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Bright Red Luminescence from co-doped $\text{Dy}^{3+}/\text{Eu}^{3+}$: $\text{CaLa}_2\text{ZnO}_5$ Phosphors for Photonic Applications

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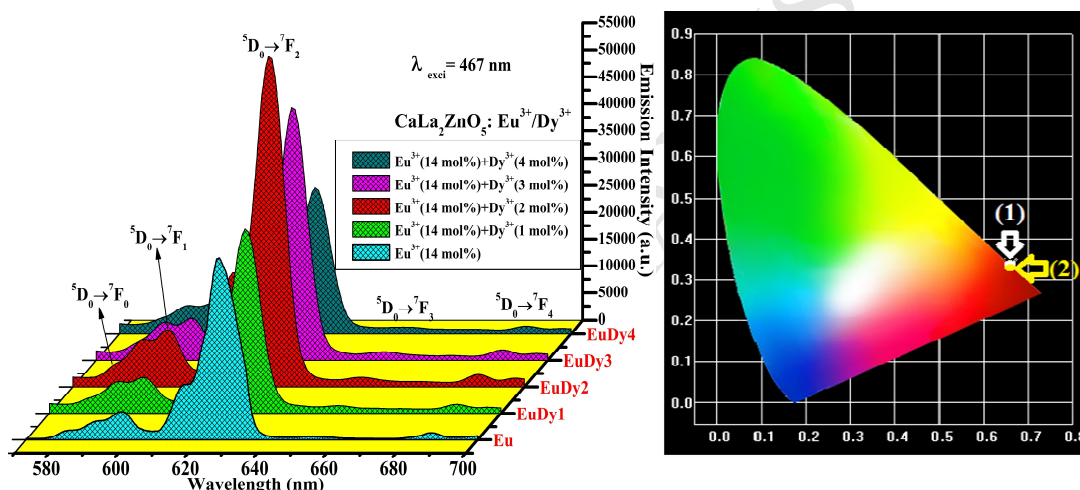
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Abstract



A bright novel red emission was obtained from Eu^{3+} : $\text{CaLa}_2\text{ZnO}_5$ (CLZO) Phosphors under visible excitation. We have successfully synthesized Eu^{3+} : CLZO Phosphors by solid state reaction method. The phase formation and surface morphological studies were analyzed by X-ray diffraction and Field emission scanning electron microscopy respectively. EDAX and XPS studies were performed to analyze the presence of elements in the sample and their ionic states with bonding energies respectively. Thermal analysis was done by TG/DTA. Photoluminescence spectral profiles reveal that the strong red emission has been noticed at 626 nm ($^5\text{D}_0 \rightarrow ^7\text{F}_2$) from the Eu^{3+} : CLZO Phosphors under the excitation of 467 nm. The emission and excitation spectral profiles were systematically analyzed and their bands were assigned with corresponding electronic transitions. Upon increasing the Eu^{3+} concentration,

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