

Parameters of microexplosive cathodic processes occurring upon initiation of vacuum breakdown

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This report presents the results of numerical simulation of the electrical explosion of a cathode microprotrusion initiated by explosive emission current. The variations in the main parameters of the cathode material (temperature, density, and pressure) during such a microexplosion are investigated for tungsten and copper cathodes. The specific current action integral is estimated for a direct current and a radio frequency voltage applied to the diode. The parameters of the microcrater formed on a cathode as a result of the electrical explosion of a microprotrusion are analyzed.