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Deformation of Quasi-2D Oil-in-Water Emulsions LAURA GOLICK, KENNETH DESMOND, ERIC R. WEEKS, Emory University — We create a quasi-2D nearly frictionless granular system, analogous to 2D granular systems of photoelastic disks but without static friction. To do this, we confine an oil-in-water emulsion between two glass plates such that the gap between the plates is smaller than the undeformed oil droplet diameter. For a range of droplet area fractions and plate separations, we observe the deformations the oil droplets experience due to contact with each other. The deformation of the droplet is correlated to the force its neighbors exert on it. As area fraction increases, the deformation of the droplets increases. By looking at the pattern of deformations throughout the system we visualize the location of force networks due to droplet-droplet interactions.

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