## Two-dimensional simulation of conducted currents characteristics in electrical discharges

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## Abstract-

In this paper, a simple general electrical discharges circuit model for electrical discharge current waveform simulation in overvoltaged air gaps is presented. A macroscopic circuital method of simulation utilizing the standard SPICE network simulator, based on a two-dimensional (2-D) nonlinear impedances network has been proposed. The structure of the simulation framework is designed to take into account the electrode geometries in a straightforward way. A study of conducted current waveform for different electrode geometries has been done. Experimental data have been used to validate the simulation results.

Index Terms- Electrostatic discharge, discharge current simulation, integral formulation, time-domain instrumentation.

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