

Supplementary Materials for

Color modulation of cerium sulfide colorant powders through chemical doping engineering

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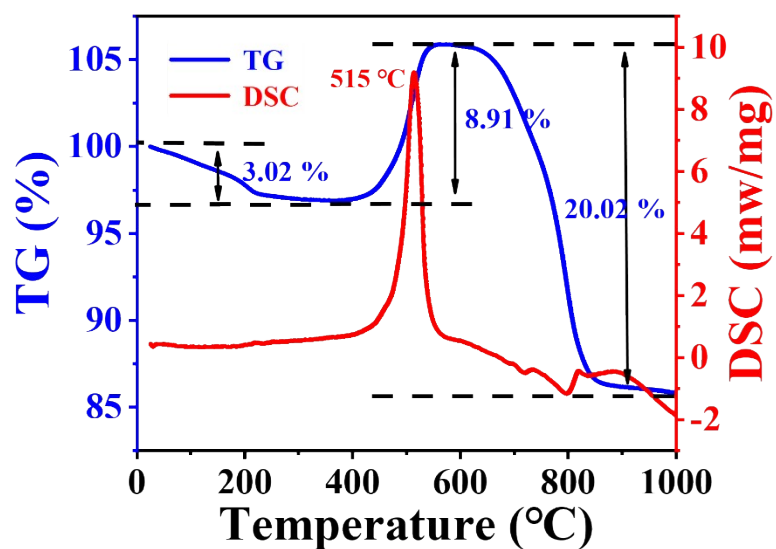


Figure S1. The Thermal stability analysis of core-shell γ - Ce_2S_3 @ZnO powder in the atmosphere.

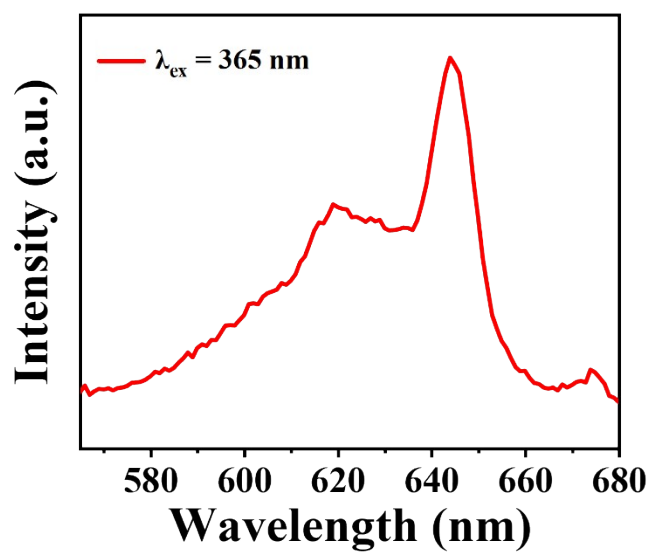


Figure S2. The emission spectrum of γ - Ce_2S_3 under 365 nm excitation.

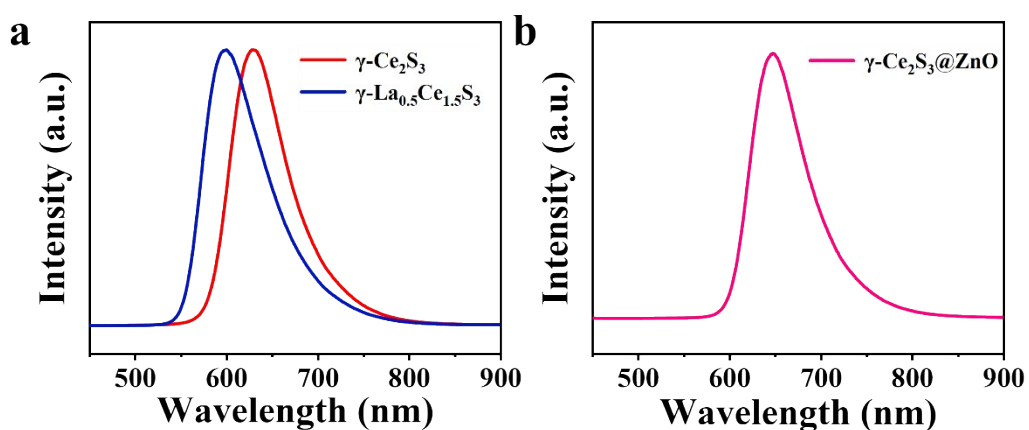


Figure S3. (a) The emission spectra of LED devices with $\gamma\text{-La}_{0.5}\text{Ce}_{1.5}\text{S}_3$ colorant and $\gamma\text{-Ce}_2\text{S}_3$ colorant. (b) The emission spectrum of LED device with $\gamma\text{-Ce}_2\text{S}_3@\text{ZnO}$ colorant.

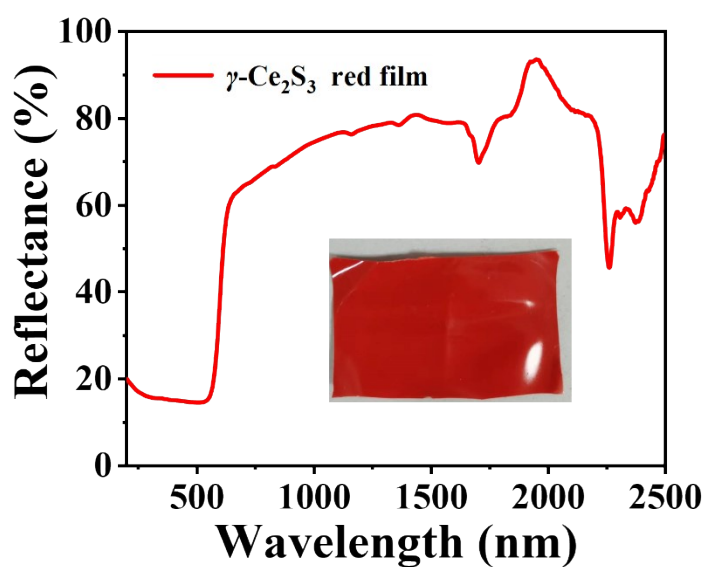


Figure S4. The reflectance spectra of red films in the range of 200-2500 nm. The inset shows a photo of the prepared red film.