

Abstract Submitted
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Paradigms for the Glass Transition¹ GREGORY MCKENNA, Texas Tech University — Several paradigms of the glass transition are commonly used to either characterize the behavior of glass-forming materials or as “targets” for theoretical outcomes. The purpose of the work and discussion was motivated by a view that some of the paradigms currently used to frame the glass transition event, while potentially useful, may also have limitations that we often do not fully consider. Discussion focuses on isochoric glass formation paths, thermodynamic and dynamic fragilities and how dynamic fragility in many systems (especially polymers, metals, ionic liquids and hydrogen bonding systems) seems to vary primarily with the glass transition temperature, T_g , itself. This leads to the conclusion that such systems have an apparent activation energy that varies as the square of the glass temperature and consequently a fragility index m that varies linearly in T_g . The work concludes with a presentation of evidence that the apparent super Arrhenius divergence of viscosity or relaxation time as temperature decreases towards the T_g is precarious, suggesting that the common expectations of a diverging relaxation time or viscosity as the glass temperature is approached are not met.

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