

THE STRUCTURAL STUDIES OF $\text{Er}^{3+} : \text{TeO}_2\text{-Li}_2\text{O-PbO-Nd}_2\text{O}_3$ GLASS SYSTEM

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ABSTRACT

Series of Er^{3+} doped tellurite glass of the $\text{TeO}_2\text{-PbO-Li}_2\text{O-Nd}_2\text{O}_3\text{-Er}_2\text{O}_3$ system was successfully been made. The glass structure has been studied by means of FTIR and Raman spectroscopy. Seven significant vibrational peaks around 467,664,746,1456,1643,2368 and 3445 nm which correspond to the structural bonding of the glass are observed in a range of 400-4000nm. The peaks observed are consistent with the stretching and bending vibrations of the Pb-O, TeO_4 trigonal bipyramids, TeO_3 trigonal pyramids, Te-O-Pb and M-OH linkages respectively. Weak band at 1630 cm^{-1} is believed to be due to the M-OH group probably due to the OH trapped in the glass structure. The refractive indices are found to be around 1.91 and is strongly correlated to the glass structure.

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