

Estimation of plasma boundary form and position in the triode high voltage glow discharge electron guns with plane additional electrode

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Abstract

The methodology of estimation of plasma boundary form and position in triode high voltage glow discharge electrodes systems with plane electrode, based on calculation of discharge current corresponding to the analytical equations, obtained by using one-dimensional model of electrodes' system and recalculation the value of plasma highness with taking into account real electrodes' geometry, as well as on analyzing of discharge photographs with means of image recognizing technique, is proposed in the paper. The dependences of cathode-plasma distance on residual pressure in discharge gap and on the voltage on additional electrode are presented and discussed.

Type of Book of Abstracts

Paperback

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Session Classification: Plasma Physics

Track Classification: Plasma Physics