

Abstract Submitted
for the GEC15 Meeting of
The American Physical Society

Bubble Phenomena caused by High Repetitive Plasmas in Water MASAHIRO AKIYAMA, TAKUMA OIKAWA, MASATOSHI FUE, RYOMA OGATA, KOICHI TAKAKI, Iwate Univ, HIDENORI AKIYAMA, Kumamoto Univ, IWATE UNIV TEAM, KUMAMOTO UNIV COLLABORATION — Streamer discharges in water were generated by a pulsed power generator. The streamer shape changed depending on pulse repetition rate. Streamer discharges at 500 pulses per second (pps) resulted in a ball shape. Under this formation, small bubbles gather near the electrode tip. Our aims are the analysis and discussion of the bubble phenomena caused by high repetitive plasmas produced in water. Pulsed power with 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. The electrode was inserted into tap water with conductivity of 170 $\mu\text{S}/\text{cm}$. The polarity was positive. Phenomena, in which the resulting gas bubbles oscillate and gather, were found to have an important role in producing ball shape streamer discharges.

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Date submitted: 19 Jun 2015

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