

## Supplementary Materials

# Synthesis and Luminescence Properties of Eu<sup>2+</sup>-Doped Sr<sub>3</sub>MgSi<sub>2</sub>O<sub>8</sub> Blue Light-Emitting Phosphor for Application in Near-Ultraviolet Excitable White Light-Emitting Diodes

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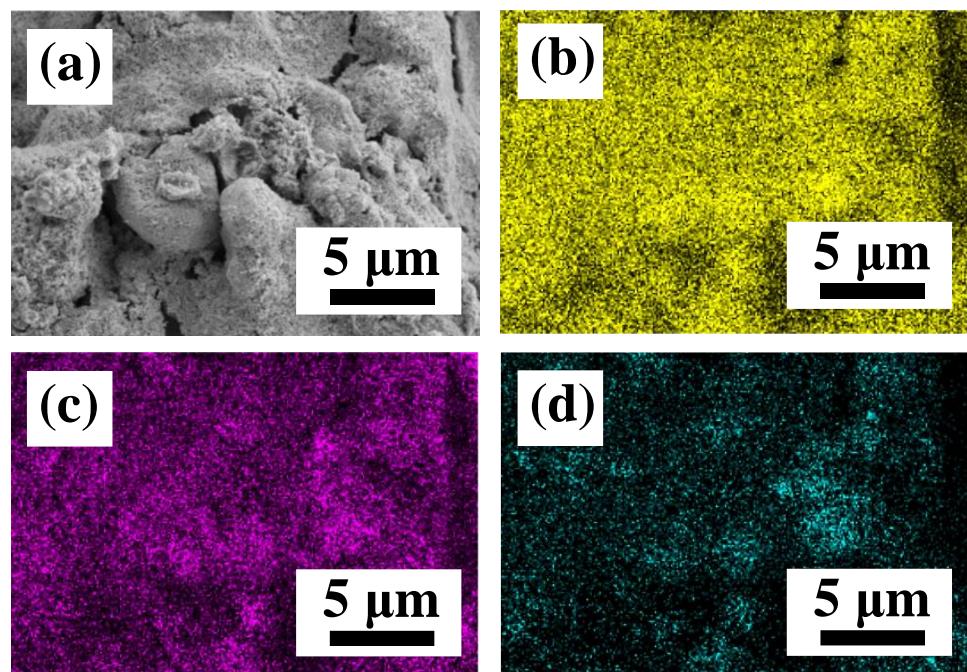
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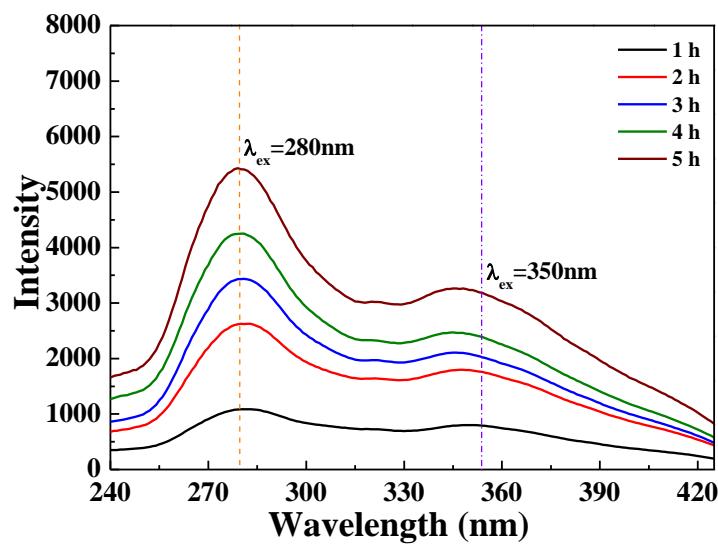
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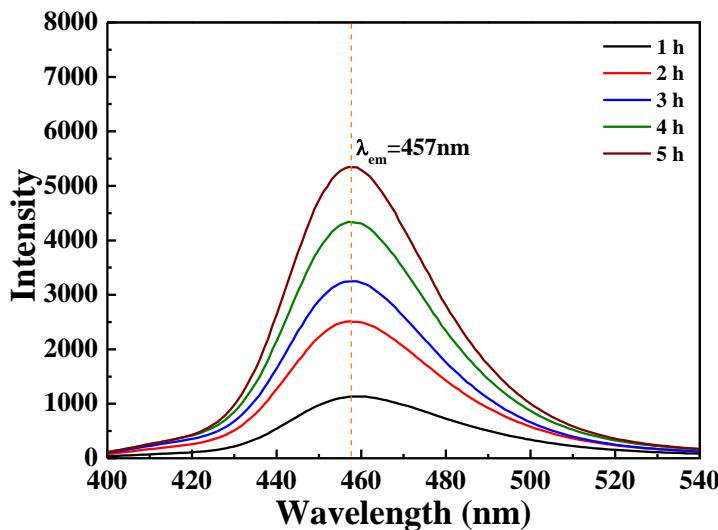
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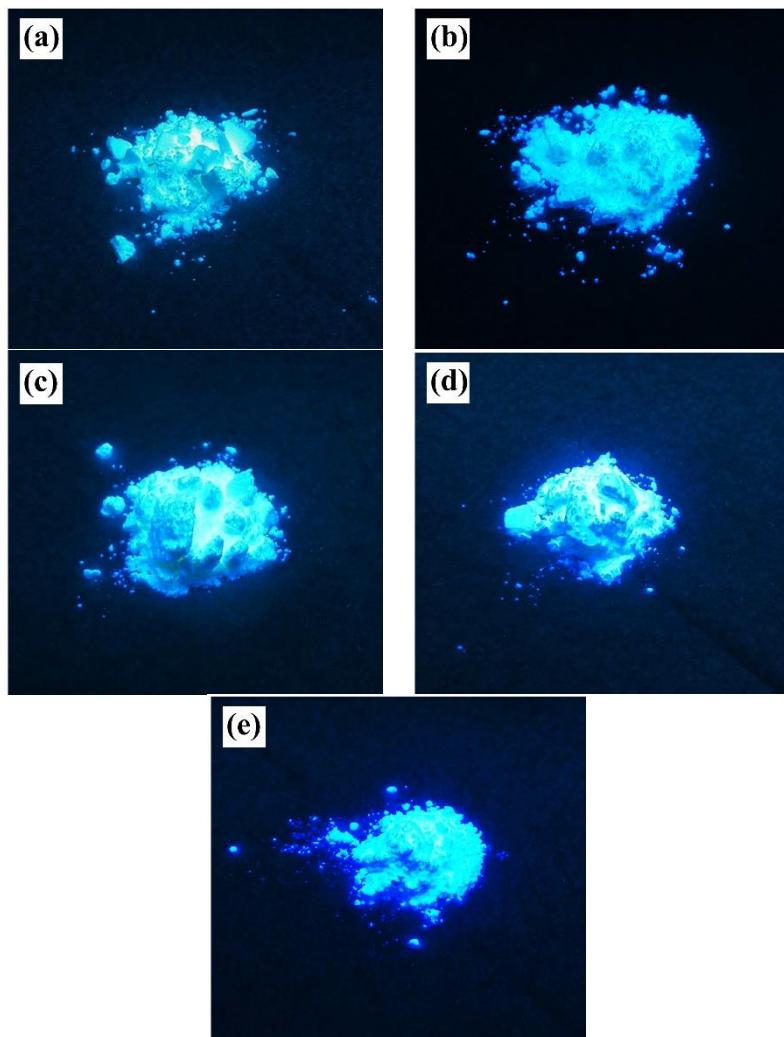
**Figure S1.** SEM/EDS mapping images of the [Sr<sub>0.99</sub>Eu<sub>0.01</sub>]<sub>3</sub>MgSi<sub>2</sub>O<sub>8</sub> phosphor sintered at 1300 °C for 1 h. (a) SEM images, (b) Sr element, (c) Si element and (d) Mg element.



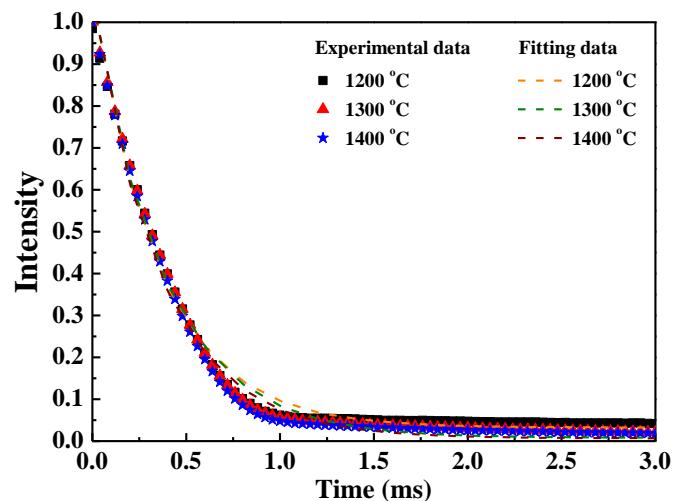
**Figure S2.** PLE patterns of the  $[\text{Sr}_{0.99}\text{Eu}_{0.01}]_3\text{MgSi}_2\text{O}_8$  phosphors sintered at different times.



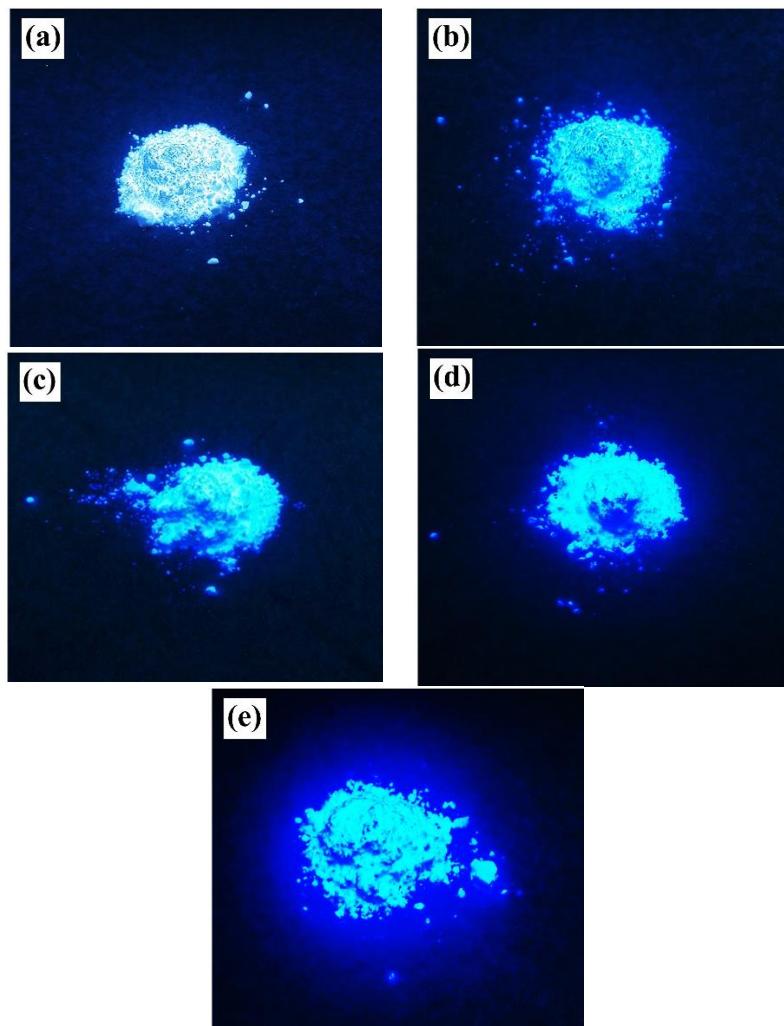
**Figure S3.** PL patterns of the  $[\text{Sr}_{0.99}\text{Eu}_{0.01}]_3\text{MgSi}_2\text{O}_8$  phosphors sintered at different times.



**Figure S4.** The photo-images of the  $[Sr_{0.99}Eu_{0.01}]_3MgSi_2O_8$  phosphors sintered at different times under UV light irradiation. (a) 1 h, (b) 2 h, (c) 3 h, (d) 4 h and (e) 5 h, respectively.



**Figure S5.** Decay times of  $[Sr_{0.99}Eu_{0.01}]_3MgSi_2O_8$  phosphors sintered at different temperatures.



**Figure S6.** The photo-images of the  $[\text{Sr}_{0.99}\text{Eu}_{0.01}]_3\text{MgSi}_2\text{O}_8$  phosphors sintered at different temperatures under UV light irradiation. (a) 1200 °C, (b) 1250 °C, (c) 1300 °C, (d) 1350 °C and (e) 1400 °C, respectively.