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ESTABLISHING THE CORRESPONDENCE BETWEEN THE PROPERTIES OF CARDIO-ELECTRODE COATINGS PRODUCED BY PLASMA METHODS AND THEIR ELECTROTECHNICAL REPRESENTATION ^{*)}

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Plasma coating methods (primarily magnetron sputtering) enable the production of cardio-electrode coatings with high functional properties [1]. The electrochemical properties of the electrical double layer in the cardio-electrode-electrolyte system (where the electrolyte is the intercellular fluid of the body) significantly depend on the deposition mode, the deposited material, and the initial roughness of the substrate. The main electrochemical properties for the cardio-electrode are impedance (which depends on the capacitance of the electrical double layer, which in turn depends on the surface morphology) and depolarization time (which also depends on the capacitance). A balance between these two characteristics is often achieved by forced depolarization of the electrode. This approach leads to the necessity of solving the following tasks:

- Creating the most developed surface morphology (fig.1)
- Relating surface morphology to double layer parameters [2]
- Developing the method for measuring double layer parameters [3]
- Creating an equivalent electricotechnical circuit for the cardio-electrode-electrolyte system to enable forced depolarization

This work addresses the last of these tasks.

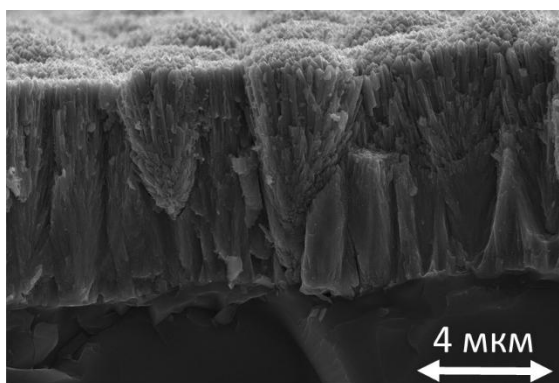


Fig.1. Surface morphology of the coating produced on the cardio-electrode sample at the National Research Center «Kurchatov Institute»

References

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^{*)} [abstracts of this report in Russian](#)