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Static quasi-2D emulsion as a granular system RUI WU, CARLOS ORELLANA, XIA HONG, Emory University, KENNETH DESMOND, University of California Santa Barbara, ERIC WEEKS, Emory University — We study the forces between emulsion droplets and the properties of force chains in a static oil-in-water emulsion system near jamming. The emulsion is confined between two parallel glass plates in order to construct a quasi-2D system. Quasi-2D emulsion systems are somewhat analogous to 2D granular disks, except for the absence of static friction between the droplets. We focus on samples at an area fraction ϕ that is higher than the jamming point, ϕ_c , and test the robustness of the power law dependence of pressure and the contact numbers on $\phi - \phi_c$. Specifically, we vary the surface tension by adding surfactants in the water, and examine the power law relationship under such variations. We also compare our result to simulations as well as established experimental results of true granular systems.

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