10. Synthesis Of Narrow Band UVB Phototheropy Phosphor LaB_5O_9:Pr-Gd

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ABSTRACT

The powder samples of the narrow band UVB emitting borate phosphor LaB_5O_9- $Pr^{3+}Gd^{3+}$ has been prepared by a novel solution Combustion method. The formation of the samples was confirmed by powder XRD technique. The photoluminescence properties of the borate phosphors have been investigated. The phosphor LaB_5O_9: Pr^{3+}- Gd^{3+} shows strong absorption over a wide UV range from 200 – 400 nm. Upon excited by 254 nm UV radiations, LaB_5O_9: Pr^{3+}-Gd^{3+} shows intense narrowband UVB emission around 311 nm. The optimum concentrations of Pr^{3+} and Gd^{3+} are 2% and 10% respectively. In this phosphor no host excitation was observed which indicates the efficient energy transfer from Pr^{3+} to Gd^{3+}

***Keywords*:** Borate, UVB Emitting Phosphor, Phototherapy, Combustion synthesis, Photoluminescence.