

Description of Additional Supplementary Files

Supplementary Movie 1

Description: Droplet-to-bubble transition with increasing sound intensity of a SDS solution droplet (10 μ l), with a high speed camera titled at an angle $\sim 35^\circ$.

Supplementary Movie 2

Description: Droplet-to-bubble transition with increasing sound intensity of a SDS solution droplet (10 μ l), side view.

Supplementary Movie 3

Description: SDS solution droplet (10 μ l) buckles downwards with increasing sound intensity at levitation position II.

Supplementary Movie 4

Description: SDS solution droplet (10 μ l) buckles downwards with increasing sound intensity at levitation position I when the levitator is inverted.

Supplementary Movie 5

Description: Bubble formation with an acoustically levitated liquid film buckled via dragging with a needle from the center of the film.

Supplementary Movie 6

Description: Bubble formation with an acoustically levitated liquid film buckled by dragging a ring of metal wire from the edge of the film.