Abstract Submitted
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Flexible-Rigid elastic transition in sodium germanate glasses: A Brillouin light scattering study.[1] W. ZHOU, W.C. LIU, R. SOORYAKUMAR, D.I. NOVITA, P. CHEN, The Ohio State University, P. BOOLCHAND, University of Cincinnati — Global structures in network glasses are characterized by their connectedness or mean co-ordination number, r, and have been classified as being flexible ($r \sim 2$), intermediate($r \sim 2.4$) or stressed rigid ($r \sim 2.7$) . Recently these ideas have been extended from covalent networks to ionically bonded ones, as evidence of a reversibility window in $(Na_2O)_x(GeO_2)_{1-x}$ glasses has emerged[2] in the $14\% < x < 19\%$ range. Glasses at $x < 14\%$ are viewed as stressed-rigid and those at $x > 19\%$ to be flexible. We have performed Brillouin light scattering measurements on this glass system, and will present results on the dependence of the longitudinal (LA) and transverse (TA) acoustic phonon velocities across a broad range of compositions, $0 < x < 30\%$. Variations in $C_{11}(x)$ and $C_{44}(x)$ elastic constants across the three elastic phases will be discussed. [2] K.Rompicharla et al. (unpublished)

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Ratnasingham Sooryakumar
The Ohio State University

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