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Universal Scaling in the Aging of the Strong Glass Former SiO2[1]
KATHARINA VOLLMAYR-LEE, Bucknell University, HORACIO CASTILLO, Department of Physics and Astronomy and Nanoscale and Quantum Phenomena Institute, CHRISTOPHER GORMAN, University of California, Santa Barbara — We show that the aging dynamics of a strong glass former displays a strikingly simple scaling behavior. Using molecular dynamics simulations, we quench the system from high temperature to 2500 K, below the glass transition and investigate dynamic heterogeneities as function of waiting time, the time elapsed since the quench. We find that both the dynamic susceptibility and the probability distribution of the local incoherent intermediate scattering function can be described by simple scaling forms in terms of the global incoherent intermediate scattering function. The scaling forms are the same that have been found to describe the aging of several fragile glass formers. Furthermore we find that the aging dynamics is controlled by a unique aging clock which is the same for Si and O atoms.

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