Abstract Submitted
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The Kinetics of the Glass Transition and Physical Aging in Germanium Selenide Glasses[1] HAOYU ZHAO, YUNG KOH, SINDEE SIMON, Texas Tech University, SABYASACHI SEN, UC Davis, MAREK PYDA COLLABORATION — The kinetics associated with the glass transition is investigated using differential scanning calorimetry (DSC) for germanium selenide glasses with Ge content ranging from 0 to 30 atom% Ge and mean coordination numbers ranging from 2.0 to 2.6. As Ge content increases, the glass transition region broadens and the step change in heat capacity at Tg decreases. As a result of physical aging, enthalpy overshoots are observed in DSC heating scans and the corresponding change in enthalpy can be calculated as a function of aging time. The enthalpy loss on aging linearly increases with the logarithm of aging time and then levels off at an equilibrium value that increases with decreasing aging temperature. The time required to reach equilibrium increases with decreasing aging temperature and, at a given temperature, with decreasing germanium content. The results indicate that all samples show expected physical aging behavior, and no evidence for a Boolchand intermediate phase characterized by high stability and absence of physical aging is found.

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