

## Far-Infrared Measurement on an Exceptional Se-As Glass

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Binary, covalent  $\text{Se}(1-x)\text{As}(x)$  glasses with  $x$  ranging from 0.16 to 0.70 which display some remarkable vibrational behavior were prepared by us. For compositions in the range  $0.4 < x < 0.7$ , we observed exceptional behavior in neutron inelastic scattering measurements, arising in form of sharp peaks in the vibrational density of states. Our far-infrared measurement taken at the ALS on a  $\text{Se}(40)\text{As}(60)$  glass confirms the neutron scattering observation. A comparison with the P-Se and As-S systems as well as literature values on  $c\text{-As}(4)\text{Se}(4)$  and  $c\text{-As}(4)\text{Se}(3)$  suggests that higher arsenic concentration glasses contain molecular units within the glass network which may represent departures from network connectivity. In addition to FIR and neutron inelastic scattering measurements we present Raman, NMR, NQR data and aiMD calculations to support the idea of dynamically isolated molecular clusters in Se-As glass.

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