

Abstract Submitted
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Numerical Simulations of Gas Breakdown in Two-Dimensions

C.N. NGUYEN, H.L. RAPPAPORT, Enig Associates — Time domain simulations of gas breakdown are performed in two- dimensions with unusual cathode and anode shapes and with various external circuit loads. The simulations determine the voltages for breakdown and model current oscillations known to be associated with the transition between normal and Townsend discharge regimes[1]. The negative differential resistance magnitude in the transition region between the discharge regimes is found. Relationship between the magnitude of radial diffusion, breakdown voltage, and oscillation waveform for various cases is explored.

[1] Kolobov, V.I., and A. Fiala, Phys. Rev. E, V. 50, No. 4, (1994), p. 3018.

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