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Analysis of various scenarios of the behavior of voltage-current characteristics of direct-current microdischarges at atmospheric pressure

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Abstract

© 2016, Pleiades Publishing, Inc. The voltage-current characteristics of a discharge at atmospheric pressure in a wide range of discharge currents have been numerically studied within a hybrid model for a gas-discharge plasma with a self-consistent description of the heating of a cathode. Segments corresponding to a normal glow discharge, a transition from a glow discharge to an arc discharge, and an arc discharge have been revealed on the voltage-current characteristics. All main parameters of the plasma have been obtained for each of these segments of the voltage-current characteristics of the discharge.

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