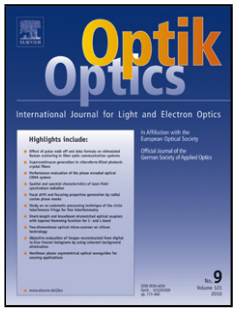

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Photoluminescence and electron paramagnetic resonance properties of UV-B light emitting Gd^{3+} activated Y_2O_3 phosphor prepared by sol-gel method

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Abstract

Undoped Y_2O_3 and Gd^{3+}-doped Y_2O_3 samples were synthesized using a sol-gel method. The samples were characterized by X-ray powder diffraction (XRD), a scanning electron microscope (SEM), photoluminescence (PL), and electron paramagnetic resonance (EPR). The room-temperature PL spectrum was recorded to study the bands that are due to the Gd^{3+}. The photoluminescence analyses of the sample confirm the presence of the Gd^{3+} ions in the Y_2O_3 matrix. EPR spectra of the samples confirmed the presence of Gd^{3+} ions in Y^{3+} sites with cubic symmetry.

Keywords: Sol-gel; EPR; Gd^{3+}; Y_2O_3; phosphor; luminescence