# Green emitting luminescent behaviour of $Tb^{3+}$ induced lithium aluminoborosilicate glasses for optoelectronic devices

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**Abstract**

Lithium aluminoborosilicate glasses induced with different concentrations of $Tb^{3+}$ ions (LABST) have been synthesized via engaging with the melt quenching method and their spectroscopic aspects were explored in detail to explore the effective usage of the prepared glass matrices for optoelectronic devices. The amorphous structure of the prepared LABST glasses was studied using the XRD technique. Using the optical absorption spectra, the optical properties such as optical band gap energy and refractive index of the prepared LABST glass were estimated. Under various n-UV excitations, all the prepared LABST glass samples demonstrate the intense green emission ascribed to the $^5D_4 \rightarrow {}^7F_5$ transition and whose emission intensity gradually rises with an increment in the concentration of $Tb^{3+}$ ions up to 2.5 mol%. The observed chromaticity coordinates ($x$, $y$) for the prepared LABST glass samples are situated in the green region of the CIE graph under various n-UV excitations. [1, 2] Moreover, as-prepared LABST glass samples have significant thermal stability and high activation energy as revealed by the temperature-dependent PL (TDPL) spectra. Henceforth, the results mentioned above are evident that the green-emitting $Tb^{3+}$ doped lithium aluminoborosilicate glasses can be a potential candidate for usage in optoelectronic devices.

**References**

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