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THE EFFICIENCY OF USING GRAPHITE ELECTRODES NECESSARY FOR THE FORMATION OF NANOSTRUCTURES IN A PLASMA ENVIRONMENT

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As it was shown in works [1, 2], the main erosion processes during the passage of a discharge in various environments are realized mainly in electrode spots. Therefore, we will begin the formation of the model of erosion processes on the electrodes by considering the processes in the electrode spots. We will begin the study of erosion processes during the formation of nanostructures by considering the sources and drains of heat in the electrode spots, after which we will analyze the calculation results. It is most convenient to model thermal processes using the heat balance equation.

During experimental studies of erosion of metal electrodes, emissions of liquid metal in the form of drops are observed in almost all modes of discharge with an electrode spot [3].

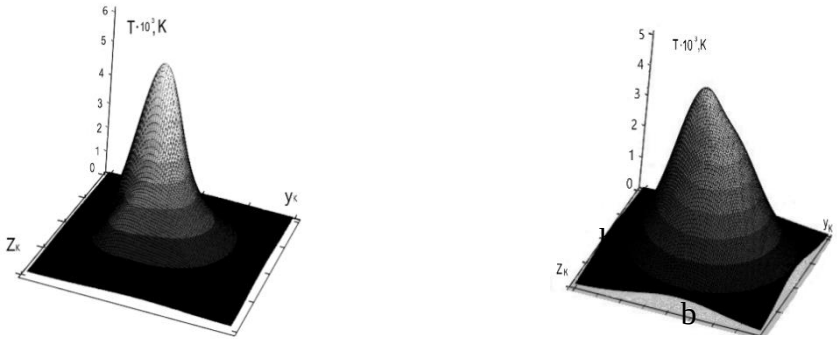

Figure 1 – Temperature fields for static a and moving b spots of the cathode

According to the above model and algorithm, calculations were made for electrodes under the technological conditions necessary for the formation of nanostructures [1, 3]. As a result of theoretical calculations, the temperature fields near the moving and stationary spots were obtained (Fig. 1, a, b).

References

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