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Droplet Jumping Induced by Focused Surface Acoustic Wave on Superhydrophobic Surface¹ MARTEN DARMAWAN, Sungkyunkwan University, KWANGSUN JEON, Enjet, Inc., DOYOUNG BYUN, Sungkyunkwan University — We investigate the droplet jumping phenomena that are induced by focused surface acoustic wave on superhydrophobic surface. The utilization of an identical pair of single phase unidirectional transducers (SPUDTs) leads to the focusing of acoustic wave energy on a small region between them. This focused energy gives a very high acceleration as well as rapid interface destabilization to the liquid droplet and thus derives the jumping phenomenon once surpasses some Weber number's threshold value. We intriguingly investigate the effect of the small contact area of droplet on superhydrophobic surface, which is generated by using plasma treatment, to the droplet jetting phenomena and how it deforms under this circumstance. Furthermore, a parametric study, i.e. varying acoustic energy power, volume of droplet and degree of arc SPUDT, is also performed to investigate their effect on the elongated jumping droplet.

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