

Electronic Supplementary Information

Cation-Anion Substitution Induced Spectral Tuning and Thermal Stability Optimization in $\text{Sr}_2\text{SiO}_4\text{:Eu}$ Phosphor

Yue Zhu, Jin Wang, Mingyi Zhao, Chonghui Chen, Lingling Zheng, Yingliang Liu, Bingfu Lei,* Haoran Zhang*

Guangdong Provincial Engineering Technology Research Center for Optical Agriculture, College of Materials and Energy, South China Agricultural University, Guangzhou 510642, P.R. China

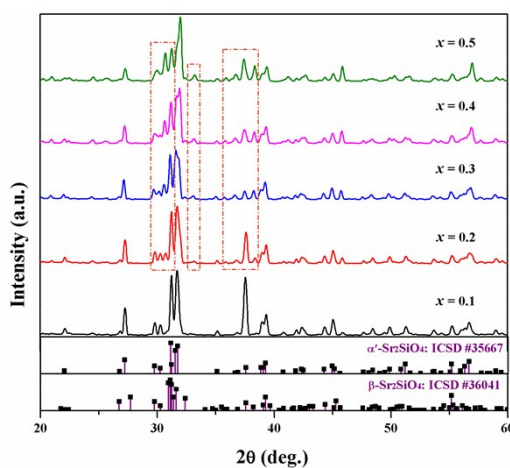


Figure S1. XRD patterns of $\text{Sr}_{1.98}\text{Si}_{1-x}\text{Al}_x\text{O}_{4.2x}\text{N}_x\text{:0.02Eu}$ ($x = 0.1-0.5$), together with the standard data for $\alpha/\beta\text{-Sr}_2\text{SiO}_4$ (ICSD #35667 and ICSD #36041) as reference.

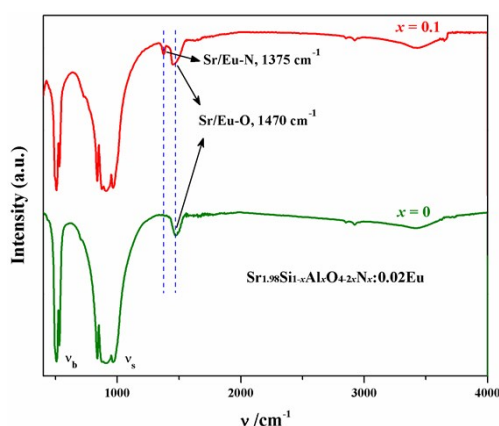


Fig. S2. FT-IR spectra of $\text{Sr}_{1.98}\text{Si}_{1-x}\text{Al}_x\text{O}_{4.2x}\text{N}_x\text{:0.02Eu}$ phosphors.

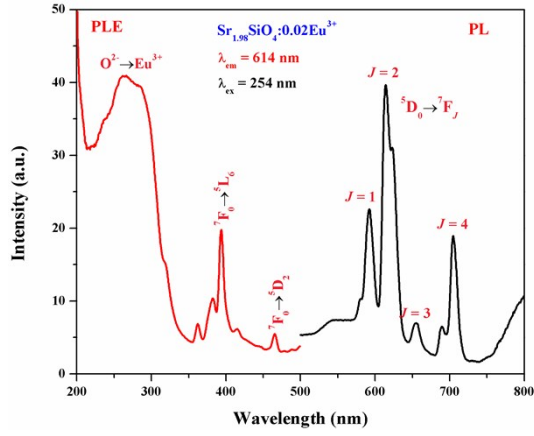


Figure S3. PL ($\lambda_{\text{ex}} = 254 \text{ nm}$) and PLE ($\lambda_{\text{em}} = 614 \text{ nm}$) spectra of $\text{Sr}_{1.98}\text{SiO}_4:\text{Eu}^{3+}$ phosphor.

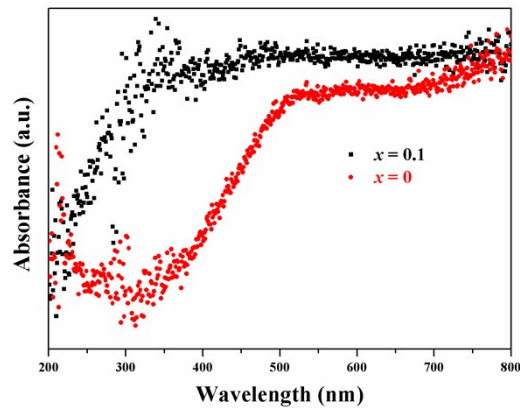


Fig. S4. UV-Vis spectra of $\text{Sr}_{1.98}\text{Si}_{1-x}\text{Al}_x\text{O}_{4-2x}\text{N}_x:0.02\text{Eu}$ ($x = 0$ and 0.1) phosphors.

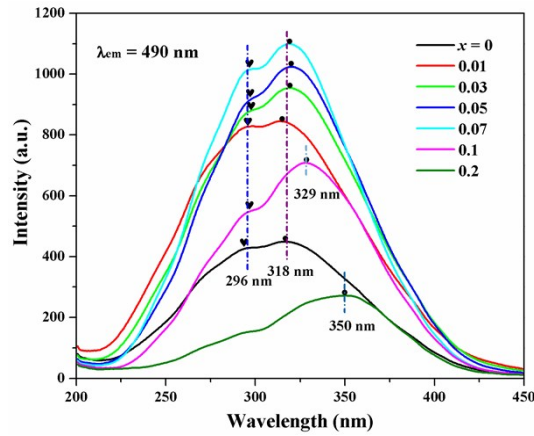


Figure S5. Excitation spectra ($\lambda_{\text{em}} = 490 \text{ nm}$) of $\text{Sr}_2\text{Si}_{1-x}\text{Al}_x\text{O}_{4-2x}\text{N}_x:0.02\text{Eu}$ ($x = 0-0.2$).