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Design and Control of Functional Microbubbles for Medical Applications of Ultrasound[1] SHU TAKAGI, TAICHI OSAKI, TAKUYA ARIYOSHI, TAKASHI AZUMA, The University of Tokyo, MITSUHISA ICHIYANAGI, Sophia University, IKUYA KINEFUCHI, The University of Tokyo
— Microbubbles are used as a contrast agent for ultrasound diagnosis. It is also expected to be use for the treatment. One of the possible applications is microbubble DDS. For that purpose, microbubbles need to be well-controlled for the generating process and manipulation. In this talk, for the design and control of the functional microbubbles, an experimental study on generation and surface modification of microbubbles are explained. Using a T-junction type microchannel, small bubbles about 5μm size are successfully generated. For the surface modification, Biotin-coated microbubbles are tried to adhere the Avidin-coated wall. Furthermore, the manipulation of the microbubbles using ultrasound is also discussed. Plane-wave and focused ultrasound is used to manipulate a microbubble and bubble clusters. The experimental results are shown in the presentation.

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