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**Experimental examination on the interactive force between two  
bubbles under ultrasound irradiation; Influence of the distance  
between two bubbles on bubble behavior**

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The interactive force called the secondary Bjerknes force works among multiple bubbles under ultrasound irradiation, which results in the complicated behaviors of bubbles. In this study, we have experimentally examined the direction of the interactive force depending on the distance between two bubbles. When two bubbles vibrate individually, the direction of the interactive force depends on the phase difference between vibrations of these bubbles. In addition to this theory, considering the influence of the radiated acoustic wave from a bubble vibration on the other bubble vibration, Ida has pointed that this influence induces a change in the direction of the interactive force [M. Ida et al., *Phys.Rev.E* 67, 056617 (2003)]. In order to examine this theoretical prediction, the behaviors of both a free bubble and a bubble adhered to the polymer were observed under ultrasound irradiation, using a high-speed video camera. From the results, we found the reversal of the direction of the interactive force due to the variation in the distance between two bubbles. These innovative experimental results give an interesting point of view to understand the dynamics of multiple bubbles.