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Evidence of a dynamical length scale in a 2D glassy colloid LISA DIXON, DAVID GRIER, NYU — We use holographic video microscopy to study the dynamics of glassy bidisperse colloidal monolayers within circular regions defined by holographic optical traps. Establishing a pinned boundary condition affects the free particles' diffusion by an amount that depends on distance from the boundary. Both the effective diffusion coefficient and the diffusivity exponent are suppressed by pinning at the boundary, and the degree of suppression diminishes as the boundary's radius increases. These observations suggest the presence of a length scale over which dynamical information is transmitted through the glassy system.

Lisa Dixon
NYU

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