

CONDITIONS OF THE CURRENTS SMALLNESS IN COMBUSTION PLASMAS

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S u m m a r y

The spatial distribution of the floating potential of an isolated probe between electrodes in combustion plasma at passing a current is experimentally investigated. It is found out that the spatial distribution of the bulk plasma potential is a linear function of a coordinate at small currents. The linearity is broken with increase in the current. The theoretical analysis of the passage of a current in thermal plasma is carried out. The conditions for a violation of the Ohm's law are established. It is shown that equilibrium is maintained if there are enough the charge carriers formed as a result of both the ionization by collisions in plasma and the exchange processes on the interface to maintain the necessary intensity of a current. Otherwise, there occurs the additional ionization of plasma atoms, and the equilibrium functions are not applicable.