

Abstract Submitted
for the PSF13 Meeting of
The American Physical Society

Optical absorption properties of Neodymium ions (Nd^{3+}) doped lead boro tellurite glasses KINNARY PATEL, P.K. BABU, SAISUDHA MALLUR, Western Illinois University — The optical absorption properties of Nd^{3+} ions in $\text{PbO-TeO}_2\text{-B}_2\text{O}_3$ glasses were studied as a function of PbO content varying from 30 to 70 mol%. Glasses were prepared by the usual melt quench technique. Glasses were annealed at 400°C for 3 hours to remove thermal strains. Annealed glass samples were then polished. In order to understand the effect of host glass on the absorption properties of Nd^{3+} ions in these glasses, oscillator strength, intensity parameters and radiative transition probabilities of Nd^{3+} ions were calculated using the Judd-Ofelt theory. The variation of the intensity parameters Ω_t ($t=2,4,6$) with PbO content has been attributed to the changes in the asymmetry of the ligand field at the rare-earth (R) site (due to the structural changes) and to changes in R -O covalency.

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Date submitted: 17 Sep 2013

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