

Abstract Submitted
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Drop impact onto semi-infinite solid surface HUANCHEN CHEN, ALIDAD AMIRFAZLI, York University — The drop impact onto solid surfaces has been studied intensively due to its importance in different applications, e.g. spray coating, inkjet printing and agricultural sprays. The previous studies on this topic were typically focused either on the drop impact onto an infinite solid surface (i.e. a solid surface that is large, and the impact happens far away from the surface edges), or onto a finite solid surface (e.g. drop impact onto a target smaller than the droplet). However, in practice, it is also possible for the impact onto a large surface but close to its edge (named as semi-infinite surface). In this first study of its kind, the process of drop impact onto a semi-infinite surface (both hydrophobic and hydrophilic) was investigated experimentally. During the impact process, part of the liquid lamella can spread out of the surface (free lamella). Depending on the distance between the impact point and surface edge, the free lamella can recede, or partially recede back to the surface, or completely break apart at the surface edge. The behavior of free lamella can also affect the morphology of the part of liquid lamella which remains in contact with the solid surface, especially in the receding phase (e.g. occurrence of drop rebound). Various morphologies observed for lamella breakage at the surface edge will also be discussed for surfaces of different wettabilities.

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