

Abstract Submitted
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Viscous Drop Impact on a Dry Smooth Surface: Spreading and Splashing CACEY STEVENS, Southern University and A&M College, and James Franck Institute, University of Chicago, NATHAN KEIM, WENDY ZHANG, SIDNEY NAGEL, James Franck Institute, U. of Chicago — The splashing of a liquid drop on a smooth dry surface is dependent on the pressure of the surrounding air.¹ Recent findings suggest, however, that the pressure-dependent splashing of a viscous drop is by a different mechanism than that for an inviscid one. For example, unlike an inviscid liquid, a viscous liquid splashes only after the drop has spread to nearly its maximum extent.² Here we report on experiments with viscous silicone oil (10–1000 cSt) that examine the parameters affecting the spreading of a viscous drop upon impact, and the role of the surrounding gas in splashing. Of particular note is the strong effect of viscosity on spreading rate and behavior.

¹L. Xu et al., Phys.Rev. Lett.**94**, 184505 (2005)

²L. Xu, Phys. Rev. E **75**, 056316 (2007)

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