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Power Law Behavior of Dynamics in Simple Glass Formers[1] JOHN MCCOY, JULIEANNE HEFFERNAN, New Mexico Tech, JOANNE BUDZIEN, DOUGLAS ADOLF, Sandia National Laboratories — Simulation results for the diffusive behavior of polymer chain/ penetrant systems are analyzed. Both freely jointed and freely rotating chains are studied. In all cases, the characteristic times, τ, extracted from the diffusion constants are found to be single valued functions of the packing fraction, η. The functions $\tau(\eta)$ are found to be power-laws with exponents that are sensitive to both chain stiffness and particle type. For a specific system type, all measures of motion extrapolate to zero (or infinity) at a single η_0. In addition, $(\eta_0 - \eta)$ can be interpreted as a "scalar metric" of the "distance" to the glass "transition."

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