Electronic Supplementary Material (ESI) for Dalton Transactions.

Electronic Supporting Information

Tunable $CsPbBr_3$/Cs_4PbBr_6 Phase Transformation and Their Optical Spectroscopy

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Table S1 The evaluated lifetime values of $CsPbX_3$ and C_4PbX_6 products with different halogen ratios.

sample	lifetime (ns)			
	Br:Cl=2:1	Br	Br:I=1:2	Br:I=2:1
$CsPbX_3$	4.6	6.9	14.6	29.3
Cs_4PbX_6	10.4	13.0	20.2	32.6

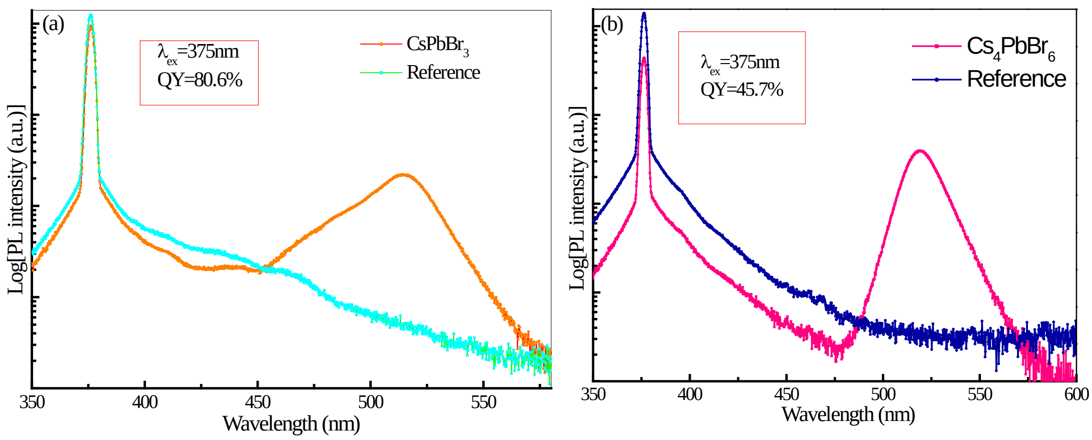

Figure S1 Quantitative excitation and emission spectra (λ_{ex}=375 nm) of (a) $CsPbBr_3$ sample and (b) Cs_4PbBr_6 one recorded by a spectrofluorometer equipped with an integrating sphere for quantum yield (QY) measurement.

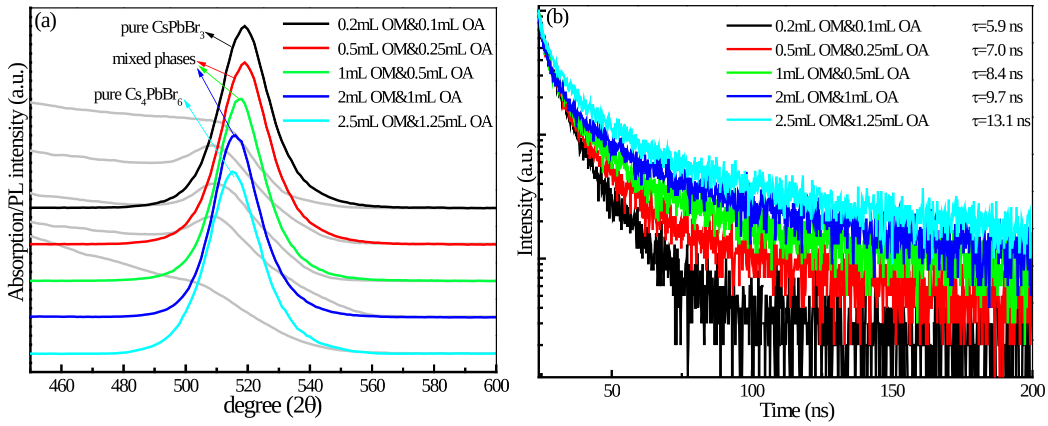

Figure S2 (a) PL/Absorption spectra and (b) time-resolved fluorescence decay curves of the synthesized products obtained by using different amounts of OA and OM surfactants, transforming from 3D perovskite $CsPbBr_3$ to 0D perovskite-related Cs_4PbBr_6.

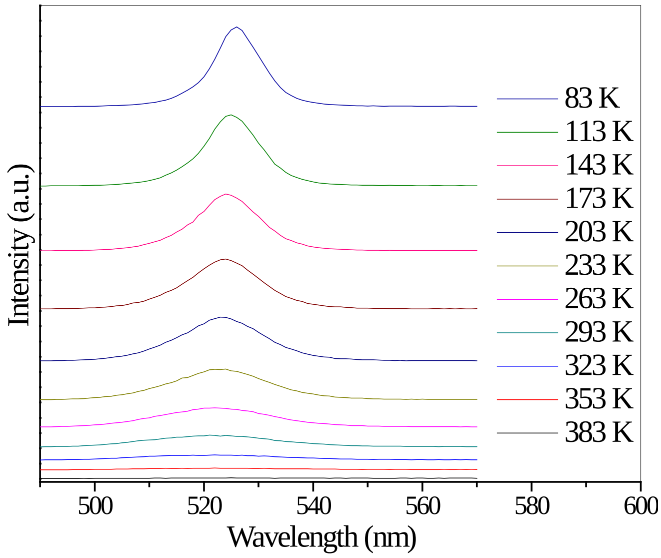

Figure S3 Temperature-dependent emission spectra of Cs_4PbBr_6 product.

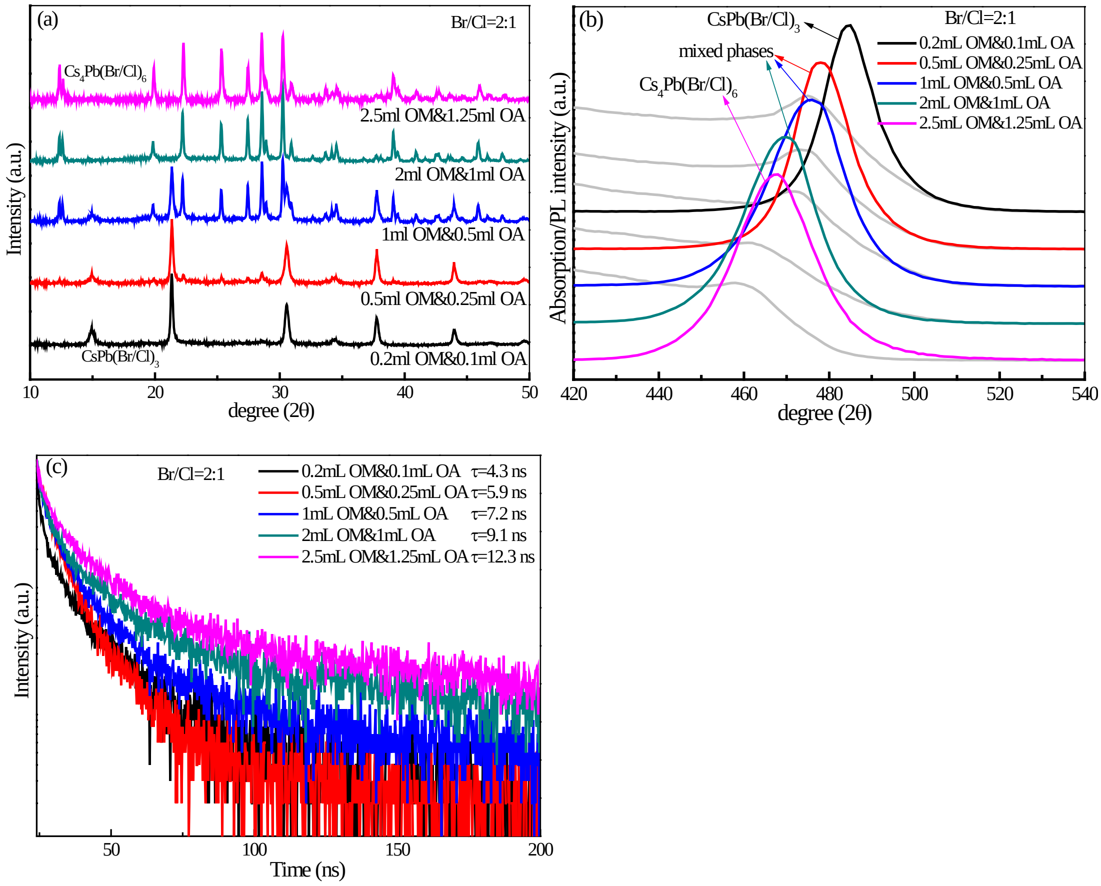

Figure S4 (a) XRD patterns, (b) PL/Absorption spectra and (c) time-resolved fluorescence decay curves of the synthesized products obtained by using different amounts of OA and OM surfactants, transforming from 3D perovskite $CsPb(Br/Cl)_3$ to 0D perovskite-related $Cs_4Pb(Br/Cl)_6$ with Br/Cl ratio of 2:1.

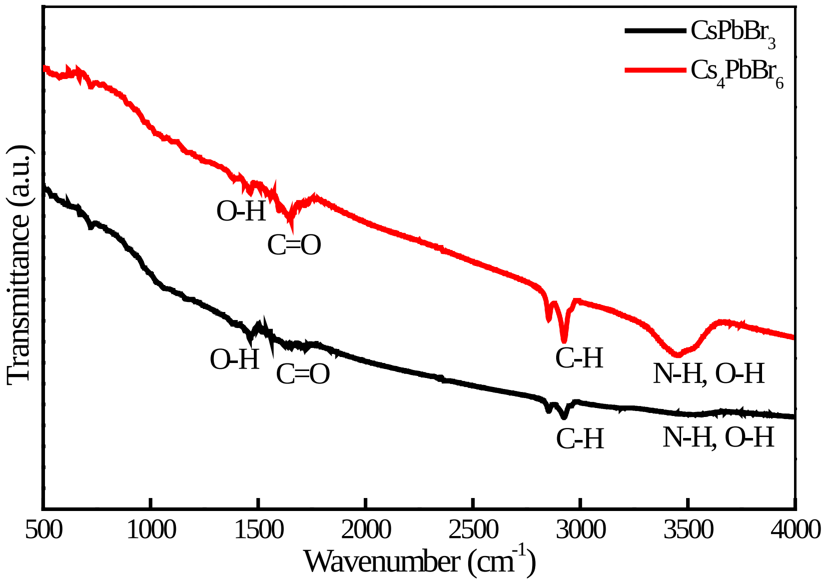

Figure S5 FTIR spectra of the as-prepared $CsPbBr_3$ and Cs_4PbBr_6 samples, showing the presence of COOH and NH_2 groups on the surfaces of $CsPbBr_3$ and Cs_4PbBr_6 particles.

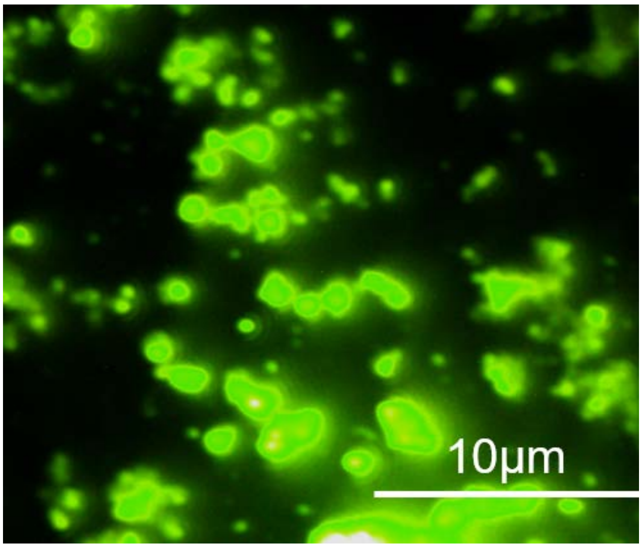

Figure S6 A typical fluorescence image of $CsPbBr_3$ particles.