

Title: Asymmetric coalescence of microbubbles subjected to ultrasound

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Abstract

Ultrasound contrast agent microbubbles for perfusion imaging are used in cardiology and gastroenterology. Contrary to popular belief, fragmenting bubbles do not create a strong scattering response, but coalescing bubbles do. Prior studies focused on successful and unsuccessful ultrasound-induced microbubble coalescence using high-speed cameras. When subjecting microbubbles to high-speed photography, we observed a thusfar unidentified heart-shaped bubbles coalescence. We attribute this shape to a combination of primary radiation forces combined with coalescence within half a cycle of ultrasound. Creating such shapes might be of interest in harmonic imaging.