Supporting information

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A novel divalent Eu^{2+} activated G-$La_2Si_2O_7$ phosphor: SiC-reduction synthesis, blue-orange large scale tunable luminescence, good thermal stability for warm white LED

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Table S1 Atomic coordinates, occupancies, and isotropic atomic displacement parameters of Crystallographic data for $La_{2(1-x)}Si_2O_7:2xEu^{2+}$($x$ = 0.01) and $La_{2(1-x)}Si_2O_7:2xEu^{2+}$(x = 0.04) samples.

$La_{2(1-x)}Si_2O_7:2xEu^{2+}$($x$ = 0.01)						
atom	Wyck. site	frac	*x*/a	*y*/b	*z*/c	Uiso (Å3)
La1	4e	0.99	0.520633	0.811550	0.766608	0.010589
Eu1	4e	0.01	0.520633	0.811550	0.766608	0.010589
La2	4e	0.99	0.845641	0.611006	0.590113	0.010589
Eu2	4e	0.01	0.845641	0.611006	0.590113	0.010589
Si1	4e	1	0.784623	0.242061	0.027221	0.013190
Si2	4e	1	0.920792	0.487426	0.182029	0.013190
O1	4e	1	0.834654	0.421853	0.060757	0.010956
O2	4e	1	0.059687	0.168774	0.084223	0.010956
O3	4e	1	0.579418	0.155886	0.068675	0.010956
O4	4e	1	0.708505	0.225668	0.902967	0.010956
O5	4e	1	0.705155	0.415018	0.228099	0.010956
O6	4e	1	0.194501	0.456568	0.233998	0.010956
O7	4e	1	0.867843	0.666113	0.175356	0.010956

$La2_{(1-x)}Si_2O_7:2xEu^{2+}$ (x = 0.04)						
atom	Wyck. site	frac	*x*/a	*y*/b	*z*/c	Uiso (Å3)
La1	4e	0.96	0.521720	0.810645	0.766733	0.010735
Eu1	4e	0.04	0.521720	0.810645	0.766733	0.010735
La2	4e	0.96	0.844290	0.610528	0.589131	0.010735
Eu2	4e	0.04	0.844290	0.610528	0.589131	0.010735
Si1	4e	1	0.795919	0.241882	0.026419	0.023562
Si2	4e	1	0.916904	0.483098	0.179399	0.023562
O1	4e	1	0.839353	0.428311	0.061994	0.010101
O2	4e	1	0.071380	0.171817	0.079138	0.010101
O3	4e	1	0.606464	0.170391	0.068743	0.010101
O4	4e	1	0.719563	0.223157	0.904327	0.010101
O5	4e	1	0.712235	0.424458	0.231545	0.010101
O6	4e	1	0.210389	0.456135	0.232661	0.010101
O7	4e	1	0.846606	0.667613	0.177581	0.010101

Table S2 Inter-atomic distances between La(1)O_8 and La(2)O_8 in $La_2Si_2O_7$ lattice.

La(1)		**La(2)**	
Bond	Distance (Å)	Bond	Distance (Å)
La1-O2	2.4938	La2-O2	2.5279
La1-O3	2.7907	La2-O2	2.6027
La1-O4	2.4241	La2-O3	2.4655
La1-O5	2.4119	La2-O3	2.6648
La1-O5	2.8054	La2-O4	2.5020
La1-O6	2.4606	La2-O5	2.5987
La1-O6	2.8866	La2-O6	2.5627
La1-O7	2.4796	La2-O7	2.2929
Mean	2.5941	Mean	2.5272

Table S3 CIE chromaticity coordinates of $La_{2(1-x)}Si_2O_7:2xEu^{2+}$ (x = 0.003~0.12) samples under different excitation sources: λ_{ex}= 324 nm and λ_{ex}= 365 nm.

no. point in CIE diagram	samples	CIE (x, y)	
		λ_{ex} = 324 nm	λ_{ex} = 365 nm
1	x = 0.003	(0.2025, 0.1712)	(0.2265, 0.2269)
2	x = 0.01	(0.2111, 0.1939)	(0.2542, 0.2787)
3	x = 0.02	(0.2341, 0.2236)	(0.2954, 0.3274)
4	x = 0.04	(0.2812, 0.3159)	(0.3390, 0.3915)
5	x = 0.06	(0.3308, 0.3835)	(0.3787, 0.4347)
6	x = 0.08	(0.3781, 0.4299)	(0.4079, 0.4522)
7	x = 0.12	(0.4192, 0.4596)	(0.4420, 0.4707)