Supporting Information

Title: Structure and photoluminescence properties of novel Ca_2NaSiO_4F: Re (Re = Eu^{2+},Ce^{3+},Tb^{3+}) phosphor with energy transfer for white emitting LEDs

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TableS1. Final refined structure parameters of CNSOF:0.02Eu^{2+} derived from the Rietveld refinement of X-ray diffraction data

Atom	Wyckoff position	x	Y	z	Frac	Uiso
Ca1	8d	0.75757(3)	0.50267(3)	-0.33062(6)	0.5643	0.02445
Na1	8d	0.75757(3)	0.50267(3)	-0.33062(6)	0.4300	0.02500
Ca2	4c	0.73369(4)	0.75000(0)	-0.08830(6)	0.7722	0.01213
Na2	4c	0.73369(4)	0.75000(0)	-0.08830(6)	0.2200	0.17453
Si1	4c	0.19324(1)	0.75000(0)	0.08104(4)	1.00	0.01177
O1	8d	0.30719(4)	0.93677(2)	0.14923(1)	1.00	0.02317
O2	4c	0.30810(3)	0.75000(0)	-0.04239(7)	1.00	0.00714
O3	4c	-0.09561(5)	0.75000(0)	0.07988(0)	1.00	0.04476
F1	4c	-0.00374(6)	0.75000(0)	-0.23728(1)	1.00	0.03211
Eu1	8d	0.75757(3)	0.50267(3)	-0.33062(6)	0.0057	0.02500
Eu2	4c	0.73369(4)	0.75000(0)	-0.08830(6)	0.0078	0.02500
Cell parameters: a = 5.3387, b = 7.1253 Å, c = 12.4407 Å, V = 473.242Å^3; Z = 4; space group: *Pnma* (62); Reliability factors: χ^2 = 3.849, R_{wp} = 7.06%, R_p = 5.15%						

TableS2. Final refined structure parameters of CNSOF:0.03Ce^{3+} derived from the Rietveld refinement of X-ray diffraction data

Atom	Wyckoff position	x	Y	z	Frac	Uiso
Ca1	8d	0.75829(8)	0.50339(8)	-0.32990(2)	0.56145	0.01620
Na1	8d	0.75829(8)	0.50339(8)	-0.32990(2)	0.4300	0.02500
Ca2	4c	0.73431(3)	0.75000(0)	-0.08768(7)	0.7683	0.024500
Na2	4c	0.73431(3)	0.75000(0)	-0.08768(7)	0.2200	0.02500
Si1	4c	0.19561(3)	0.75000(0)	0.08294(8)	1.00	0.00374
O1	8d	0.29863(3)	0.93805(2)	0.14791(9)	1.00	0.01074
O2	4c	0.30664(3)	0.75000(0)	-0.04235(1)	1.00	0.00850
O3	4c	-0.09667(2)	0.75000(0)	0.07877(2)	1.00	0.02214
F1	4c	0.00706(8)	0.75000(0)	-0.23898(0)	1.00	0.04212
Ce1	8d	0.75829(8)	0.50339(8)	-0.32990(2)	0.00855	0.02500
Ce2	4c	0.73431(3)	0.75000(0)	-0.08768(7)	0.0117	0.02500

Cell parameters: a = 5.3371, b = 7.1273 Å, c = 12.4374 Å,

V = 473.101Å^3; Z = 4;

space group: *Pnma* (62);

Reliability factors: χ^2 = 3.274, R_{wp} = 6.57%, R_p = 4.90%

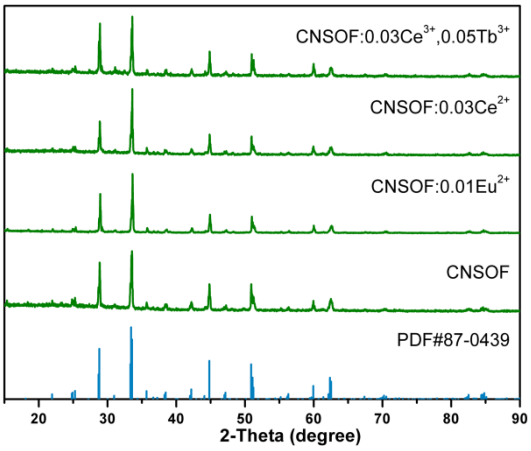

Figure S1. XRD patterns of typical prepared samples together with the standard data for reference.

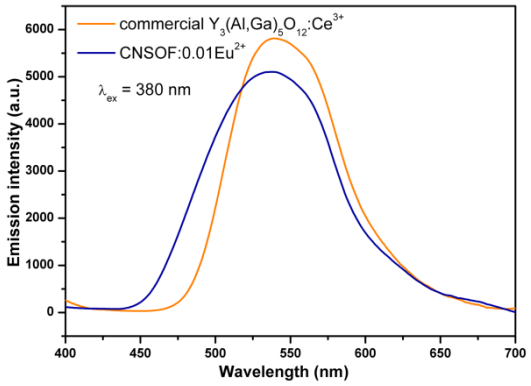

Figure S2. Emission spectra of CNSOF:0.01Eu^{2+} and $Y_3(Al,Ga)_5O_{12}:Ce^{3+}$ phosphors under same condition.

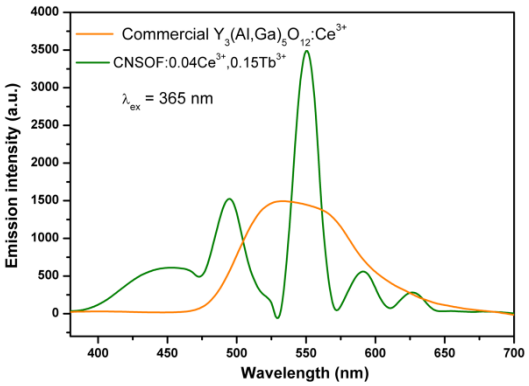

Figure S3 Emission spectra of CNSOF:0.04Ce^{3+},0.15Tb^{3+} and $Y_3(Al,Ga)_5O_{12}:Ce^{3+}$ phosphors under same condition.

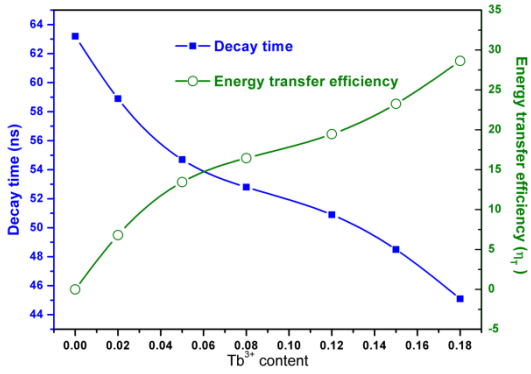

Figure S4. Decay time and energy transfer efficiency for CNSOF:0.03Ce^{3+},*z*Tb^{3+} phosphors with different Tb^{3+} content.