Supporting Information

Chemically driven dimensionality modulation on hybrid tin (II) halide perovskites microcrystals

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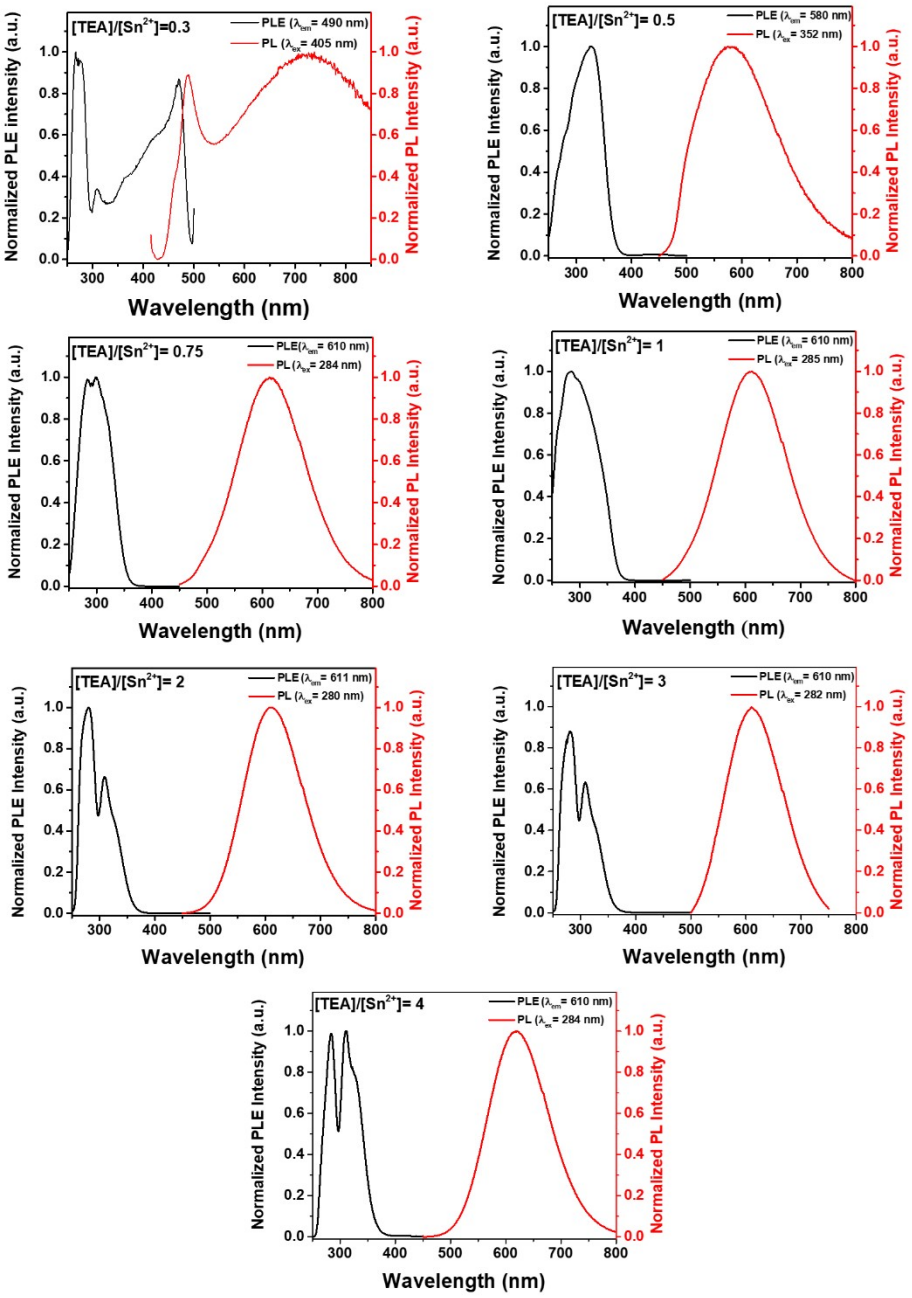

Figure S1. PL and PLE spectra from 0D- TEA_4SnBr_6 and 2D- TEA_2SnBr_4 synthesized at different molar ratios [TEA]/[Sn^{2+}], such as 0.3, 0.5, 0.75, 1, 2, 3, and 4.

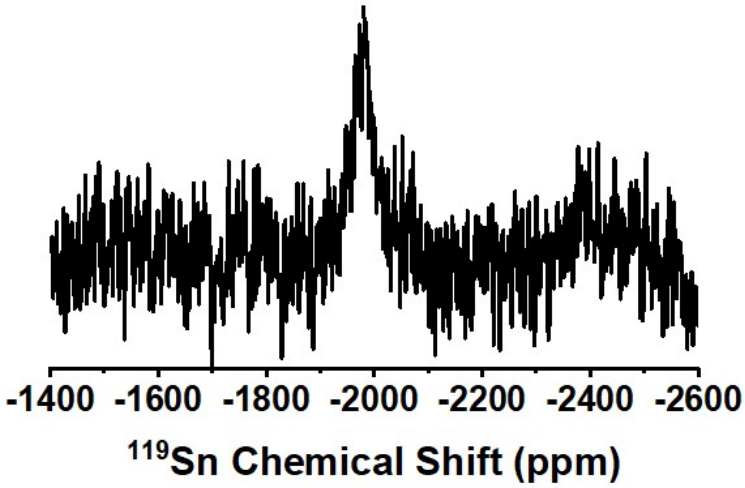

Figure S2. ^{119}Sn MAS- NMR measurements of 2D- TEA_2SnBr_4 samples carried out at high field.

Table S1. EDS microanalysis of TEA based tin (II) halide microcrystals synthesized by HI method.

Sample	Sn (at. %)	S (at. %)	X (Cl, Br, or I) (at. %)	S/Sn Ratio	X/Sn Ratio
$[TEASnCl_3][TEACl]$	12.7	31.2	56.0	2.45	4.40
TEA_2SnBr_4	14.5	29.6	56.0	2.04	3.86
TEA_4SnBr_6	8.9	36.5	54.6	4.10	6.13
TEA_2SnI_4	13.2	34.3	52.5	2.59	3.97

Table S2. PL wavelength emission and PLQY of 0D- $[TEASnCl_3][TEACl]$ samples synthesised at different molar ratios $[TEA^+]/[Sn^{2+}]$ by hot-injection approach at 160 °C.

Molar ratio $[TEA]/[Sn^{2+}]$	**λ_{ex} (nm)**	**λ_{em} (nm)**	**PLQY (%)**
4	277	602	4.37
3	277	595	25.02
2	277	595	20.03
1	277	633	11.75
0.5	277	631	13.54
0.3	277	617	13.04
0.25	277	619	14.51
0.125	277	619	14.77

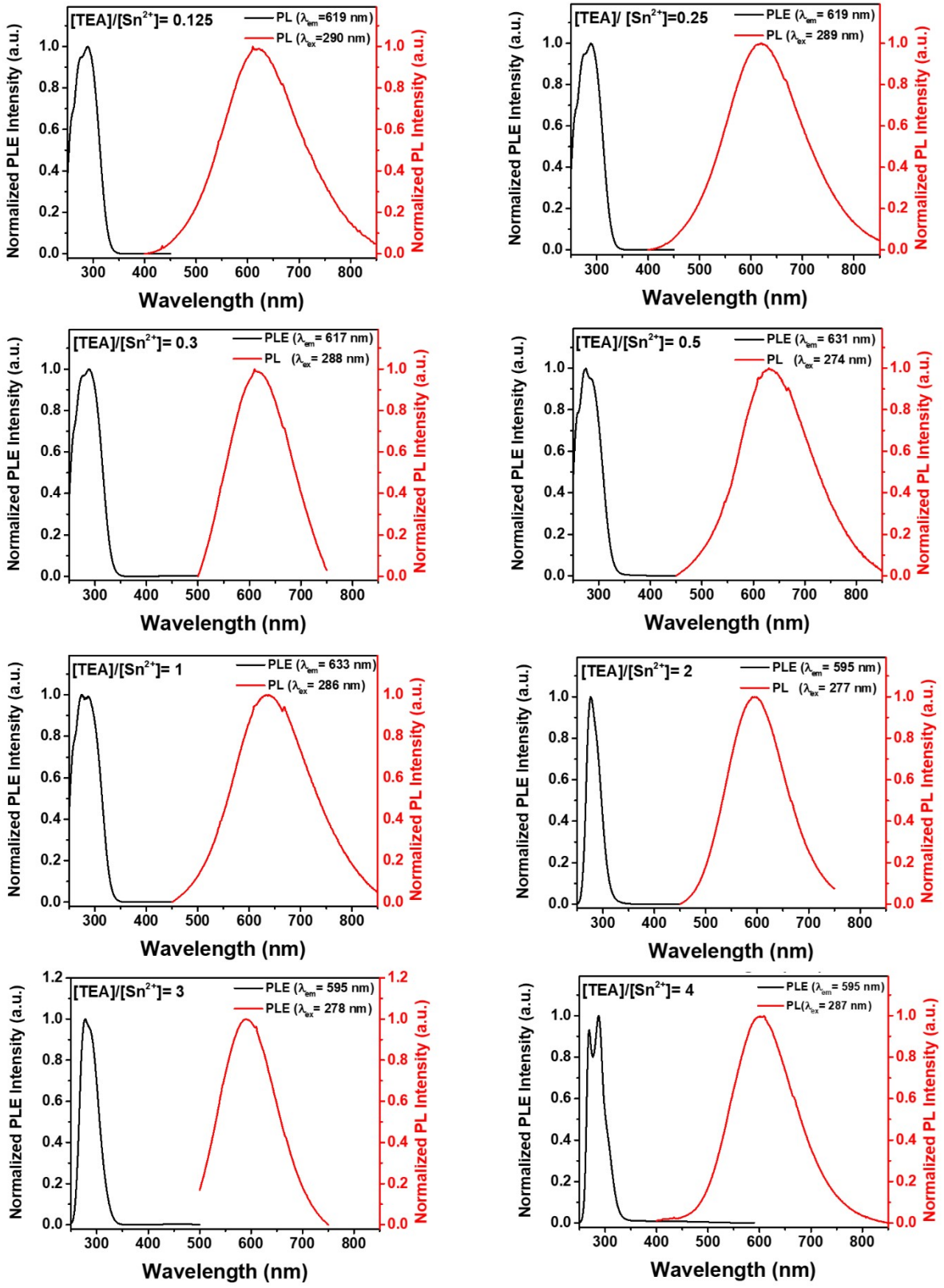

Figure S3. PL and PLE spectra of 0D- [$TEASnCl_3$][TEACl] synthesized at different molar ratios of [TEA]/ [Sn^{2+}], such as 0.125, 0.25, 0.3, 0.5, 1, 2, 3, and 4.

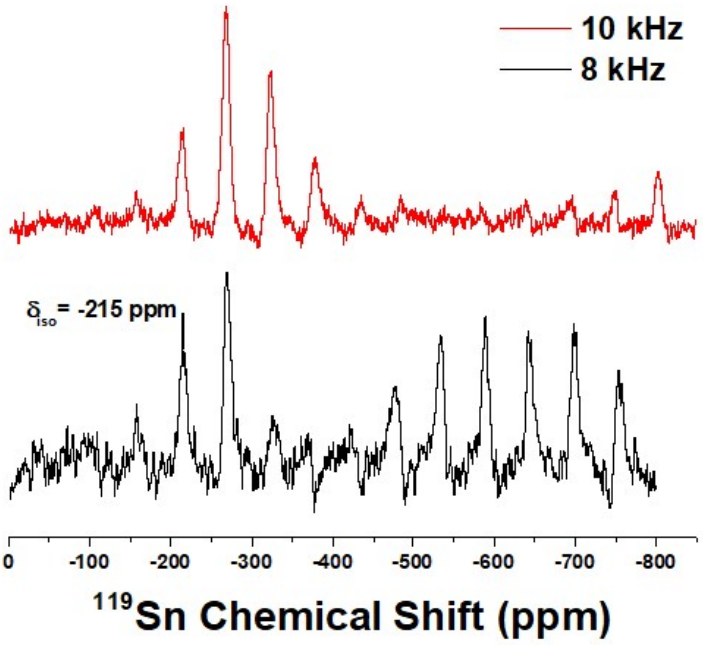

Figure S4. ^{119}Sn MAS- NMR for 0D- [$TEASnCl_3$][TEACl] microcrystals measured at different spinning rates.

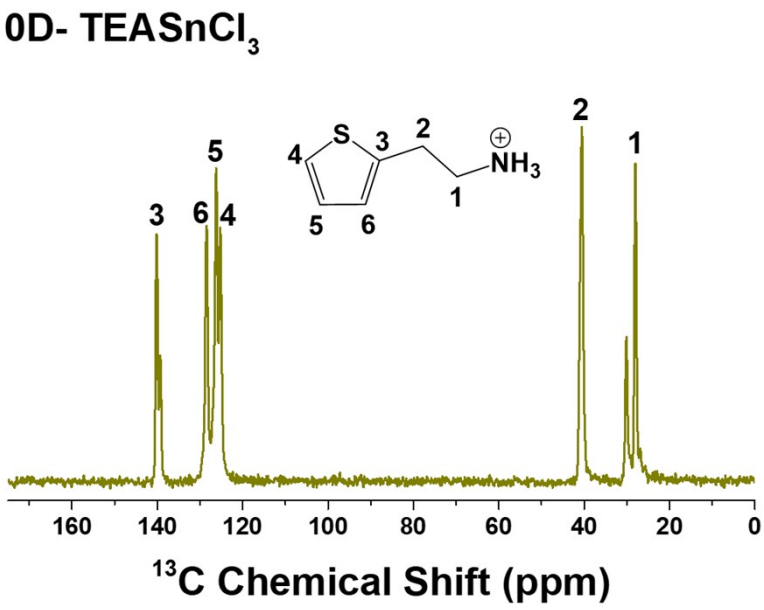

Figure S5. ^{13}C MAS- NMR spectra of 0D- [$TEASnCl_3$][TEACl] microcrystals samples.

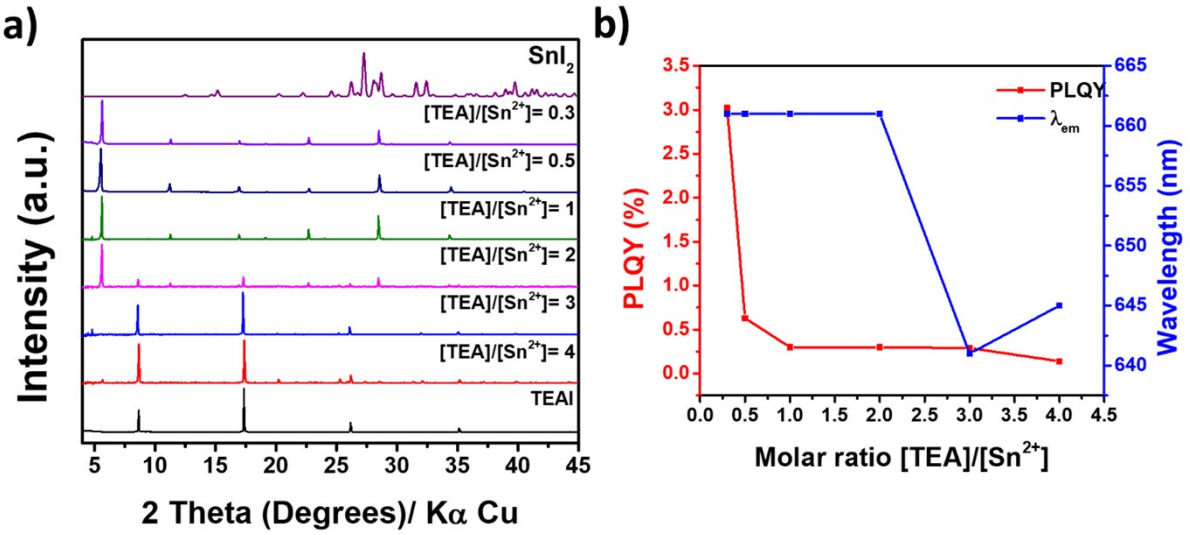

Figure S6. XRD patterns (a) and PLQY and PL wavelength emission (b) of 2D- TEA_2SnI_4 samples synthesised at different molar ratio of precursors [TEA]/[Sn^{2+}].

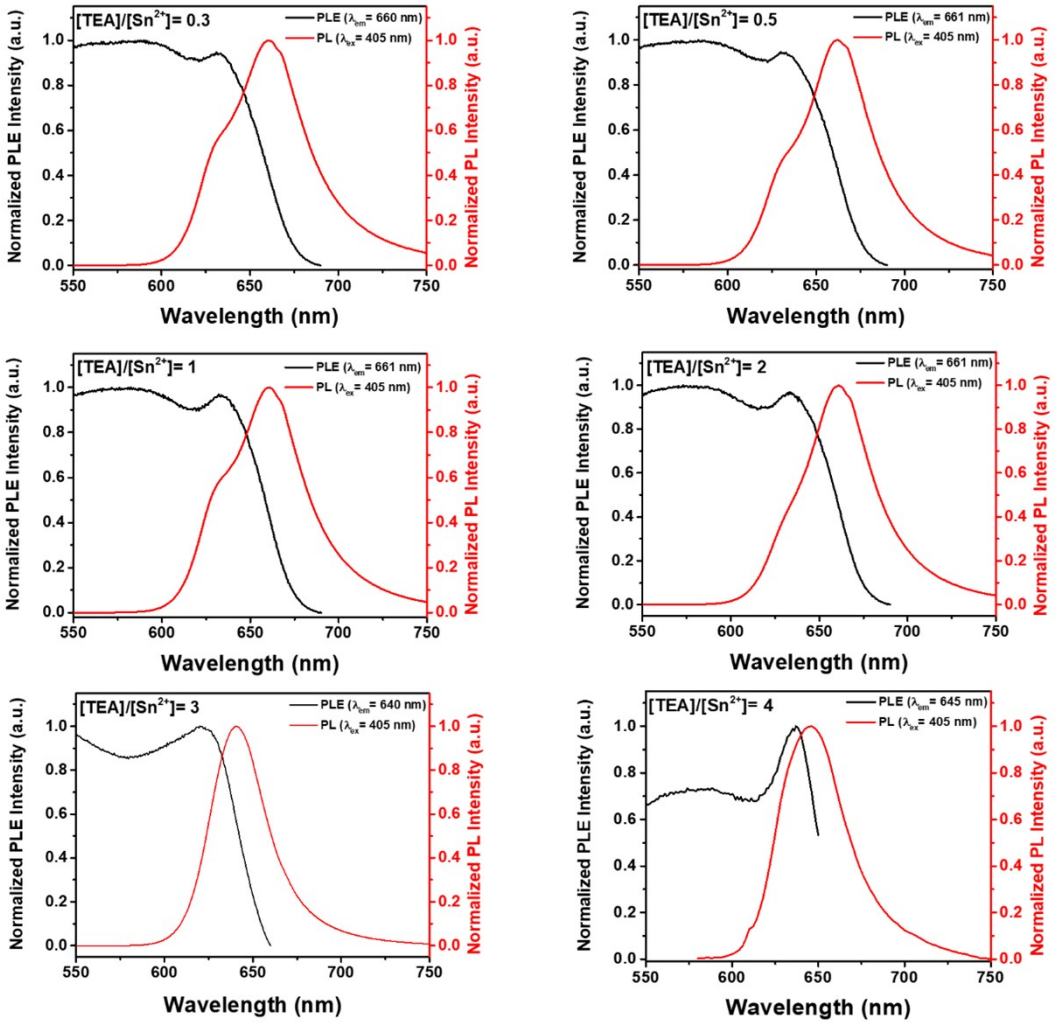

Figure S7. PL and PLE spectra of 2D- TEA_2SnI_4 synthesized at different molar ratios of [TEA]/ [Sn^{2+}], such as 0.3, 0.5, 1, 2, 3, and 4.

Table S3. PL wavelength emission and PLQY of 2D- TEA_2SnI_4 samples synthesised at different molar ratios of [TEA]/[Sn^{2+}] by hot-injection approach at 160 °C.

Molar ratio [TEA]/[Sn^{2+}]	**λ_{ex} (nm)**	**λ_{em} (nm)**	**PLQY (%)**
4	405	645	0.14
3	405	641	0.29
2	405	661	0.30
1	405	661	0.30
0.5	405	661	0.63
0.3	405	661	3.02