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Jamming in Emulsions and Elastic Tomography RODRIGO GUERRA, DAVID WEITZ, Harvard University — Attempting to bridge the gap between the jamming of soft, athermal particles and soft colloids, we measure the elasticity of packings of $\sim 10\mu m$ droplets using light scattering and tomography. Droplets in this size range retain the soft, frictionless contacts of colloidal dispersions, yet are large enough to resist thermal agitation. Nearly buoyant droplets form disordered piles where the compression varies smoothly and slowly with depth. Using light scattered from different sections of the pile we measure the dependence of the shear modulus on pressure using Diffusing Wave Spectroscopy (DWS) microrheology. We find a shear modulus that is proportional to pressure down to loads corresponding to a $\sim 0.1\%$ compression. However, below a critical pressure, the shear modulus drops abruptly and the droplets exhibit what appears like glassy rearrangements: despite loads many orders of magnitude greater than $\frac{K_B T}{a^3}$.

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