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Raman pressure effects and internal stress in network glasses FEI WANG, S. MAMEDOV, P. BOOLCHAND, B. GOODMAN, *Univ. of Cincinnati*, MEERA CHANDRASEKHAR, *Univ. of Missouri* — Intermediate phases are predicted to be unstressed elastic phases of network glasses. The case of binary Ge_xSe_{1-x} glasses reveal the intermediate phase to reside in the $0.20 < x < 0.25$ range[1]. We have now performed[2] Raman scattering on Ge_xSe_{1-x} glasses under pressure and find a steady increase in the frequency of modes of corner-sharing $GeSe_4$ tetrahedra when the external pressure P exceeds a threshold value P_c. The threshold pressure $P_c(x)$ decreases with x to nearly zero for $0.20 < x < 0.25$, then increases up to $x = 1/3$. P_c indicates the presence of local stress at the Raman active units; so its vanishing suggests that these units are part of an isostatically rigid backbone. Isostaticity also accounts for the non-aging behavior of glasses observed in this same composition range[2] that is identified with the intermediate phase in this binary glass system.

1. P.Boolchand et al. JNCS **293-295**, 348 (2001).
2. Fei Wang et al. Cond Matt 0408502 (to appear in Phys. Rev. B)

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