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**Volume of a laser-induced microjet** SENNOSUKE KAWAMOTO, KEISUKE HAYASAKA, YUTO NOGUCHI, YOSHIYUKI TAGAWA, Tokyo Univ of Agri & Tech — Needle-free injection systems are of great importance for medical treatments. In spite of their great potential, these systems are not commonly used. One of the common problems is strong pain caused by diffusion shape of the jet. To solve this problem, the usage of a high-speed highly-focused microjet as needle-free injection system is expected. It is thus crucial to control important indicators such as ejected volume of the jet for its safe application. We conduct experiments to reveal which parameter influences mostly the ejected volume. In the experiments, we use a glass tube of an inner diameter of 500 micro-meter, which is filled with the liquid. One end is connected to a syringe and the other end is opened. Radiating the pulse laser instantaneously vapors the liquid, followed by the generation of a shockwave. We find that the maximum volume of a laser-induced bubble is approximately proportional to the ejected volume. It is also found that the occurrence of cavitation does not affect the ejected volume while it changes the jet velocity.

Sennosuke Kawamoto  
Tokyo Univ of Agri & Tech

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