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*Local environments in glassy hard particle systems*

Soft matter systems, in which thermal fluctuations are strong enough to drive particle rearrangements, are capable of self-assembling into a staggering variety of simple and complex crystalline structures. Often, however, no such assembly occurs, and the system remains frustratingly disordered. Here, we investigate one such family of cases, in which simple systems of hard particles of a polyhedral shape, with no interactions aside from those of excluded volume, fail to assemble. Instead, these systems exhibit glassy behavior. We examine this behavior via Monte Carlo simulation, and investigate in particular the role that local particle environment plays in inducing vitrification rather than assembly.