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Confinement Finds a Length Scale for the Colloidal Glass Transition KAZEM EDMOND, ERIC R. WEEKS, Emory University — We study a colloidal suspension confined between two parallel walls as a model system for glass transitions in confined geometries. We use confocal microscopy to directly observe the motion of the colloidal particles, which are slower when confined. This slower motion produces glassy behavior in a sample that is liquid-like when not confined. Our results, from a range of volume fractions, demonstrate that the maximum thickness where confinement is effective defines a length scale for a given particle volume fraction. The length scale increases as the glass transition is approached. We observe that near the glass transition particle motion is strongly spatially correlated. We investigate the relationship between the length scales of these correlations and the established confinement length scale.

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