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A generation method of single bubbles of various sizes using a slitting elastic tube and acoustic pressure wave TOSHIYUKI SANADA, KIMIHIKO ABE, Shizuoka University — A bubble generation method (Sanada and Abe, Rev. Sci. Instrum. 2013) using a slitting elastic tube and acoustic pressure wave in the gas phase can produce single bubbles of various sizes. In this study, we experimentally investigated the bubble generation mechanism in a slitting elastic tube. We used high-speed photography to observe the bubble generation process and slit motion in different liquids with different surface tensions. The results indicated that there was no significant difference in the slit opening time even if the amplitude of the acoustic pressure wave was changed, and the generated bubble radius was determined by the opening displacement of the slit, which was governed by the surface tension. In addition, the shape oscillation of a bubble due to surface tension promoted its detachment from an elastic tube with poor wettability.

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