

Abstract Submitted
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Flow fields caused by local perturbations of colloidal glasses LOV GOEL, ERIC R. WEEKS, Emory University — Colloidal suspensions can be used to model atomic and molecular systems. At relatively high densities, these particle suspensions form a metastable jammed phase known as a colloidal glass; we study a series of colloidal samples close to this glass transition point. We add a small number of superparamagnetic beads to our samples so that we can perturb the colloidal system locally with an external magnetic field. We use laser scanning confocal microscopy to observe the response of the colloidal particles to this perturbation. The trajectories of several thousand particles surrounding the magnetic bead are followed to high accuracy using particle tracking techniques. The perturbed motion of colloidal particles decays exponentially away from the moving magnetic bead, thus revealing a new length scale. We measure this length scale as a function of volume fraction and applied force.

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