

Abstract Submitted  
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**Measurement of the Force Network in a Dense Emulsion under Shear** S. K. DUTTA, E. KNOWLTON, D. L. BLAIR, Department of Physics, Georgetown University — We have investigated the properties of a dense oil-in-water emulsion under shear stress. Measurements of the jammed emulsion were taken with a customized confocal rheometer, which is capable of acquiring three-dimensional images while simultaneously applying a precise shear. Images acquired deep inside the emulsion are detailed enough to determine the position and shape of individual emulsion droplets. The forces on each droplet were calculated from the deformation due to neighbors, making it possible to link the bulk rheological properties of the emulsion to local structural relaxation and the force distribution measured at the single droplet level.

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