

NANOTECHNOLOGY

Bulatov S., *Gr.EP-61*

The term "nanotechnology" was defined by Tokyo Science University Professor Norio Taniguchi in a 1974 paper (N. Taniguchi "On the Basic Concept of 'Nano-Technology'", 1974.) as follows: "Nano-technology mainly consists of the processing of separation, consolidation and deformation of materials by one atom or by one molecule."

Using nanotechnology knowledge brought to life new ways of current research such as:

interface and Colloid science has given rise to many materials which may be useful in nanotechnology, such as carbon nanotubes and other fullerenes, and various nanoparticles and nanorods;

DNA nanotechnology utilizes the specificity of Watson-Crick basepairing to construct well-defined structures out of DNA and other nucleic acids;

nanoscale materials can also be used for bulk applications; most present commercial applications of nanotechnology are of this flavor;

synthetic chemical methods can also be used to create synthetic molecular motors, such as in a so-called nanocar;

programmable matter based on artificial atoms seeks to design materials whose properties can be easily and reversibly externally controlled and other researches;

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In the same way were founded new tools and techniques to looking for nanomaterials. There are several important modern developments. The atomic force microscope (AFM) and the Scanning Tunneling Microscope (STM) are two early versions of scanning probes that launched nanotechnology. Atomic force microscopes and scanning tunneling microscopes can be used to look at surfaces and to move atoms around. There are other types of scanning probe microscopy, all flowing from the ideas of the scanning confocal microscope developed by Marvin Minsky in 1961 and the scanning acoustic microscope (SAM) .

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