

Determination of the size of. Nanoparticles in photonic nanostructures from AFM images

Akhmadeev A., Salakhov M.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© Published under licence by IOP Publishing Ltd. In this paper we propose a relatively simple algorithm for determining the size of ellipsoidal particles on atomic force microscopy (AFM) image. The proposed algorithm frees researchers from the «manual» measuring of the size of a large number of particles. This algorithm is based on a three-dimensional approximation of the segmented images by ellipsoids and it has several advantages over similar methods. One of important advantages is the ability to determine the parameters of particles the surface of which is not completely visible on the image. Proposed method has been tested on simulated images as well as on the experimentally obtained AFM images of silica particles. Especially the method is very useful for the study of opal-like photonic crystals, in which the particles are packed tightly.

<http://dx.doi.org/10.1088/1742-6596/560/1/012005>
