

Abstract Submitted
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Contact time of water drop on cylindrical superhydrophobic surfaces¹ CHOONGYEOP LEE, JEONGHOON HAN, Kyung Hee University, WONJUNG KIM, Sogang University, CHANGWOO BAE, Kyung Hee University, DONG WOO LEE, SEUNGWON SHIN, Hongik University, YOUNGSUK NAM, Kyung Hee University — When the water drop is impinged upon a cylindrical superhydrophobic surface with varying diameter, its contact time with the surface decreases over that on the flat superhydrophobic surface. However, the prediction of the contact time remains challenging due to the complex drop spreading dynamics on cylindrical superhydrophobic surface after impact. Here, based on systematic experimental and numerical studies, we develop a scaling relationship for the contact time reduction on the cylindrical superhydrophobic surface. We show that non-dimensionalized contact time can be expressed as a function of a single dimensionless parameter, which is expressed as the combination of the Weber number and the ratio of the cylinder diameter to the drop diameter.

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