OPTICAL STUDY OF NOVEL HIGH NON LINEARITY PHOSPHATE GLASS

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The heavy metal glasses with Bi_2O_3 have attracted considerable attention due to their interesting physical properties leading to different application. These glasses posses a high third order nonlinear optical susceptibility (χ^3). In addition, the introduction of WO_3 in phosphate glasses increases its resistance to atmospheric moisture, glass transition, thermal stability against devitrification and increase the linear and nonlinear optical index. [1]. In the present work, glasses with composition $(70 - x)NaPO_3 - 30WO_3 -$ (varying from 5 to 30%)Bi_2O_3 were synthesized by the conventional melting-quenching method and submitted to annealing around vitreous transition temperature (T_g). Structural and optical investigation were promoted as a function of bismuth concentration, using FTIR, UV-Vis, m-line, Z-scan analyses, Raman scattering and ^{31}P- MAS-NMR.

[1] A. Mansigh, A. Dhawan, R. P. Tandon, J. Non. Cryst. Solids 27, 309 (1978)