

Abstract Submitted
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Irreversible deformation of particle-coated droplets MOMENE MORADIAFRAPOLI, JEREMY MARSTON, Texas Tech University — In this presentation, we will explore one particular property of particle-coated droplets, known as liquid marbles - namely - irreversible deformation. Whilst some studies have eluded to certain mechanical properties of particle-laden interfaces such as interfacial rheology and elasticity, the extent of deformation they can sustain has not been well-characterized. We explore this rich area using liquid marbles as the model system for the study. We find that they can withstand a compression of up to approximately 40% without rupturing, but even even before this threshold, the deformation can be irreversible. We quantify and attempt to explain this feature for a range of particle sizes. Our observations thus add another layer of hidden complexity and non-linearity to seemingly elemental interfacial structures.

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