

Abstract Submitted
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Splashing on elastic membranes: the importance of early time dynamics RACHEL E. PEPPER, LAURENT COURBIN, HOWARD A. STONE, SEAS, Harvard University — We study experimentally the effect of substrate compliance on the threshold for splashing of liquid drops using an elastic membrane under variable tension. We find that the splashing behavior is strongly affected by the tension in the membrane, and the splashing can be completely suppressed by reducing this tension. We use this tuning with membrane tension to explore the splash mechanism by investigating differences in the overall energy balance, and the spreading drop dynamics (velocity, acceleration, and thickness) that occur due to differences in membrane tension. We find that, in these systems, early time dynamics appear to be critical in understanding the splash.

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