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The collapse and the folding of a particle rafts under compression[1] CHIN-CHANG KUO, MICHAEL DENNIN, Department of Physics & Astronomy, University of California, Irvine — Compressing a single-layer of particles or bubbles that are confined to the air-water interface results in a range of interesting collapse dynamics. We report on the collapse modes of two systems: (1) a single layer of gas bubbles at the surface and (2) a single layer of polypropylene beads. Under compression, both systems exhibit a critical areal density beyond which there is a transition to a multi-layered structure. Generally speaking, the transformation is characterized by localized submergence into the subphase of bubbles or beads. For both systems, we observe single bubbles/beads being pushed underneath surrounding particles. However, for sufficiently small beads, we observe a folding mode, which corresponds to the long-ranged one dimensional wrinkling of the monolayer surface. In this talk, we will report on the transition between single particle submergence and folding, as well as general characterization of the collapse as a function of compression speed and initial structure of the particle raft.

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