

Abstract Submitted
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Relaxation Width and Ionic Conductivity of Supercooled Glycerol at High Pressure¹ KYAW ZIN WIN, NARAYANAN MENON, University of Massachusetts Amherst — We have measured the dielectric susceptibility of supercooled glycerol from 0.01 Hz to 100 kHz at up to 900 MPa and close to the glass transition temperature. We find that, at a fixed relaxation frequency, the relaxation width increases with pressure. We also establish a relation between isobaric fragility and the width of glycerol and compare it to a correlation ² between these quantities at 1 atmosphere for a variety of liquids. We find that volume has a much bigger effect than temperature on the changes in the width. We are also for the first time able to study the ionic conductivity as a function of temperature and pressure, and study the Nernst-Einstein relation between the conductivity and the relaxation frequency.

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²R. Bohmer, K. L. Ngai, C. A. Angell, and D. J. Plazek, J. Chem. Phys. 99, 4201 (1993).

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