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**Droplet impact dynamics on flexible superhydrophobic surfaces**

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— In this talk, we will present a series of droplet impact experiments performed on elastic superhydrophobic surfaces. A commercial superhydrophobic paint, WX2100, was sprayed on smooth PDMS surfaces that were prepared by a standard soft lithography technique. The droplet spreading and retraction dynamics, trajectory, and substrate response will be presented for different surface lengths and Weber numbers. The elasticity of the superhydrophobic surfaces was found to affect dynamics of the droplets and the substrate. The contact time of the droplet on an elastic superhydrophobic surface was reduced by as much as 22% compared to the rigid superhydrophobic surface. The reduction in the contact time was even observed at low Weber number,  $We \sim 20$ , which was much lower than the critical Weber number reported in literature. A variety of surface deflection behavior was observed after the second impact of the rebounding droplet. When the droplet motion was in phase with the surface motion, the deflection of the surface was found to deviate and increase from the original decay of the surface deflection. However, when the droplet motion was out of phase with the surface, the displacement of the surface was reduced and dampened quickly by the droplet body force.

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