA)₂PbBr₄ (X= H, F, Cl, Br) powders.

Sample	$\tau_1(ps)$	$\tau_2(ns)$	$\tau_3(ns)$	$\tau_{av}(ps)$	PLQY (%)
(R-mBZA) ₂ PbBr ₄ -407 nm	368.3	3.617	36.79	691.6	3.430
(R-mBZA) ₂ PbBr ₄ -467 nm	427.3	4.100	37.99	1070	
(R-F-p-mBZA) ₂ PbBr ₄ -411 nm	391.0	4.000	36.40	502.1	6.360
(R-F-p-mBZA) ₂ PbBr ₄ -520 nm	369.7	4.006	28.96	490.3	
(R-Cl-p-mBZA) ₂ PbBr ₄ -430 nm	370.1	3.552	38.02	546.6	16.97
(R-Cl-p-mBZA) ₂ PbBr ₄ -514 nm	383.8	3.744	35.33	515.2	
(R-Br-p-mBZA) ₂ PbBr ₄ -440 nm	375.6	3.662	38.72	608.6	5.260
(R-Br-p-mBZA) ₂ PbBr ₄ -524 nm	376.4	3.651	36.97	520.4	