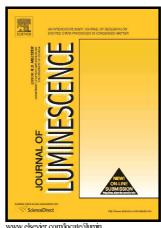
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ACCEPTED MANUSCRIPT

Upconversion/Downconversion luminescence and preparation of NIR-to-UV-excited Gd₂O₂S:Er phosphor

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Abstract

Efficient conversion of ultraviolet (UV) and near-infrared (NIR) radiations to visible emissions were carried out through Gd_2O_2S :Er phosphor synthesized by solid-state reaction method in vacuum. The spectra study of Gd_2O_2S :Er phosphor was performed as a function of firing temperature under the excitation wavelengths of 379 and 980 nm, respectively. The emission bands in visible light region corresponding to the transitions between $^2H_{9/2} \rightarrow ^4I_{15/2}$ (412 nm), $^4F_{7/2} \rightarrow ^4I_{15/2}$ (488 nm), $^2H_{11/2} \rightarrow ^4I_{15/2}$ (531 nm), $^4S_{3/2} \rightarrow ^4I_{15/2}$ (554 nm) and $^4F_{9/2} \rightarrow ^4I_{15/2}$ (670 nm) were demonstrated. Color emission can be tuned from red to green due to Er^{3+} ions doping by varying the firing

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