

OPTICAL ABSORPTION SPECTRUM AND JUDD-OFELT ANALYSIS STUDY OF Eu³⁺ DOPED ZINC OXYCHLORIDE TELLURITE GLASSES.

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ABSTRACT

A series of glass samples in the TeO₂ - ZnO - ZnCl₂ - Li₂O - Eu₂O₃ glass system has been successfully made by the melt quenching technique. The density, the refractive index, the optical absorption, the Judd-Ofelt parameters and the spontaneous transition probabilities have been determined. Judd-Ofelt analysis was performed for the glass system to evaluate the spontaneous emission probability as well as the quality factor (Q), branching ratio ($\hat{\alpha}$) and radiative lifetime (τ_{rad}). The variation of Judd-Ofelt parameters (Ω_2 , Ω_4 and Ω_6) were analyzed as a function of ZnCl₂ concentration. It was found that the Ω_2 , Ω_4 , Ω_6 , Q and $\hat{\alpha}_{rad}$ increase with ZnCl₂ concentration.

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