

SYNTHESIS AND OPTICAL PROPERTIES OF SR₆P₅BO₂₀:EU PHOSPHOR POWDERS BY CO-PRECIPIATION METHOD

Le Tien Ha, Nguyen Duc Trung Kien, and Pham Thanh Huy

TÓM TẮT:

The Sr₆P₅BO₂₀: Eu phosphor powders have been synthesized via co-precipitation method for the purpose of industrial applications in tri-color compact fluorescent lamps with the Eu³⁺ doped concentration of 1 to 5%. The structure and optical properties of the material are investigated by SEM image, X-ray spectra and photoluminescence spectra. The phosphor powders exist in the shape as rice grains with the size of from 3 to 5 μm. The results demonstrate that the prepared phosphor powders are multi-phase materials. The phase stability is high when the calcination temperature is from about 900 to 1200 °C. The characteristic emission peaks at 590, 612, and 702 nm are attributed to the transition of Eu³⁺ from 5D₀ level to 7F₁, 7F₂ and 7F₄ levels, respectively.