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**Gelation in a model 1-component system with adhesive hard-sphere interactions** JUNG MIN KIM, University of Delaware, AARON EBERLE, National Institute of Standards and Technology, JUN FANG, Arkema Inc., NORMAN WAGNER, University of Delaware
— Colloidal dispersions can undergo a dynamical arrest of the disperse phase leading to a system with solid-like properties when either the volume fraction or the interparticle potential is varied. Systems that contain low to moderate particulate concentrations form gels whereas higher concentrations lead to glassy states in which caging by nearest neighbors can be a significant contributor to the arrested long-time dynamics. Colloid polymer mixtures have been the prevalent model system for studying the effect of attraction, where attractions are entropically driven by depletion effects, in which gelation has been shown to be a result of phase separation [1]. Using the model 1-component octadecyl coated silica nanoparticle system, Eberle et al. [2] found the gel-line to intersect the spinodal to the left of the critical point, and at higher concentrations extended toward the mode coupling theory attractive driven glass line. . We continue this study by varying the particle diameter and find quantitative differences which we explain by gravity.

1. Lu, P.J., et al., Nature, 2008. 453(7194): p. 499-504.
2. Eberle, A.P.R., N.J. Wagner, and R. Castaneda-Priego, Physical Review Letters, 2011. 106(10).

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