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Experiments on limit-cycle memory in a soft jammed solid[1]
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— We consider how a soft 2D jammed material forms memories of past deformations. Our experiments cyclically shear a material made of repulsive particles at an oil-water interface, observing the motion of many particles. After many shear cycles, the system approaches a steady state in which the particle trajectories form closed loops. We show how to determine whether the system was prepared with two strain amplitudes, even if the larger amplitude was applied most recently. Our results suggest a way to understand memory formation in terms of reversible and irreversible rearrangements.

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