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Particle dynamics in dense colloidal suspensions with short-range attraction¹ PIOTR HABDAS, ZACHERY BROWN, Department of Physics, Saint Joseph's University, MATTHEW GRATALE, ARJUN G. YODH, Department of Physics and Astronomy, University of Pennsylvania — We study single particle dynamics and dynamical heterogeneity in colloidal suspensions with tunable short-range attraction as the sample evolves from a repulsive glass towards an attractive glass. Short-range depletion forces induce the transition. Using confocal microscopy we identify colloidal particles that exhibit substantial motional events. We observe that these particles demonstrate heterogeneous dynamics which is manifested by non-Gaussian distribution of the particle displacements. Maximum dynamical susceptibility is determined systematically over a range of probe length and time scales. Preliminary results show that at volume fractions just above the colloidal glass transition the intensity of spatial heterogeneities decreases as the interparticle attraction strength is increased suggesting the system enters the ergodic fluid state.

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