

**SYNTHESIS SrAl₂O₄:Eu²⁺,Dy³⁺ PHOSPHOR BY USING SOLUTION
COMBUSTION METHOD**

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ABSTRACT

SYNTHESIS SrAl₂O₄:Eu²⁺,Dy³⁺ PHOSPHOR BY USING SOLUTION COMBUSTION METHOD

Strontium aluminate doped with Eu²⁺ and Dy³⁺ were prepared by using solution combustion method. To synthesize SrAl₂O₄ : Eu²⁺, Dy³⁺ phosphor, Sr(NO₃)₂ and Al(NO₃)₃.9H₂O were used as starting material while Eu₂O₃ and Dy₂O₃ were used as activator. The fuel used for combustion process was urea (CH₄N₂O). The structural properties were measured by using X-ray diffraction (XRD) and Fourier transform infrared (FTIR) spectroscopy. The structure of the SrAl₂O₄:Eu²⁺,Dy³⁺ was found to be monoclinic with space group P2₁ with crystallite size around 22.43 nm. Based on FTIR, the functional group including vibrational and bending modes exist in sample were identified. The optical properties of SrAl₂O₄:Eu²⁺,Dy³⁺ were studied by using photoluminescence (PL) and Ultraviolet-Visible (UV-Vis). SrAl₂O₄:Eu²⁺, Dy³⁺ emits green light when the peak is at 522 nm and confirmed with CIE. SrAl₂O₄:Eu²⁺,Dy³⁺ has around 5.3865 eV direct energy band gap based on UV-Vis analysis. This nanophosphor is very useful in industry since it has afterglow effect.