

Abstract Submitted
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Force Network in a 2D Frictionless Emulsion Model System KENNETH W. DESMOND, PEARL YOUNG, DANDAN CHEN, ERIC R. WEEKS, Emory University — We confine oil-in-water emulsion droplets between two parallel plates to create a quasi-two-dimensional model system to study the jamming transition. This model system is analogous to granular photoelastic disks with the exception that there is no static friction between our droplets. To study the jamming transition we compress the droplets in small increments and investigate how the force network evolves with increasing area fraction, where the forces are measured using a calibration technique we have developed. The forces in our system are spatial heterogeneous with a probability distribution that is similar to that found for photoelastic disks. We also find that the probability distribution of the forces narrows with area fraction, and that the correlation length of the largest forces is only few particle diameters.

Kenneth W. Desmond
Emory University

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