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Drop Splashing on a Smooth Surface at Low Velocities CACEY STEVENS, SIDNEY NAGEL, University of Chicago — When a low viscosity liquid drop impacts on a smooth, dry surface, a thin fluid sheet is emitted which subsequently breaks up into a distribution of secondary droplets. Ambient gas pressure is crucial in creating this splash: splashing is completely suppressed below a threshold pressure [1]. There are several regimes that occur as the velocity and liquid viscosity are varied [2]. Here, we discuss splashing in the low velocity, low viscosity regime. We explore how the threshold pressure scales with drop size, as well as liquid viscosity. We also characterize the dependence of threshold pressure with molecular weight of the surrounding gas.

[1] L. Xu, S. Nagel, and W. Zhang. Phys. Rev. Lett. 94, 184505 (2005).

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

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