

Abstract Submitted
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The break-up of a liquid film caused by drop impact¹ VIKTOR GRISHAEV, IVAN BAKULIN, Skolkovo Institute of Science and Technology, ALIDAD AMIRFAZLI, York University, ISKANDER AKHATOV, Skolkovo Institute of Science and Technology — Liquid films on non-wetting surfaces are unstable at certain thicknesses. They can break up under external disturbance with the formation of dry spots. Although the rupture of liquid films has been intensively studied, the formation of a dry spot under the drop impact has not been considered yet. Therefore, we experimentally studied the break-up of water films on superhydrophobic surfaces caused by the impact of water droplets. We found that the energy of a drop necessary for the liquid film break-up is an order of magnitude more than the estimation of free energy change. A more detailed estimation of the energy required on the formation of a crater with a critical size allows us to predict the necessary droplet energy correctly.

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