

SUMMARY  
REPORT TO THE SCIENTIFIC AND PEDAGOGICAL  
PRACTICE

First course MSc Student, GR. Of-81  
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On the topic: Structural electrophysical and sensory properties of graphitized porous carbon films obtained by magnetron sputtering.

Scientific supervisor: Ph.D., professor, head Department Nazarov O.M.

**Topicality:**

Nanoparticle carbon has a large internal and external surface, a large catalytic activity, neutrality to most acids, making it relevant to the base material of gas sensors, filters, fuel cells, etc.

**Formulation of the problem:**

The formation of nanoporous carbon films on the dielectric substrate is complicated due to the poor adhesion of the strongly porous material to the substrates, in addition to form a resistive sensor, it is necessary to have sufficiently high conductivity of the material so that it is possible to measure the change in conductivity by simple devices.

**Ways to solve the problem:**

Increasing the adhesion of the film to the substrate requires the creation of a transition amorphous layer between the substrate and the film, but the growth of conductivity - the need for a highly grafted porous carbon film, which can be done by means of high temperature annealing of carbon in a vacuum.

**Results and Conclusion:**

Previous studies show that the formation of magnetron, sputtering of an amorphous silicon layer on silicon dioxide significantly improves the adhesion of a carbon film, and the subsequent annealing to a temperature of 650°C in nitrogen reduces the specific resistance of the film in eight orders, which is associated with its graphitization.

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