## **Electronic Supporting Information (ESI)**

## Crystal Structure Characterizations, Optical and Photoluminescent Properties of Tunable Yellow- to Orange-Emitting Y<sub>2</sub>(Ca,Sr)F<sub>4</sub>S<sub>2</sub>:Ce<sup>3+</sup> Phosphors for Solid-State Lighting

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Fig. S1 The EDX spectra and SEM image of as-synthesized YCFS:Ce<sup>3+</sup> phosphor.

Fig. S2 (a) The XRD patterns and (b) the structural parameters of the YCFS: $Ce^{3+}$ , YCSFS-*y*: $Ce^{3+}$  (*y* = 0.1, 0.25, 0.5, and 0.75), and YSFS: $Ce^{3+}$  phosphors.



Fig. S3 Decay curves of  $Ce^{3+}$  emission in YCFS: $Ce^{3+}$ , YCSFS-*y*: $Ce^{3+}$  (*y* = 0.1, 0.25, 0.5, and 0.75), and YSFS: $Ce^{3+}$  phosphors excited at 440-470 nm and monitored at 553-590 nm.

