

Abstract Submitted
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Bubbles Formation during Generation of Microscale Discharges in Liquids DAVID STAACK, ROBERT GEIGER, Texas A&M University — Microscale discharges are generated in water electrolyte solutions by the application high voltage short duration pulses. In both positive and negative polarity configurations, voltages of 5kV-10kV and total energies of less than 10 millijoule result in discharges about 10 micrometers in diameter. The discharges are spherical in shape around the electrode tip similar to larger discharges referred in the literature to as primary streamer coronas. Temporally resolved and high intensity light imaging of the discharge indicates the presence of a bubble interface commensurate with the discharge diameter which grows from the sharp electrode. This bubble development is consistent with analytical estimates of several methods of rapid bubble formation including electro- hydraulic cracking, boiling, and electrolysis.

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