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Dynamic correlations and correlation length in the aging of a simple structural glass AZITA PARSAEIAN, Department of Physics and Astronomy, Ohio University , HORACIO CASTILLO, Department of Physics and Astronomy, Ohio University — We present the results of a detailed molecular dynamics simulation of the spatial correlations of fluctuations in a simple binary Lennard-Jones glass former in the aging regime. We study the 4-point generalized density susceptibility $\chi_4(t, t_w)$ and the dynamic correlation length $\xi_4(t, t_w)$ associated with it, where t_w is the waiting time. We find that these data are consistent with the scalings $\chi_4(t, t_w) = F(t_w){\chi_4}^0(C(t, t_w))$ and $\xi_4(t, t_w) = G(t_w){\xi_4}^0(C(t, t_w))$, where $C(t, t_w)$ is the incoherent part of the intermediate scattering function. We also find that $F(t_w)$ can be fit as a power of the waiting time, and $G(t_w)$ can be fit as a logarithm of the waiting time. These differing time dependencies, plus the dramatically different behavior of the scaling functions $\chi_4^0(C)$ and $\xi_4^0(C)$ for small C lead to the conclusion that the time evolution of $\chi_4(t, t_w)$ *is not* controlled by its associated dynamic correlation length $\xi_4(t, t_w)$.

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