Quantum objects of nanotechnology: characteristics, application and outlook

© E.V. Smirnov

Bauman Moscow State Technical University, Moscow, 105005, Russia

The article gives a detailed description of the main quantum objects of nanotechnology: quantum dots, carbon nanotubes and graphene. Studying of quantum phenomena determining the unique properties of these objects, acquisition of skills for their studies and use in practical purposes is the main task of preparation of students of technical universities to work in the most perspective directions of modern science and technology. The article describes the methods of obtaining quantum dots, their physical properties, and properties of carbon nanotubes and graphene. Considerable attention is paid to the analysis of already existing practical application of quantum objects of nanotechnology and discussion of its broad prospects. It is noted that the necessary condition for the successful development of nanotechnology in our country is the study by students of quantum phenomena in a course of physics of the technical University.

Keywords: *objects of nanotechnology, quantum dots, carbon nanotubes, graphene.*

Smirnov E.V. (b. 1948) graduated from Moscow Institute of Physics and Technology in 1972. Ph.D. Assoc. Professor of Physics Department of Bauman Moscow State Technical University. Author of more than 80 publications, specializes in the field of coherent interaction between radiation and material, Mossbauer diffraction, quantum physics, nanotechnologies. e-mail: seva09@rambler.ru