Supplementary Material (ESI) for Lab on a Chip

Acoustofluidic control of bubble size in microfluidic flow-focusing configuration

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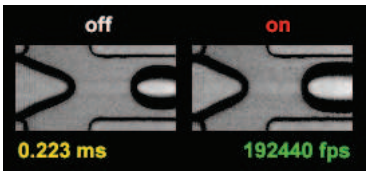
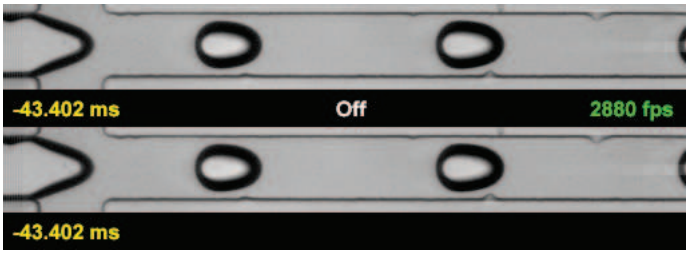


Video01.mp4 Gas-liquid interface motion at off and on mode capturing at 192440 FPS



Video02.mp4 Transition of off-on and on-off modes capturing at 2880 FPS.

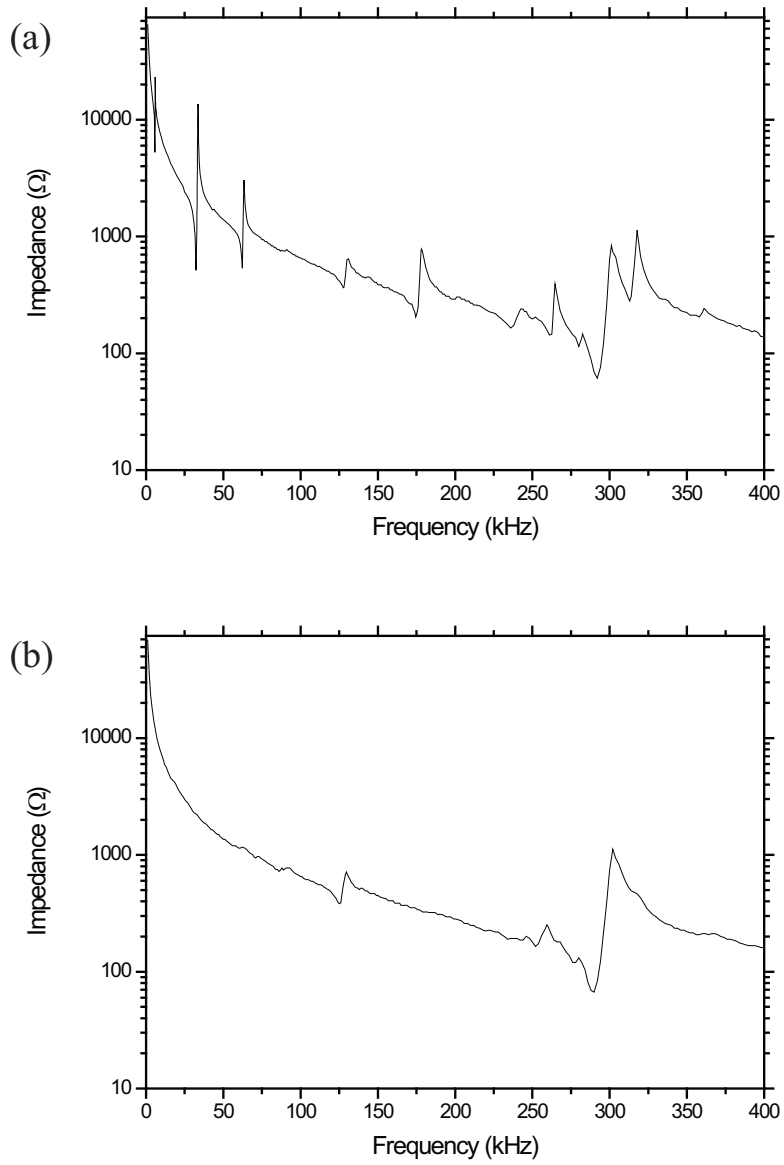


Fig. S1 The electrical impedance of the transducer changes when it is attached to the bottom of the microfluidic device in between a layer of ultrasonic gel. The graphs show the measured impedance (a) before attachment (b) after attachment. After the attachment, the mechanical resonance frequencies of the transducer coincides and agrees with the imposed experimental frequencies.

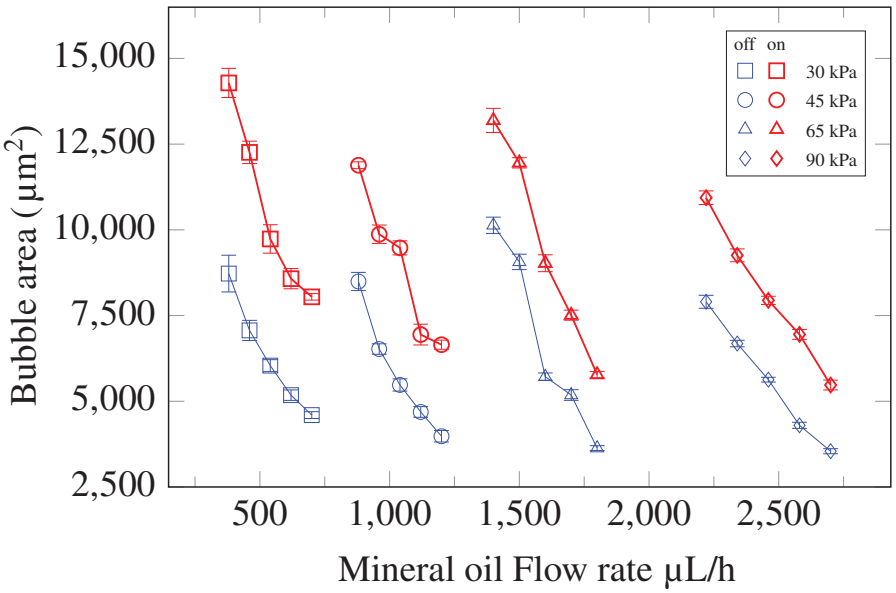


Fig. S2 Generated bubble size under different flow conditions with and without actuation.

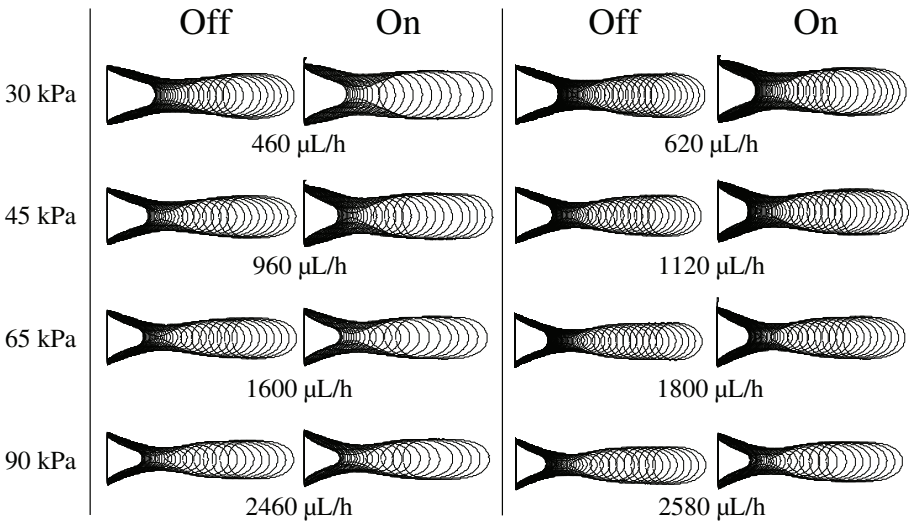


Fig. S3 Contour tracing of the expansion of gas-liquid interface during a cycle of bubble formation, with and without actuation using a transducer.