

Abstract Submitted
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Simulation study of correlation of local transformation in a supercooled liquid YUTO KIMURA, Hachinohe Natl College of Tech — In the supercooled liquid state, the motion of particles becomes more anisotropic and heterogeneous toward the glass transition and their mechanical properties changes dramatically. In order to characterize anisotropic dynamics of supercooled liquids, we employed molecular dynamics simulations of a binary mixture and investigated properties of local transformation in the supercooled liquid. First, we calculated neighboring particles that were identified by voronoi analyses. Next, we calculated angular correlation of relative displacement vectors of neighboring particles to qualify the local transformation and the time scales of their correlations in supercooled liquid state. We found that the time scale of correlation of local transformation becomes longer as the temperature decreases. Additionally, the behavior of the time scale of correlation of local transformation is more similar to structural relaxation time than the peak time of the non-Gaussian parameter.

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