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Correlations of spatial structure and particle motion in shear-induced clusters of a near-glassy colloidal suspension. DENIS SEMWOGERERE, DANDAN CHEN, ERIC R. WEEKS, Emory University — We study fast-moving particle clusters formed as a result of shear applied to a colloidal suspension near the glass transition. The suspension is of micron-sized PMMA spheres in an index-matched fluid that allows visualization of the individual particles using high-speed confocal microscopy. The particles are tracked and their individual 3D trajectories determined. The shear-induced non-affine motion of each particle is extracted from its trajectory by subtracting the macroscopically imposed shear motion. Fast-moving particles are observed to move cooperatively as a group. We examine correlations between local spatial structure and the non-affine motion of the particles.

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