

Electronic Supplementary Information

Spectral Adjustment via Site-Selected Energy Transfer Mechanism in

$\text{Sr}_2\text{SiO}_4:\text{Eu}^{2+}, \text{Pr}^{3+}$ for Multifunctional Application

Ye Li,^{a, b} Jing Wang,^{b,*} Xiao-Ming Wang,^c Fengjuan Pan,^b Tianliang Zhou,^a Rong-Jun Xie^{a,*}

^a College of Materials, Xiamen University, Xiamen 361005, China.

^b School of Chemistry, Sun Yat-sen University, Guangzhou 510275, China.

^c College of Chemistry and Molecular Engineering, Peking University, Beijing 100871, China.

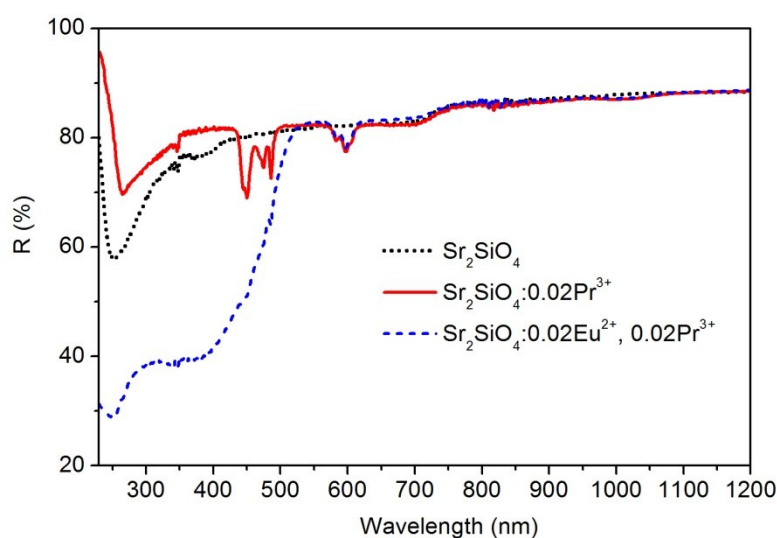


Fig.S1 the DRS of Sr_2SiO_4 , $\text{Sr}_2\text{SiO}_4:0.02\text{Pr}^{3+}$ and $\text{Sr}_2\text{SiO}_4:0.02\text{Eu}^{2+}, 0.02\text{Pr}^{3+}$ at RT.

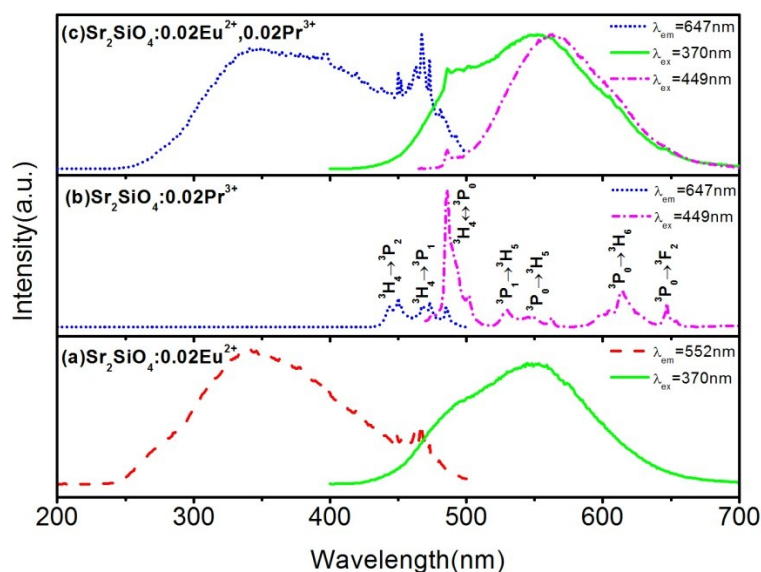


Fig.S2 The PLE and Vis emission spectra of $\text{Sr}_2\text{SiO}_4:0.02\text{Eu}^{2+}$, $\text{Sr}_2\text{SiO}_4:0.02\text{Pr}^{3+}$ and the normalized spectra of $\text{Sr}_2\text{SiO}_4:0.02\text{Eu}^{2+}, 0.02\text{Pr}^{3+}$ at RT.

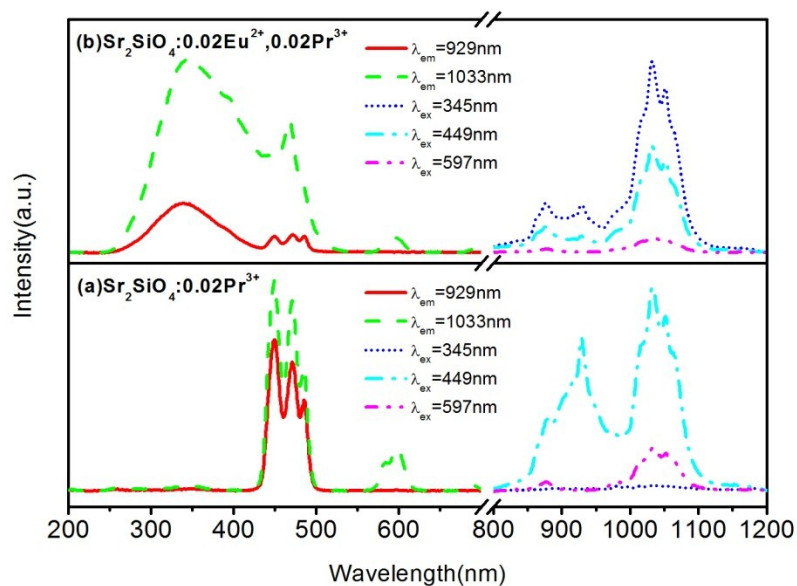


Fig.S3 The PLE and NIR emission spectra of $\text{Sr}_2\text{SiO}_4:0.02\text{Eu}^{2+}$, $\text{Sr}_2\text{SiO}_4:0.02\text{Pr}^{3+}$ and $\text{Sr}_2\text{SiO}_4:0.02\text{Eu}^{2+}, 0.02\text{Pr}^{3+}$ at RT.

Table S1. Crystallographic Data from X-ray Rietveld Refinement for $\text{Sr}_2\text{SiO}_4:0.12\text{Eu}^{2+}, 0.12\text{Pr}^{3+}$.^a

Atom	x	y	z	Atom occupancy	Beq ($\text{\AA}^2$)
Eu1	0.2500(0)	0.3438(4)	0.5789(0)	0.0395(2)	1.90(3)
Eu2	0.2500(0)	0.0019(4)	0.3011(0)	0.0804(8)	1.90(3)
Pr1	0.2500(0)	0.3438(4)	0.5789(0)	0.0229(6)	0.537(2)
Pr2	0.2500(0)	0.0019(4)	0.3011(0)	0.0970(4)	0.537(2)
Sr1	0.2500(0)	0.3438(4)	0.5789(0)	0.937(5)	2.98(1)
Sr2	0.2500(0)	0.0019(4)	0.3011(0)	0.822(5)	2.98(1)
Si1	0.2500(0)	0.7771(9)	0.5673(4)	1	1.12(9)
O1	0.2500(0)	0.0031(6)	0.5747(7)	1	2.94(1)
O2	0.2500(0)	0.6645(2)	0.4393(9)	1	2.94(1)
O3	0.4794(8)	0.7041(2)	0.6518(4)	1	2.94(1)

^a $a=5.6284(7) \text{ \AA}$, $b=7.1034(9) \text{ \AA}$, $c=9.7301(4) \text{ \AA}$, $V=389.029(1) \text{ \AA}^3$; space group, Pmnb (62); $R_{\text{wp}}=5.75\%$, $R_p=3.62\%$.