Supplementary Information

Title: Efficient green phosphor realized by $Ce^{3+}\rightarrow Tb^{3+}$ energy transfer in $Li_3Sc_2(PO_4)_3$ for ultraviolet white light-emitting diodes

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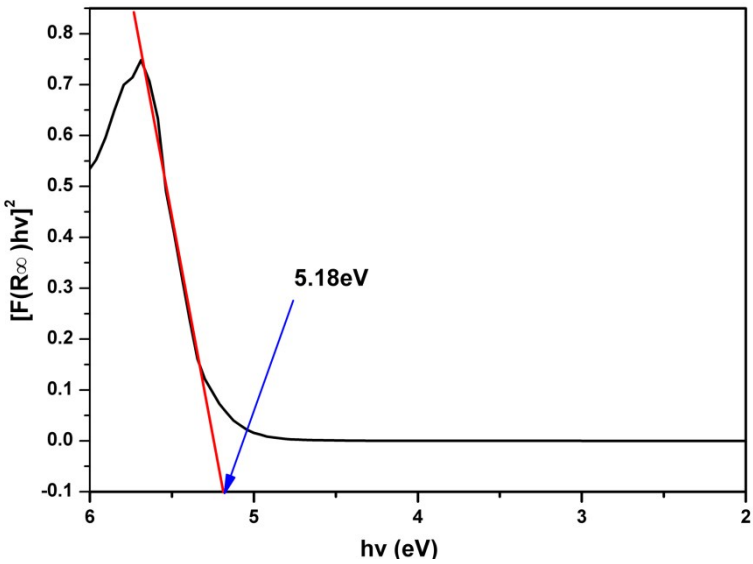

Fig. S1. Relationship between $[F(R_\infty)hv]^2$ and hv

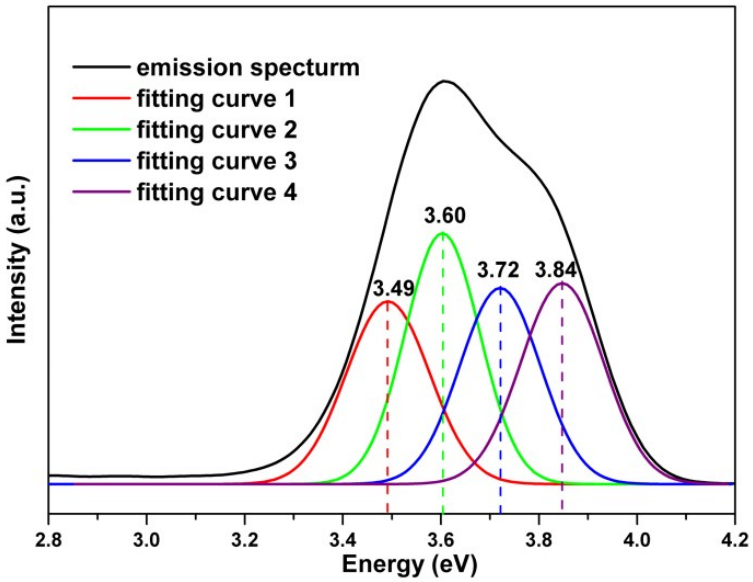

Fig. S2. The emission spectrum of LSPO:0.03Ce^{3+} and its corresponding Gaussian components on an energy scale.

Table S1. Final refined structure parameters of LSPO:0.03Ce^{3+} derived from the Rietveld refinement of X-ray diffraction data.

Atom	Wyckoff position	x	Y	z	Frac	Uiso
Li1	4e	0.279(8)	0.304(6)	0.314(9)	1.00	0.0250
Li2	4e	0.580(8)	0.223(6)	0.420(9)	1.00	0.0250
Li3	4e	0.943(9)	0.277(6)	0.295(8)	1.00	0.0250
Sc1	4e	0.2358(12)	0.1020(8)	0.4521(10)	0.97	0.0250
Sc2	4e	0.7549(11)	0.3881(8)	0.4707(10)	0.97	0.0250
P1	4e	0.0993(12)	0.1514(10)	0.1048(15)	1.00	0.0250
P2	4e	0.60200	0.34760	0.10980	1.00	0.0250
P3	4e	0.03128	0.49864	0.25166	1.00	0.0250
O1	4e	0.43242	0.34080	0.13323	1.00	0.0250
O2	4e	0.9328(26)	0.1570(21)	0.1074(26)	1.00	0.0250
O3	4e	0.3075(26)	0.2753(17)	0.4639(29)	1.00	0.0250
O4	4e	0.84188	0.21651	0.50740	1.00	0.0250
O5	4e	0.1587(24)	0.0458(18)	0.0375(24)	1.00	0.0250
O6	4e	0.65120	0.46460	0.08220	1.00	0.0250
O7	4e	0.4615(27)	0.0772(20)	0.3866(25)	1.00	0.0250
O8	4e	0.9522(27)	0.4049(24)	0.3086(23)	1.00	0.0250
O9	4e	0.1637(27)	0.4292(24)	0.1616(26)	1.00	0.0250
O10	4e	0.6047(27)	0.0682(22)	0.1664(28)	1.00	0.0250
O11	4e	0.1899(32)	0.1885(21)	0.2270(29)	1.00	0.0250
O12	4e	0.6320(29)	0.3025(21)	0.2887(28)	1.00	0.0250
Ce1	4e	0.2358(12)	0.1020(8)	0.4521(10)	0.03	0.0250
Ce2	4e	0.7549(11)	0.3881(8)	0.4707(10)	0.03	0.0250

Cell parameters: a = 8.8537(4) Å, b = 12.2964(5) Å, c = 8.8082(3) Å,
γ = 90.06(1)°, V = 958.94(7)Å^3; Z = 4;
space group: $P2_1/c$ (14);
Reliability factors: R_{wp} = 9.41%, R_p = 6.60%

Table S2. CIE coordinates of typical prepared LSPO:Ce^{3+},Tb^{3+} samples.

Sample No.	composition	CIE Coordinates (x, y)
1	LSPO:0.04Ce^{3+},0.0025Tb^{3+}	(0.2645, 0.5194)
2	LSPO:0.04Ce^{3+},0.005Tb^{3+}	(0.2654, 0.5372)
3	LSPO:0.04Ce^{3+},0.01Tb^{3+}	(0.2699, 0.5152)
4	LSPO:0.04Ce^{3+},0.02Tb^{3+}	(0.2697, 0.4990)
5	LSPO:0.04Ce^{3+},0.03Tb^{3+}	(0.2658, 0.4649)
6	LSPO:0.005Ce^{3+},0.05Tb^{3+}	(0.2595, 0.3481)
7	LSPO:0.01Ce^{3+},0.05Tb^{3+}	(0.2645, 0.3974)
8	LSPO:0.02Ce^{3+},0.05Tb^{3+}	(0.2677, 0.4522)
9	LSPO:0.03Ce^{3+},0.05Tb^{3+}	(0.2687, 0.4675)
10	LSPO:0.04Ce^{3+},0.05Tb^{3+}	(0.2701, 0.4952)