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Department of Engineering Physics

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Topic: Production of adsorbents based on nanostructured polyaniline

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Key words: polyaniline, interfacial polymerization, "reverse" interfacial polymerization, thermogravimetry, electron microscopy.

Object of study: nanostructured polymer - polyaniline

The purpose of the work: Synthesis of nanostructured adsorbents based on polyaniline, the study of the structure and properties of the polymer obtained by the method of interfacial and "reverse" interfacial polymerization, recommended these adsorbents as materials with improved quality for hydrogen storage.

Relevance of work: Due to the depletion of energy resources, hydrogen is now often considered as an energy carrier. Hydrogen is a universal type of fuel that can be easily converted to the required type of energy without emitting harmful substances. However, the use of hydrogen as an energy carrier is limited. One of the main reasons is the accumulation of hydrogen.

First, a literature review was carried out on this topic and an effective method for producing adsorbent was selected. Polyaniline was obtained by the method of interfacial and "reverse" interfacial polymerization, washed and dried in a special oven. At the next stage, the morphology of the sample was studied under a scanning electron microscope and found that it has a porous-scaly structure. Using a self-meter, the specific surface area of the samples was measured. Next, thermogravimetric studies were carried out to determine and control the thermal stability of the synthesized polymer samples, and the diagram was analyzed.