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Buckling of particle-laden interfaces THEO KASSUGA, JONATHAN ROTHSTEIN, University of Massachusetts Amherst — Particle-laden interfaces have been shown to have very interesting physical behavior, such as being able to resist compressive and shear stresses, and helping stabilize emulsions and foams. In this work, we study the buckling of an oil-water interface populated by micron-sized latex particles using a Langmuir trough. We extend pre-existing results to the micron-sized range with different density ratio and show that the existing theoretical framework still applies as a prediction of the dominant wrinkle wavelength. However, histograms show that the wavelength distribution has two peaks, which indicates that there occurs a cascading phenomenon similar to that observed in thin solid sheets. We can characterize this by tracking the position within the particle raft where cascading occurs, the wavelength of the resulting wrinkles, and their width along the crest.

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