

69j Mechanical Properties of Particle-Laden Fluid Interfaces

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Colloidal particles are often encountered in emulsions and foams as stabilizers. These particle-laden interfaces are highly non-Newtonian and undergo distinct fluid-interface to solid-interface transitions as the concentration of particles increases. This paper presents data on the mechanical properties of sessile and pendant drops covered with colloidal particles. As these droplets collapse, they are observed to undergo buckling and shape transitions as the particles, which are pinned to the interface, ultimately jam together and cause a solid shell to form. By measuring the internal pressure of the droplets during this process, it is demonstrated how the non-Newtonian rheological properties of the drop interfaces can be determined along with the Young's modulus of the surface.