

Abstract Submitted  
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**Modes of Contact Line motion on topographic substrates** CIRO SEMPREBON, STEPHAN HERMINGHAUSS, MARTIN BRINKMANN, Max Plank Institute for Dynamic and Self Organization — The link between the geometry of a regular topographic pattern, the material Contact Angle and the macroscopic Contact Angle Hysteresis is still poorly understood. Employing the apparent contact angle as a control parameter, we numerically determine the shape of a liquid interface on patterns consisting of square arrays of pillars with different cross section. Both hydrophilic and hydrophobic substrates are considered. The increase of the apparent contact angle leads to a sequence stable morphologies which may belong to different interface topologies. Eventually, the interface becomes unstable, defining the Advancing Angle. Abrupt changes of the Advancing Angle, while varying the spacing, aspect ratio and material Contact Angle of the pillars, correspond to transitions to different Advancing Modes. With the same procedure we calculate Receding Angles, and consequently the Contact Angle Hysteresis. Finally, we discuss similarities and differences among pillars with either circular and square cross sections.

Ciro Semprebon  
Max Plank Institute for Dynamic and Self Organization

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