

Abstract Submitted
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Clapping wet hands: dynamics of a fluid curtain BRIAN CHANG, Virginia Tech, BRICE SLAMA, Ecole Polytechnique, France, RANDALL GOOD-NIGHT, SEAN GART, SUNGHWAN JUNG, Virginia Tech — Droplets splash around when a fluid volume is quickly compressed. This has been observed during common activities such as kids clapping with wet hands. The underlying mechanism involves a resting fluid volume being compressed vertically between two objects. This compression causes the fluid volume to be ejected radially, thereby generating fluid ligaments and droplets at a high speed. In this study, we designed and performed experiments to observe the process of ligament and drop formation while a fluid is squeezed. A thicker rim at the outer edge forms and moves after the squeezing, and then becomes unstable and breaks into smaller drops. We compared experimental measurements with theoretical models over three different stages; early squeezing, intermediate ejection, and later break-up of the fluid. We found that drop spacing set by the initial capillary instability does not change in the course of rim expansion; consequently final ejected droplets are very sparse compared to the size of the rim.

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