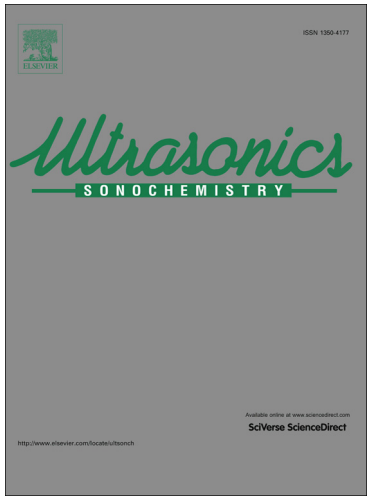

Numerical simulation of single bubble dynamics under acoustic standing waves

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PII: S1350-4177(18)30805-8
DOI: https://doi.org/10.1016/j.ultsonch.2018.08.006
Reference: ULTSON 4270

To appear in: *Ultrasonics Sonochemistry*

Received Date: 30 May 2018
Revised Date: 3 August 2018
Accepted Date: 9 August 2018

Please cite this article as: S. Qiu, X. Ma, B. Huang, G. Wang, M. Zhang, Numerical simulation of single bubble dynamics under acoustic standing waves, *Ultrasonics Sonochemistry* (2018), doi: https://doi.org/10.1016/j.ultsonch.2018.08.006

Highlights

- The interaction between acoustic standing waves and rigid boundaries is considered on bubble motion and generation of high-speed jet.
- The effect of bubble size on the transient bubble motion and corresponding liquid jet generation are investigated.
- The effect of the pressure amplitude of the acoustic standing wave on the jet generation is applied during the bubble collapse.
- The formation mechanism of different bubble migration with different resonant radius is analyzed.

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Abstract: The objective of this paper is to apply numerical method to simulate the single bubble dynamics under the acoustic standing waves, which is an extensive research of our previous work (Ma et al. *Ultrason. Sonochem.*, vol. 42, 2018, pp. 619-630). The Navier-Stokes equation, which considers the acoustic radiation force caused by acoustic standing wave, is used to capture the transient shape variation, pressure fluctuation, and the direction of the bubble motion, especially for the case of the bubble near the rigid boundary. Several normalized parameters, such as acoustic pressure amplitude, acoustic wave number, and bubble size, are investigated in temporal and spatial scales to actively

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