

Abstract Submitted  
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**The Acoustic Atomization of Droplets within a Bubble<sup>1</sup>** DAVID LI, ROBINSON SEDA-PADILLA, J. BRIAN FOWLKES, JOSEPH BULL, University of Michigan — The process of vaporizing liquid microdroplets using ultrasound is known as acoustic droplet vaporization (ADV). Gas embolotherapy is a proposed cancer therapy that uses the ADV process to selectively generate microbubbles, which can then lodge in the microvasculature to occlude blood flow and starve the tumor. We have observed that continued ultrasound exposure to microbubbles adhering to a wall induces in a droplet atomization process. The atomization process originates at the gas-liquid interface and produces a spray of liquid droplet within the microbubble along the axis of the acoustic beam. Single pulses with 30 cycles from 3.5 and 7.5 MHz single element focused transducers operating at peak negative pressures ranging from 4 to 8 MPa were used to generate atomization. The atomization process was observed in microbubbles ranged from 30  $\mu\text{m}$  to 1 mm in diameter. The extent of the atomization had a direct relationship with acoustic pressure.

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