

Abstract Submitted  
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**A trickle instability** BENJAMIN BOSSA, EMMANUEL VILLERMAUX, Irphe, Marseille, France — We address the problem of the free fall of a long, horizontal and narrow liquid layer squeezed in a vertical open Hele-Shaw cell. The layer destabilizes as it falls down, evolving into a series of liquid blobs linked together by thin bridges, which ultimately break, leaving the initially connex fluid layer as a set a disjointed drops. The mechanism of this instability is the onset of a vertical pressure gradient due to the curvature difference of the moving contact line between the advancing interface and the rear interface. This instability, whose growth rate scales with a non-trivial power of the capillary number, amplifies indifferently a broad band of wavenumbers because of the flat shape of its dispersion relation in the thin layer limit. We will finally comment on the nature of the final fragmentation process and drop size distributions.

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