

Prospective of use graphene received via aromatic hydrocarbons for power sources applications

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The graphene is considered as a promising nanotechnology material capable, in many areas of technology, of replacing carbon nanotubes in nanoelectronics and other area [1-4]. Nowadays many scientists engaged one of new types of batteries, for example, which are the new aluminum-ion battery. New batteries are not only less explosive as compared with lithium ion, but also have the ability to much more rapid charging. The charging of the battery takes just over a minute.

Recently the graphene film can be successfully used as the conductive transparent electrodes in organic light emitting diodes and solar cells.

The research work shows the preparation of graphene and carbon nanotubes included in the carbon films formed in an atmosphere of the aromatic hydrocarbons by methods of magnetron sputtering and ultrasonic treatment [5-8].

The work presents the technique of obtaining graphene and results of investigations of its structural peculiarities by methods of the Raman light scattering spectroscopy, electron paramagnetic resonance, and atomic force microscopy. The graphene of peaks observed with the vibrational mode (2D- zone) at a frequency of $\sim 2728 \text{ cm}^{-1}$ by the method Raman spectroscopy. Results from studies using atomic force microscopy confirm the formation of graphene sheets and carbon nanotubes. The investigation of EPR has shown that the carbon film on the glass substrate was found a fairly intense line for the graphene. The evidence from this study suggests that there is a contribution of the EPR line of nanotube.

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