Dynamics of concentrated dicolloid particles\textsuperscript{1} MARK M. PANCZYK, NORMAN J. WAGNER, ERIC M. FURST, University of Delaware — Nonspherical colloidal particles exhibit a variety of equilibrium structures, including colloidal crystals. However, with increasing concentration, particle dynamics in these suspensions slow, and the creation of equilibrium close-packed structures may be ultimately inhibited by the presence of a glass transition. For dicolloid particles, dimer particles with asymmetric or symmetric lobes, suspension dynamics have been studied using Stokesian dynamics simulations [1] and mode-coupling theory [2], and the glass transitions have been determined using rheology [3]. In this study, the dynamics of polystyrene dicolloids in water are measured by diffusing wave spectroscopy (DWS) at particle concentrations between 1 and 60 volume percent. Relaxation times of the dicolloid particle suspensions are determined as a function of particle concentration and shape. Strong particle localization occurs at the highest concentrations. The localization lengths measured by DWS are compared to their mode coupling theory predictions.


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