

Abstract Submitted
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Studying the Microphysics of Superhydrophobic Surfaces using DNS¹ KARIM ALAME, KRISHNAN MAHESH, Univ of Minn - Minneapolis — DNS using the volume of fluid methodology will be used to study the microphysics of the gas-water interfaces in super-hydrophobic surfaces. The numerical method will be summarized along with relevant validation examples. The effect of pressure difference on an interface between solid walls will be discussed and contrasted to theory. Modes of interface failure will be presented. Simulations of channel flow with gas trapped in single longitudinal groove will be discussed and contrasted to results from approximate modeling approaches. Implications for air-layer drag reduction will be discussed.

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