

Transient model of the metallic plasma and neutral gas interaction in a low-pressure arc

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A physical transient model and system of equations with spherical symmetry, was formulated to describe the interaction between metallic plasma ions with neutral gas, in the outer region of a multicathode spot vacuum arc operated with a background gas. The model considers the self-consistent processes for typical values of arc parameters, including the electron and ion drift velocities, the electron and neutral gas

temperatures, and the electrostatic potential profiles are obtained from the border of the arc channel up to the discharge chamber wall. It is studied that values of arc parameters strongly influences the metallic plasma density and plasma potential distributions.

Biography

D F Devia did his under graduation form university National University of Colombia-Manizales in implementation and automation of technical variables of an industrial reactor used in the production of coatings by pulsed arc. He has completed his masters in model of an AC / DC three - phase converted for analysis of harmonic distortion. He received his PhD in kinetic modelling of plasmas produced in cathode arcs in vacuum for applications in the processing of materials from National University of Colombia.

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