

Abstract Submitted
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Structural Inhomogeneities in a Dense Emulsion¹ S. K. DUTTA, E. D. KNOWLTON, D. L. BLAIR, Department of Physics, Georgetown University — A dispersion of emulsion droplets under a shear stress near the jamming transition can be characterized by the distribution of contact forces between neighboring drops. Due to the inherent structural disorder, we expect that during flow, the motion of the particles is highly spatially correlated. We directly access these quantities in a dense oil-in-water emulsion by determining the magnitude and location of deformations on individual droplets. We perform measurements on a dense polydisperse emulsion using a customized confocal rheometer which is capable of simultaneously acquiring three-dimensional images and measuring the bulk viscoelastic properties of a sample with a precise shear.

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