Photoluminescent properties and energy transfer of Ce$^{3+}$-Tb$^{3+}$ co-doped SrAlF$_5$ nanorods by hydrothermal method

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Fig. S1 The dependence of the diffraction peaks on the doping concentration.

Fig. S2 The dependence of the diffraction peaks on the different reaction time.

Fig. S3 SEM images of the as-prepared samples at different reaction time: (a) 0 hour, (b) 1 hour, (c) 2 hour, (d) 8 hour.
Fig. S4 Excitation and emission spectra ($\lambda_{em} = 541 \text{ nm}, \lambda_{ex} = 266 \text{ nm}$) of the as-prepared SrAlF$_5$: $x$ Ce$^{3+}$, 0.01 Tb$^{3+}$ nanorods.

Fig. S5 Fluorescent decay curve of SrAlF$_5$: 0.04 Ce$^{3+}$, $x$ Tb$^{3+}$ ($x = 0.01 - 0.09$) nanorods, $\lambda_{em} = 541 \text{ nm}, \lambda_{ex} = 266 \text{ nm}$, at room temperature.

Fig. S6 Fluorescent decay curve of SrAlF$_5$: 0.04 Ce$^{3+}$, 0.01/0.02 Tb$^{3+}$ nanorods, $\lambda_{em} = 541 \text{ nm}, \lambda_{ex} = 266 \text{ nm}$, at room temperature.
Fig. S7 The CIE chromaticity diagram for SrAlF$_5$: $x$ Tb$^{3+}$($x = 0.02, 0.04$) nanorods (a, b), SrAlF$_5$: $x$ Ce$^{3+}, 0.01$Tb$^{3+}$($x = 0.01, 0.02...0.06, 0.07, 0.08$) nanorods (c-j).

Fig. S8 The measurement chart of Quantum Yield (QY) for SrAlF$_5$: 0.04Ce$^{3+}, 0.01$Tb$^{3+}$ (QY = 40.56%) and SrAlF$_5$: 0.01Tb$^{3+}$ nanorods (QY = 0.03%)