

Abstract Submitted
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Wetting of textured hydrophobic surfaces MATTHEW HANCOCK,
JOHN BUSH, MIT — Water repellency in nature and technology typically results from textured hydrophobic surfaces. The roughness elements of such surfaces typically have edges that pin the contact lines of advancing droplets. We present the results of a numerical investigation that relates the contact angle hysteresis and adhesive force to the geometrical, wetting, and elastic properties of the substrate. A number of generic surfaces are considered, including carbon nanotube forests, nano gratings, and insect cuticle. The calculated wetting properties are used to predict common observable quantities such as the critical tilt angle for drop motion.

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