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Particle dynamics near the re-entrant glass transition ANDRZEJ LATKA, Saint Joseph's University, AHMED ALSAYED, YILONG HAN, ARJUN YODH, University of Pennsylvania, PIOTR HABDAS, Saint Joseph's University —
Colloidal suspensions are a model system for studying the glass transition. At the volume fraction $\phi g \approx 0.58$ a hard sphere colloidal glass is formed. The formation of a hard sphere glass is attributed to the caging effect, in which the particles form cages around each other that restrict their movement. Introducing an attractive depletion force between the particles causes the hard sphere glass to melt and the system becomes a liquid. Through further increase of the attractive force an attractive glass is formed. Our system is a suspension of nearly hard-sphere colloidal particles and nonadsorbing linear polymer which induces a depletion attraction between the particles. Using microscopy techniques, we study how the dynamics of the particles change as the attractive potential is increased and attractive glass is approached. In particular, we examine the mean square displacement and frequency of particle jumps over a range of attraction strengths.

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