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Capillary-Driven Coalescence of Bidisperse Particle Rafts with Tunable Cohesion

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The coalescence of liquid drops is a well-studied and ubiquitous natural phenomenon central to many industrial processes. We study the physics of a granular analogue of this process through the coalescence of particle rafts in which individual particle rearrangements can be directly observed. In the experiments, a pair of twodimensional bidisperse rafts of microscopic oil droplets are released and coalesce, driven by capillary forces. A tunable cohesive force between particles mediates the large-scale relaxation of the structure. Varying the strength of cohesion, we investigate the geometry and dynamics of this raft coalescence process.

Keyword-1

Coalescence

Keyword-2

Granular Physics

Keyword-3

Particle Rafts

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