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Observed Effects of Confinement on Colloidal Glasses[1] CAROLYN NUGENT, HETAL PATEL, JOE SALDANA, ERIC R. WEEKS, Department of Physics, Emory University — We used a binary colloidal suspension to model glass molecules. By increasing the concentration of colloids, a glass transition is induced. Previous studies of colloidal suspensions show that as the glass transition is approached, colloids tend to move in groups of increasing size. In order to examine this phenomenon more closely, a colloidal suspension was confined between two parallel glass plates with a narrow gap of the order of a few colloid diameters in thickness. Confocal microscopy was used to observe the particles and follow their motion over time. We observed that motion in confined regions was much slower than motion in non-confined regions of the same sample. In addition, the motion perpendicular to the walls was slower than motion parallel to the walls. The arrangement of colloids into layers was also observed, which further influenced the motion.

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