

Abstract Submitted
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Characteristic Time Scales of Pre-Glassy Dynamics¹ JULIEANNE HEFFERNAN, New Mexico Tech, Socorro, NM 87801, J. BUDZIEN, Sandia National Laboratories, Albuquerque, NM 87185, AARON T. WILSON, ROBERT J. BACA, FRANCISCO AVILA, JOHN D. MCCOY, New Mexico Tech, Socorro, NM 87801, DOUG B. ADOLF, Sandia National Laboratories, Albuquerque, NM 87185 — Continuing the scalar metric treatment of the glass transition, characteristic time scales based on the diffusion coefficient were investigated for simple model polymer systems. For all systems, regardless of the pressure-volume-temperature path, the resulting times form single-valued (system-dependent) functions of packing fraction. A ratio of time scales is shown to yield a smoother function upon collapse than do the time scales themselves, which suggests that extrapolations to the ideal glass transition are better performed in terms of this ratio of time scales. Finally, discontinuities in the characteristic times are explained in terms of caging behavior seen in the velocity autocorrelation functions.

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