

## Nanocomposites and nanomaterials

### Structure and optical features of micro/nanosized carbon forms prepared by electrochemical exfoliation

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In spite of a number of micro/nanosized carbon materials (MNCM) preparation procedures, the development of new methods for fabrication of MNCM, in particular graphene-related materials, still under investigation.

Properties of the carbon-containing materials depend on method of preparation, so, the particles size, morphology and physical properties should be studied in each case of synthesis conditions. Perspectives of usage of the MNCM in lighting and high-brightness devices have attracted attention to luminescence properties of carbon materials and advanced study of the photoluminescence and the associated structural and other related characteristics are actual task.

In the work carbon-containing colloid systems were prepared by electrochemical dispersion. The colloid systems as well as samples of MNCM deposited on various substrates (silicon, glass and quartz) were characterized by micro-Raman, absorbance and luminescence spectroscopy techniques. Morphology and particles sizes were studied by optical, AFM, STM and SEM microscopy.

It was taken the particles of the precipitated solid samples show a property to self-organization. Dependences of the luminescence characteristics on the concentration, size and thickness of carbon micro- and nanoparticles were obtained and analyzed.

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