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Structure and redshift of Ce^{3+} emission in anisotropically expanded garnet phosphor $MgY_2Al_4SiO_{12}:Ce^{3+}$

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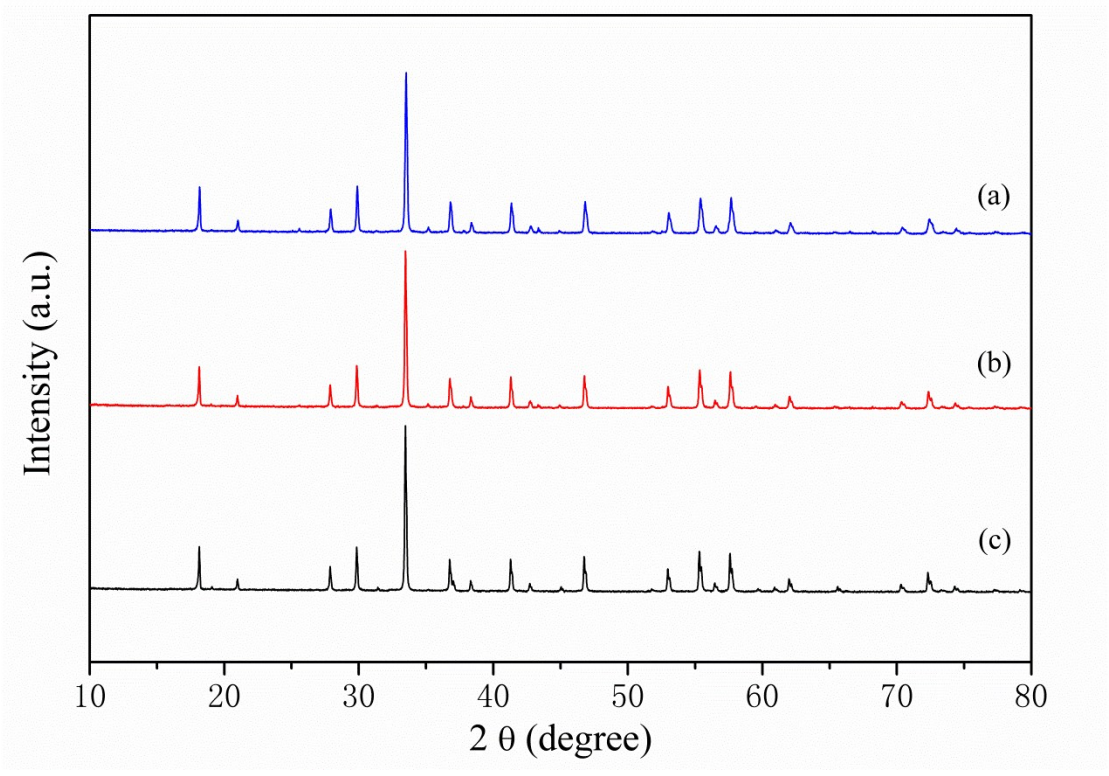

Figure S1 XRD patterns of MYAS:0.06Ce^{3+} synthesized by solid state reaction at 1400 °C (a), 1350 °C (b) and 1300 °C (c).

Table S1 Fractional coordinates, site occupation factors (S.O.F) and thermal vibration parameters of MYAS and YAMS.

atom	site	x	y	x	Occu.	U(Å^2)
$MgY_2Al_4SiO_{12}$						
Y	24c	0.25	0.125	0	0.667	0.0172
Mg	24c	0.25	0.125	0	0.333	0.0172
Al	16a	0	0	0	1.0	0.0387
Al	24d	0.25	0.375	0	0.667	0.0375
Si	24d	0.25	0.375	0	0.333	0.0375
O	96h	0.0304	0.0538	0.652	1.0	0.0399
$Y_3Al_3MgSiO_{12}$						
Y	24c	0.25	0.125	0	1.0	0.0125
Mg	16a	0	0	0	0.5	0.00913
Al	16a	0	0	0	0.5	0.00913
Al	24d	0.25	0.375	0	0.667	0.0196
Si	24d	0.25	0.375	0	0.333	0.0196
O	96h	0.250	0.055	0.640	1.0	0.0339

[a]Space group: Ia-3d(no.230);; α=β=γ=90°; T=298K; Z=8;Cu Kα, λ=1.5418 nm; lattice parameters: $MgY_2Al_4SiO_{12}$:a = 11.960 Å, V = 1710.69 Å^3 Rwp=3.91%，Rp=2.51%，χ2=5.810; $Y_3Al_3MgSiO_{12}$: a = 12.016 Å, V = 1734.92 Å^3 Rwp=11.74%，Rp=7.27%，χ^2=9.787.