

LIQUID BREAK-UP UPON DROP IMPACT NEAR THE EDGE OF AN INCLINED SUBSTRATE

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Raindrop impacts on plant leaves are responsible for the dispersal of several crop diseases [1]. The most likely scenario is that of a raindrop impacting in the immediate vicinity of a pathogen-bearing liquid residue initially present on a leaf. The raindrop would induce the fragmentation of this residue in a myriad of droplets ejected toward neighbour plants [2].

In this talk, we present experiments on the impact of a drop close to the horizontal edge of an inclined substrate. We show that this generic impact configuration shares key features with the more complex impacts on plant leaves. We investigate the formation and break-up of the liquid sheet formed when the liquid expands beyond the edge [3] (cf. figure below). The impact Weber number, the distance from the impact point to the edge, and the substrate inclination are systematically varied. We analyse their influence on the kinematics of both the liquid spreading on substrate and the liquid sheet beyond the edge, as well as on the subsequent statistics of droplet ejection (radius, speed, time of ejection).

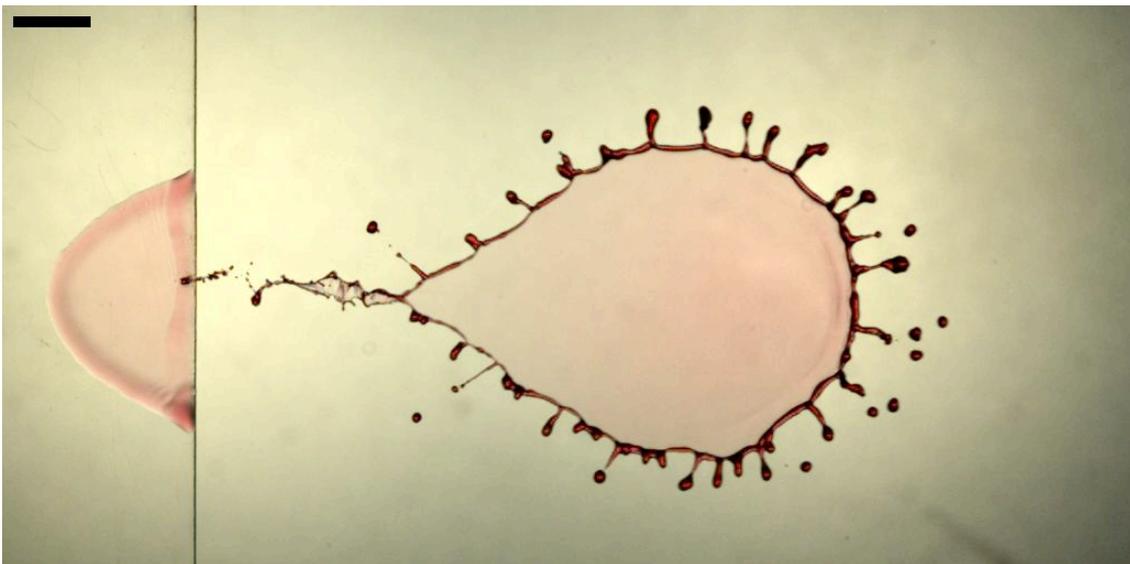


Figure: Impact of a drop (Weber # = 2115) close to the edge of a substrate inclined at 60° downwards (left). A liquid sheet is formed beyond the edge (right), and droplets are ejected from the surrounding rim. The scale bar is 5 mm.

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