



SPECTROSCOPIC PROPERTIES OF Sm^{3+} DOPED IN YTTERBIUM LEAD LITHIUM BISMUTH SILICATE GLASSES

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Abstract

Glass sample of Ytterbium Lead Lithium Bismuth Silicate $(50-x) Bi_2O_3:10PbO:10Li_2O: 10Yb_2O_3: 20SiO_2: x Sm_2O_3$. (where $x=1,1.5,2$ mol%) have been prepared by melt-quenching technique. The amorphous nature of the prepared glass samples was confirmed by X-ray diffraction. The absorption spectra of three Sm^{3+} doped Ytterbium lead lithium bismuth silicate glasses have been recorded at room temperature. The various interaction parameters like Slater-Condon parameters F_k ($k=2,4,6$), Lande parameters ($\hat{I}^3/4f$), nephelauxetic ratio (\hat{I}^2), bonding parameters ($b^{1/2}$) and Racah parameters E^k ($k=1,2,3$) have been computed. Judd-Ofelt intensity parameters and laser parameters have also been calculated.

Author Keywords

Ytterbium lead lithium bismuth silicate glasses, Energy interaction parameters, Optical properties, Judd-Ofelt analysis

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