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## The Movement of Bubbles on High Repetition Discharges in Tap Water

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Pulse discharge in water has many applications, such as cleaning water at dams and lake, creating chemical active species and so on. In the study of discharge in water, application and generation mechanism have been studied in recent years. However, the mechanism has not been made clear completely yet. In high repetition discharges, it has not been cleared yet. In high repetition discharges, we can see interesting phenomena. Each discharge gathers many bubbles around tip of electrode, and bubbles come together. This paper reports bubbles movement at repetition discharges. It was focused the distance between electrode and bubbles, and the shape of bubbles around electrode tip. A maximum output of 1 J/pulse was applied to an electrode of 0.8 mm in diameter covered by an insulator of 2 mm thickness. This water conductivity was 110 to 170  $\mu\text{S}/\text{cm}$ . The process was taking movies of state of discharge on 500 pps (pulse per seconds) in tap water, analysis of the movie to show the movement of bubbles using the image processing software, and calculation of the distance between electrode and bubbles to show the movement. The result has four points. These are distance between electrode and bubbles, before gathering bubbles around electrode, before gathering bubbles around electrode, and bubble's size. As the result of calculation, each discharge pulled bubbles after pushing the bubbles to the far area from electrode. Before gathering bubbles around the electrode, far bubbles from electrode are pulled stronger than near bubbles by each discharge. After gathering bubbles around electrode, it was not able to use all situations about the distance data. Therefore, bubbles around electrode affect other bubbles. Also, big bubbles come near the electrode stronger than small one.

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