**OPTIMIZATION OF ELECTRONIC PROPERTIES OF CARBON NANOSTRUCTURES**

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The using of disordered carbon materials can open new perspectives in the creation of the thermoemission converter. The addition of the carbon nanostructures to the cathode material provides emission at lower temperatures [1]: they serve as electron emitters on the cathode surface. This makes it possible to determine the optimal technological conditions for the creation of new materials for alternative energy.

In this work, the electrophysical properties of nanocomposites containing carbon nanotubes and thermally expanded graphite were studied. The electrical conductivity of the sample was measured in a dielectric cylinder. The latter was filled with nanocomposite which were compressed when the piston was lowered. When the components of the sample come into contact and the circuit between the electrodes closes, the system (nanocomposite - air) passes into the electrically conductive state, which corresponds to transition of the dielectric - conductor. At the initial stage of compression, the initial increase in electrical conductivity and the achievement of the maximum value, followed by its fall for a pure sample of carbon nanotubes, increase or without changes for composite samples during subsequent compression. This is due to the increase in the total area between the outer shells of the components of the composite, which contributes to the increase in electrical conductivity and elastic deformation of CNTs, causing the opposite effect.

1. I. Ye. Galstian, E. G. Len, E. A. Tsapko, H. Yu. Mykhailova, V. Yu. Koda, M. O. Rud, M. Ya. Shevchenko, V. I. Patoka, M. M. Yakymchuk, G. O. Frolov Low-Temperature Thermionic Converters Based on Metal–Nanostructured Carbon Composites. Metallofiz. Noveishie Tekhnol., 2020, 42, No. 4: 451—470.