

Supporting Information

Title: A single-phase white-emitting $\text{Ca}_2\text{SrAl}_2\text{O}_6:\text{Ce}^{3+},\text{Li}^+,\text{Mn}^{2+}$ phosphor with energy transfer for UV-excited WLEDs

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Table S1. Final refined structure parameters of $\text{Ca}_2\text{SrAl}_2\text{O}_6$ derived from the Rietveld

refinement of X-ray diffraction data

Atom	Wyckoff position	x	Y	z	Frac	Uiso
Ca1	4a	0.0000	0.0000	0.0000	1.0	0.025
Ca2	4b	0.5000	0.0000	0.0000	1.0	0.025
Ca3	8c	0.2588(7)	0.2588(7)	0.2588(7)	1.0	0.025
Sr1	8c	0.3792(2)	0.3792(2)	0.3792(2)	1.0	0.025
Sr2	24d	0.1363(2)	0.3741(0)	0.1318(6)	0.7320	0.025
Ca4	24d	0.1363(2)	0.3741(0)	0.1318(6)	0.2680	0.025
Ca5	24d	0.3758(7)	0.3764(3)	0.1293(3)	1.0	0.025
Al1	24d	0.2502(8)	0.0104(3)	0.0124(8)	1.0	0.025
Al2	24d	0.2318(1)	0.2408(4)	0.0127(8)	1.0	0.025
O1	24d	0.2528(3)	0.1064(3)	0.0003(6)	1.0	0.025
O2	24d	0.4863	0.1312	0.2505	1.0	0.025
O3	24d	0.2662	0.2823	0.1047	1.0	0.025
O4	24d	0.2300(2)	0.4044(7)	0.2840(3)	1.0	0.025
O5	24d	0.3.594(7)	-0.0203(0)	-0.0334(9)	1.0	0.025
O6	24d	0.1499	-0.0129	-0.0225	1.0	0.025

Cell parameters: $a = b = c = 15.438473 \text{ \AA}$,
 $V = 3679.705 \text{ \AA}^3$; $Z = 24$;
space group: $Pa-3$ (no.205);
Reliability factors: $\chi^2 = 3.248$, $R_{\text{wp}} = 4.96\%$, $R_{\text{p}} = 3.66\%$

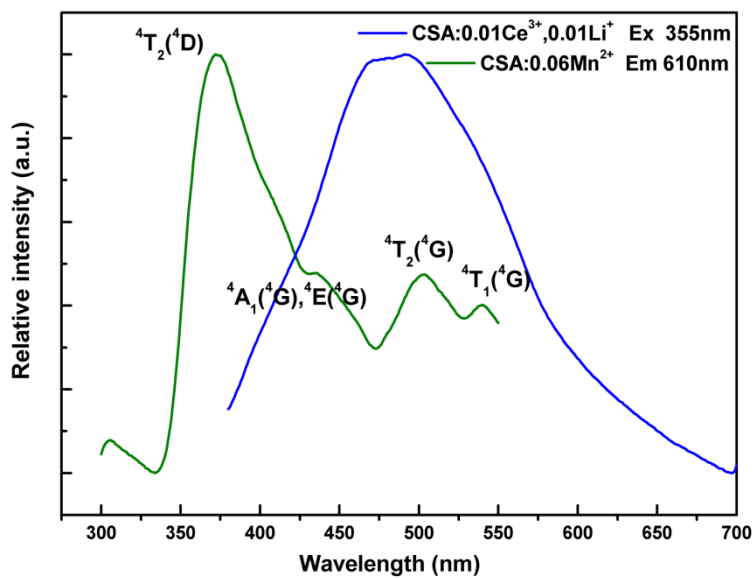


Figure S1. Spectral overlap between the PL spectrum of CSA:Ce³⁺,Li⁺ and PLE spectrum of CSA:Mn²⁺ phosphors

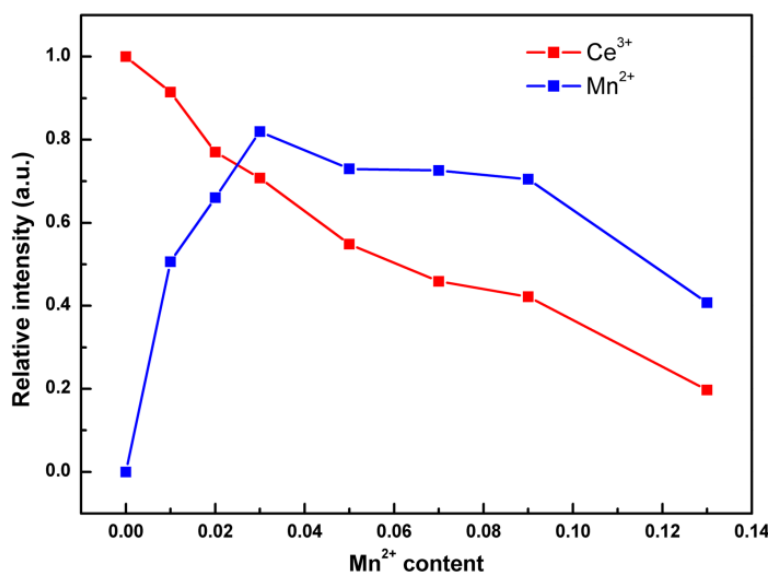


Figure S2. Relative emission intensity of the Ce³⁺ and Mn²⁺ ions in CSA:0.01Ce³⁺,0.01Li⁺,nMn²⁺ phosphors with different Mn²⁺ content.