

Abstract Submitted
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Contact-line pinning of a perfectly wetting volatile liquid overfilling a square hole with a tiny triangular groove along its perimeter: experiments and theoretical static shapes¹ YANNIS TSOUMPAS, SAM DEHAECK, ALEXEY REDNIKOV, PIERRE COLINET, Universite Libre de Bruxelles, TIPS-Fluid Physics — Contact lines will stay pinned at sharp edges until they exceed a certain equilibrium angle as the Gibbs's criterion indicates. In this preliminary study, we are trying to determine whether a groove can prevent a perfectly wetting liquid from spreading out of a square hole on the substrate. To this purpose, a highly-volatile electronic liquid has been chosen while the substrate was made of a polycarbonate plate with a square hole closely surrounded by a tiny groove of triangular cross-section. The results have shown this to act as an effective barrier, and the apparent contact angle (with respect to the horizontal) can attain considerable values. Moreover, the experiments indicated that the liquid drop adopts a shape with the apparent contact angle at the corners being much smaller than at other locations along the edge. This is explained on the basis of a simple static model including surface tension and gravity. The role of evaporation is also assessed.

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