

Abstract Submitted
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Positive point-to-plate corona discharge as influenced by different nitrogen pressure AASIM A. AZOOZ, Department of Physics, College of Science, Mosul University, Iraq, SABAH I. WAIS, Department of Physics, Kurdistan region, Duhok University, Iraq — An empirical formula for IV characteristics in the nitrogen pressure ranged between (P_o - $2.5P_o$) is presented for a point-to-plate electrode corona discharge. Fast automatic data acquisition system is built to acquire the experimental data of the corona current and voltage and to determine the corona inception voltage. Three values of inception current ($I_o= 0.1, 0.5,$ and $1.0 \mu A$) are used to demonstrate that the minimum observed inception current gives more accurate inception voltage, for which the exponent n of a general formula $I=A(V-V_o)^n$ has been optimized. The experimental investigation discloses that the inter-electrode separation S and the gas pressure have the strongest influence on both the dimensional parameter A and the corona inception voltage V_o . Of all potentially influential factors, a new empirical formula relating corona current, corona inception voltage, inter-electrode separation and gaps pressure is reached.

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