

611b Role of Local Structure and Icosahedrality in Spatially Heterogeneous Dynamics in Supercooled, Glass-Forming Liquids

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To elucidate the origin of spatially heterogeneous dynamics in liquids near the glass transition, we conduct molecular dynamics computer simulations of a one-component glass-forming liquid, known to favor icosahedral ordering, and study the relation between local structure and dynamics. We explore in detail the nature and consequence of clusters containing icosahedrally-ordered particles, and examine their role in dynamical heterogeneity. We investigate the spatial distribution of local stresses and forces in the liquid, and correlate those quantities with icosahedrality and with the tendency for particles to move cooperatively in quasi one-dimensional, string-like paths.