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Boundaries Matter for Confined Colloidal Glasses GARY HUNTER, Emory University, KAZEM V. EDMOND, New York University, ERIC R. WEEKS, Emory University — We confine dense colloidal suspensions within emulsion droplets to examine how confinement and properties of the confining medium affect the colloidal glass transition. Samples are imaged via fast confocal microscopy. By observing a wide range of droplet sizes and varying the viscosity of the external continuous phase, we separate finite size and boundary effects on particle motions within the droplet. Suspensions are composed of binary PMMA spheres in organic solvents while the external phases are simple mixtures of water and glycerol. In analogy with molecular super-cooled liquids and thin-film polymers, we find that confinement effects in colloidal systems are not merely functions of the finite size of the system, but are strongly dependent on the viscosity of the confining medium and interactions between particles and the interface of the two phases.

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