

Abstract Submitted
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Inertial flow on micropatterned surfaces: Modeling polygonal water bells EMILIE DRESSAIRE, Trinity College, LAURENT COURBIN, Institut de Physique de Rennes, CNRS, France, ADRIAN DELANCY, Harvard University, MARCUS ROPER, UCLA, HOWARD STONE, Princeton University — Regularly micropatterned substrates are commonly used to study complex phenomena such as spreading and splashing. We have used a well characterized hydrodynamic object, a water bell to characterize the flow on such rough surfaces. In the water bell configuration, the thin liquid film and the solid surface interact over a short lengthscale and viscous effects are negligible. We develop a simple model that shows the role of hydrodynamic interactions in the networks of microposts. We are able to predict the shape of the polygonal water bells. By considering the flow in the rim, we also identify preferred sites of droplet emissions.

Emilie Dressaire
Trinity College

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