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## **(G\*) Relaxation of a 2D oil droplet raft at a curved surface**

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When continuum materials with cohesive forces are perturbed from an equilibrium configuration, they relax over time tending toward the lowest energy shape. We are interested in studying the physics of a similar ageing process in a two-dimensional granular system in which individual particle rearrangements can be directly observed. We present an experiment in which a two-dimensional raft of microscopic cohesive oil droplets is elongated then allowed to relax back to a preferred shape. As the droplet raft is gently confined by a curved meniscus, we can study the relaxation toward equilibrium for hours to days. Over sufficiently long times, coalescence plays a crucial role introducing disorder in the system through local defects, and promotes particle rearrangements. Varying the size of droplets and strength of cohesive forces, we investigate the geometry and dynamics of short- and long-term structure ageing due to large scale relaxation and local coalescence events.

### **Keyword-1**

Granular Materials

### **Keyword-2**

Cohesive Forces

### **Keyword-3**

Relaxation

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