

Abstract Submitted  
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**Dynamics of concentrated dicolloid particles**<sup>1</sup> 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.

[1] Kumar A, Higdon JLL. *J. Fluid. Mech.* **2011**, *675*, 297-335.

[2] Zhang R, Schweizer KS. *J. Chem. Phys.* **2010**, *133* 104902.

[3] Kramb R.C. et al., *J. Phys.: Condens. Matter.* **2011**, *23*, 035102

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