Abstract Submitted
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**Dynamics of Polydisperse Coarsening Emulsion**[1] NIC MIRENDA, HARRY HICOCK, KLEBERT FEITOSA, Dept. of Physics and Astronomy, James Madison University, JOHN CROCKER, Dept. of Chemical and Biomolecular Engineering, University of Pennsylvania — Soft glassy materials display complex fluid behavior characterized by a yield stress and distinctive elastic and viscous moduli. The complexity emerges from the disordered structure and interactions between the athermal particles. Here we study the dynamics of an optically clear and neutrally buoyantly emulsion whose droplets coarsen driven by Laplace pressure induced diffusion. The emulsion displays an anomalous loss modulus typical of coarsening foam systems. We use confocal microscopy to image the droplets, measure their size and centroid location, and track their evolution in time. The relaxation process of the coarsening emulsion is found to be marked by a continuous, slow structural evolution interspersed by sudden droplet swaps. We characterize the time scales of each process and the statistics of droplet rearrangements.

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