Abstract Submitted
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Stress distributions and bubble rearrangements in a compressed bubble raft[1] KLEBERT FEITOSA, BRIAN SEYMOUR, NICHOLAS ALBRIGHT, CHRISTINE O'DEA, Dept. of Physics and Astronomy - James Madison University, SHENGFENG CHENG, Dept. of Physics - Virginia Tech — Soap bubbles floating at an air-water interface experience shape deformations as a result of surface tension and hydrostatic forces. The deformation of the fluid interface causes the bubbles to aggregate forming stable jammed packings. We investigate the stress distributions of such aggregates by uniaxially compressing a bubble raft between parallel plates while capturing the deformations and rearrangements with a video camera. We find that under compression, the stress distribution is inhomogeneous and characterized by strings of stressed bubbles surrounding less stressed ones reminiscent of force chains in granular materials. Bubble rearrangements are then analyzed against the stress map to obtain their correlation with local stress variations in the bubble raft.

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