

Abstract Submitted  
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**Approaching behavior of a pair of spherical bubbles in quiescent liquids** TOSHIYUKI SANADA, HIROAKI KUSUNO, Shizuoka University — Some unique motions related bubble-bubble interaction, such as equilibrium distance, wake induced lift force, have been proposed by theoretical analysis or numerical simulations. These motions are different from the solid spheres like DKT model (Drafting, Kissing and Tumbling). However, there is a lack of the experimental verification. In this study, we experimentally investigated the motion of a pair of bubbles initially positioned in-line configuration in ultrapure water or an aqueous surfactant solution. The bubble motion were observed by two high speed video cameras. The bubbles Reynolds number was ranged from 50 to 300 and bubbles hold the spherical shape in this range. In ultrapure water, initially the trailing bubble deviated from the vertical line on the leading bubble owing to the wake of the leading bubble. And then, the slight difference of the bubble radius changed the relative motion. When the trailing bubble slightly larger than the leading bubble, the trailing bubble approached to the leading bubble due to it's buoyancy difference. The bubbles attracted and collided only when the bubbles rising approximately side by side configuration. In addition, we will also discuss the motion of bubbles rising in an aqueous surfactant solution.

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