

The colloidal glass transition in confinement

Eric Weeks¹

¹*Emory University, USA*

ABSTRACT

Our lab studies how confinement modifies the structure and dynamics of densely packed colloidal suspensions. Colloidal suspensions are composed of micron-sized particles in a liquid, and the particles diffuse due to Brownian motion. The diffusion constant decreases rapidly as the volume fraction ϕ is increased toward $\phi = 0.58$, which has been identified as the colloidal glass transition point. When a colloidal suspension is confined to a small region we find the sample behaves glassier: diffusion is slower for a given ϕ than in an unconfined sample. We observe this motion using confocal microscopy in samples confined in one, two, or three directions. We find that the properties of the confining boundary influence how dramatic the confinement effects are.