

Supplementary Information

A study of negative-thermal-quenching

(Ba/Ca)AlSi₅O₂N₇:Eu²⁺ phosphors

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Supplementary Figures:

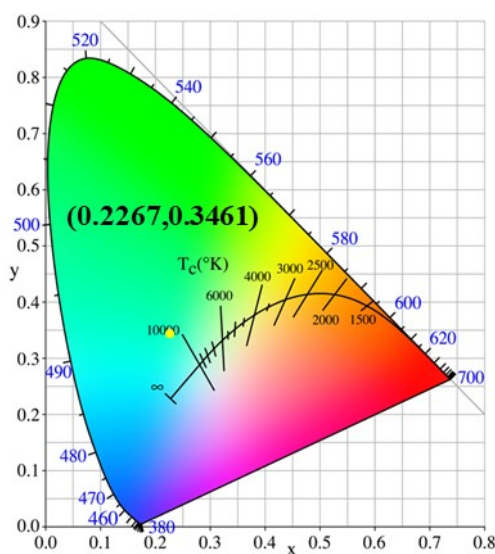


Figure. S1 CIE color coordinates of Ba_{0.68}Ca_{0.3}AlSi₅O₂N₇:0.02Eu²⁺ PL spectrum.

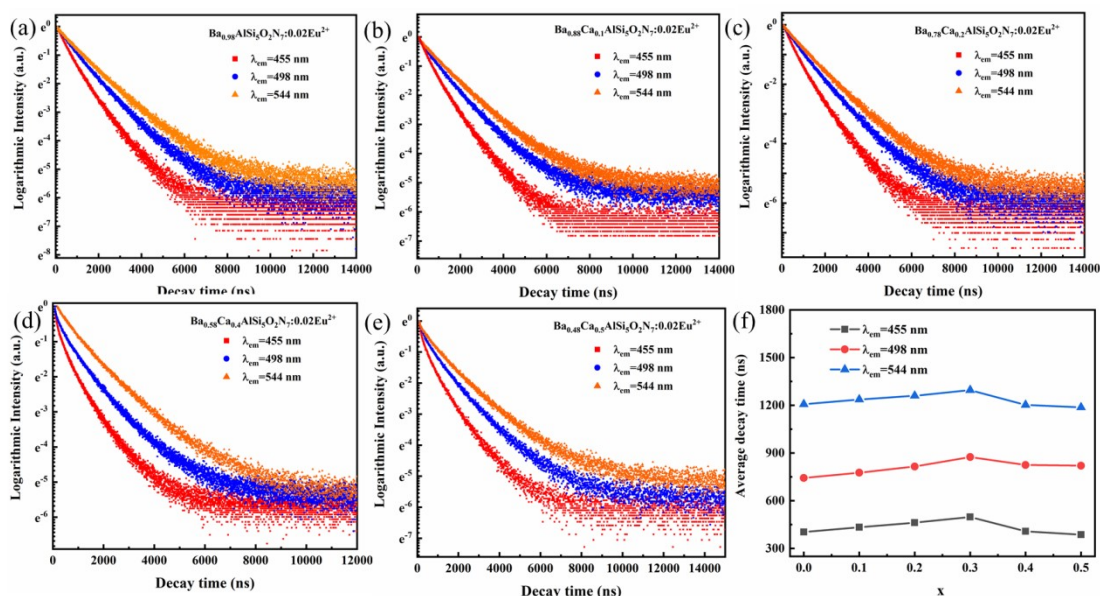


Figure. S2 (a)-(e) Decay curves of Ba_{0.98-x}Ca_xAlSi₅O₂N₇:0.02Eu²⁺ at different emission wavelength, (f) average decay times of phosphors with different Ca²⁺.

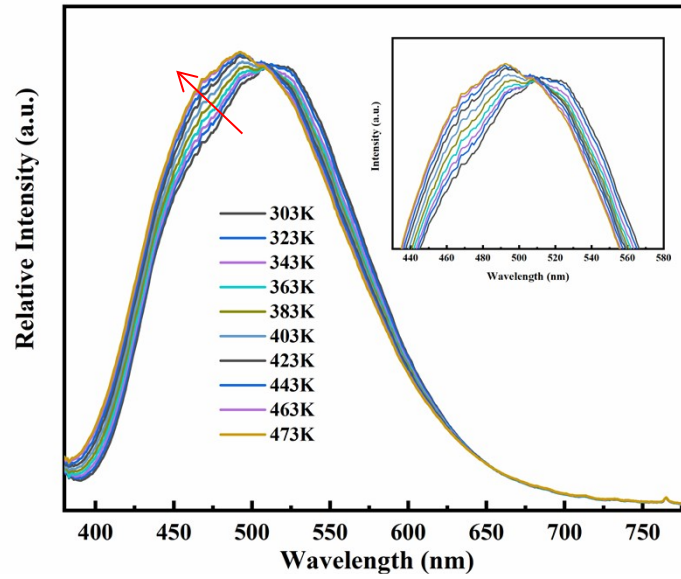


Figure. S3 PL spectra of $\text{Ba}_{0.68}\text{Ca}_{0.3}\text{AlSi}_5\text{O}_2\text{N}_7:0.02\text{Eu}^{2+}$ at 303-473K, the inset shows the enlarged PL spectra from 430nm-570nm.

Supplementary Table:

Table S1: Refinement parameter of $\text{Ba}_{1-x}\text{Ca}_x\text{AlSi}_2\text{O}_5\text{N}_7:\text{Eu}^{2+}$ phosphor.

x	a (Å)	b (Å)	c (Å)	R_{wp} (%)	R_{p} (%)
0	8.2223	9.65576	4.89786	12.75	16.52
0.1	8.23083	9.68571	4.90837	9.53	13.02
0.2	8.22317	9.6931	4.90359	9.89	13.32
0.3	8.23782	9.68018	4.91329	9.69	12.6
0.4	8.28833	9.67038	4.93879	16.28	22.38
0.5	8.25523	9.61749	4.91808	17.17	22.95