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Photoluminescent properties and energy transfer of Ce^{3+}-Tb^{3+} co-doped $SrAlF_5$ nanorods by hydrothermal method

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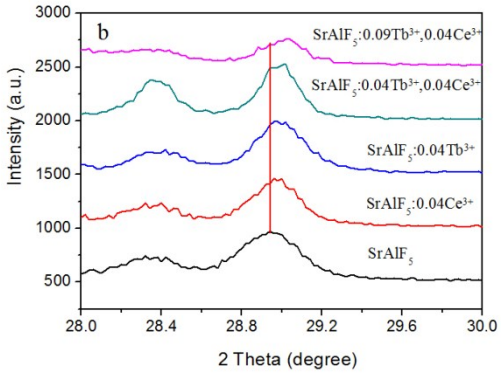

Fig. S1 The dependence of the diffraction peaks on the doping concentration.

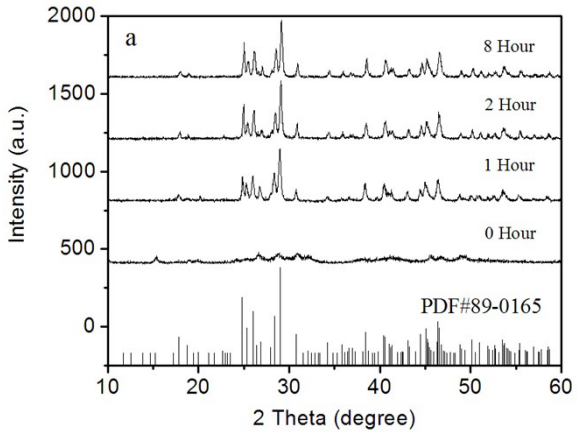

Fig. S2 The dependence of the diffraction peaks on the different reaction time.

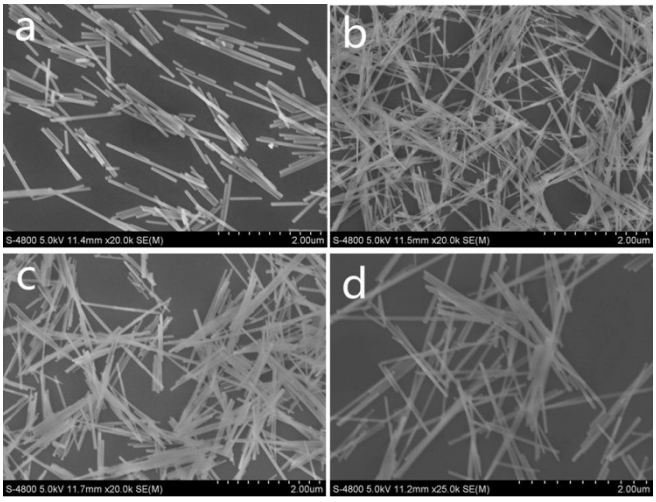

Fig. S3 SEM images of the as-prepared samples at different reaction time: (a) 0 hour, (b) 1 hour, (c) 2 hour, (d) 8 hour.

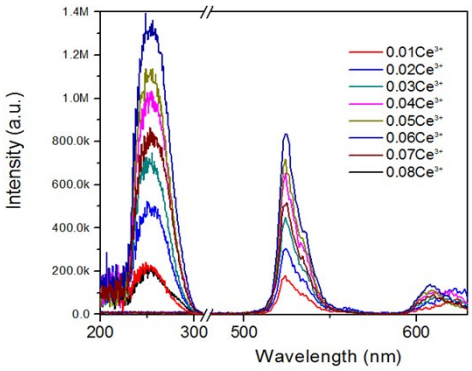

Fig. S4 Excitation and emission spectra (λ_{em} = 541 nm, λ_{ex} = 266 nm) of the as-prepared $SrAlF_5$: *x* Ce^{3+}, 0.01 Tb^{3+} nanorods.

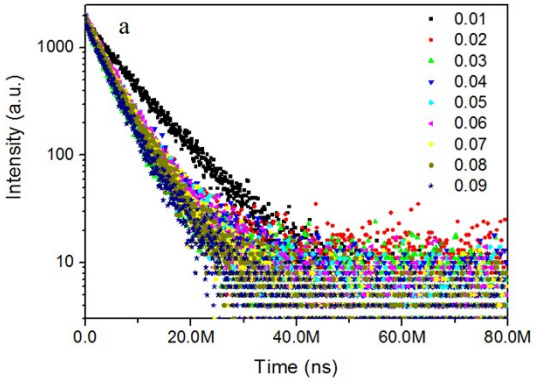

Fig. S5 Fluorescent decay curve of $SrAlF_5$: 0.04 Ce^{3+}, *x* Tb^{3+}(*x* = 0.01 - 0.09) nanorods, λ_{em} = 541 nm, λ_{ex} = 266 nm, at room temperature.

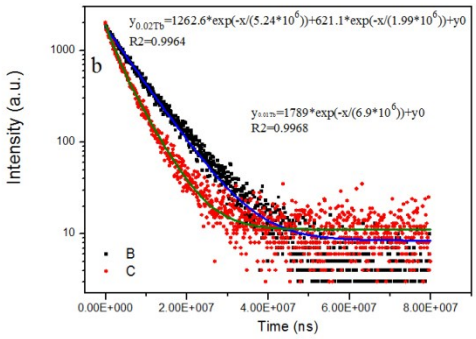

Fig. S6 Fluorescent decay curve of $SrAlF_5$: 0.04 Ce^{3+}, 0.01/0.02 Tb^{3+} nanorods, λ_{em} = 541 nm, λ_{ex} = 266 nm, at room temperature.

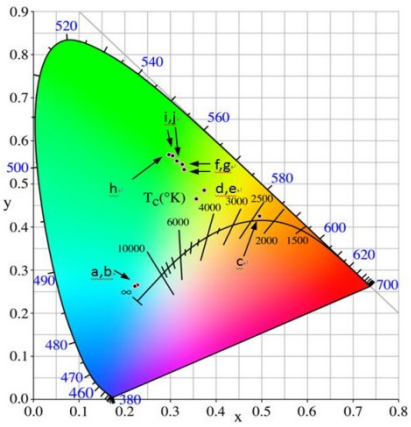

Fig. S7 The CIE chromaticity diagram for $SrAlF_5$: *x* Tb^{3+}(*x* = 0.02, 0.04) nanorods (a, b), $SrAlF_5$: *x* Ce^{3+}, 0.01Tb^{3+}(*x* = 0.01, 0.02…0.06, 0.07, 0.08) nanorods (c-j).

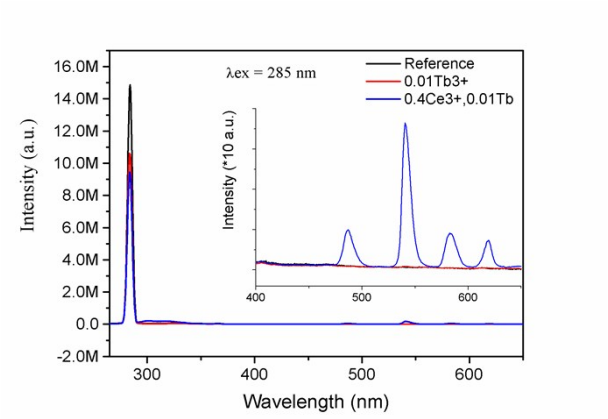

Fig. S8 The measurement chart of Quantum Yield (QY) for $SrAlF_5$: 0.04Ce^{3+}, 0.01Tb^{3+} (QY = 40.56%) and $SrAlF_5$: 0.01Tb^{3+} nanorods (QY = 0.03%)