

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

The Response of a 2D Emulsion to Local Perturbations XIA HONG, CARLOS ORELLANA, ERIC WEEKS, Department of Physics, Emory University, Atlanta, GA — We experimentally perturb a quasi-two-dimensional emulsion packing by inflating an oil droplet into the system in a controlled way. Our samples are oil-in-water emulsion confined between two close-spaced parallel plates, so that the droplets are deformed into pancake shapes. In this system, there is only viscous friction and no static friction between droplets. By imaging the droplets with a video microscopy, we observe rearrangement events induced by the local perturbation. Simultaneously, we measure droplet-droplet contact forces by analyzing the outlines of each droplet in our movies. These allow us to study how the packings with varying degrees of spatial order have different responses to the local perturbation.

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Date submitted: 10 Nov 2014

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