Nanoscience and Nanotechnology

(Semi-Conducting Nanoclusters, Leaching Studies, Silicone Oxide Nanostructures, Carbon Nanofibers, Molecular Carbon-Onions, Gold-Silica Nanocomposites, Cobalt Ferrite Nanoparticles, Carbon Nanotube Field-Effect Transistor, Cylindrical Nanodot Arrays, Porous Anodic Alumina, Nanocrystalline Silicon Films)
Nanoscience is an interdisciplinary field that have encompassed physics, biology, engineering chemistry and computer science, among others, the prefix nano appears with increasing frequency in scientific journals and the news. Thus, as we increase our ability to fabricate computer chips with smaller features and improve our ability to cure disease at the molecular level, nanotechnology is at the doorstep. Scientists and engineers believe that the fabrication of nanomachines, nanoelectronics, and other nanodevices will help to sole numerous problems faced by mankind today related to energy, health, and materials development. In nanoelectronics there are two opposing developments: the lithographic scaling down of semiconductor components tending towards the sub10 nanometer region to supramolecular self assembling macroscopic structure with new properties.
Nanotechnology is very diverse, ranging from novel extensions of conventional device physics, to completely new approaches based upon molecular self-assembly, to developing new materials with dimensions on the nanoscale, even to speculation on whether we can directly control matter on the atomic scale. Potential of nanotechnology to manipulate and program matter with atomic precision has invited the attention of scientists to explore innumerable applications of nanotechnology was an inspiration for the benefit of researchers, academicians and industries associated with this field. The global market for nanotechnology products is worth an estimated compound annual growth rate (CAGR) of 11.1% from 2010 to 2015. The largest segment of the market, made up of nanomaterials, is expected to increase at a 5 year CAGR of 14.7%.
This book basically deals with design of protein based nanomachines, metastabilities in nanocrystalline, nanoscale characterization of nanowires, thermopower measurements on nickel nanowires, a nanoporous tio2 electrode, nanoscale in investigation of ultrathin, silicone oxide thermal decomposition, cylindrical nanodot arrays, nanocrystalline silicon films, dispersion of carbon nanotubes, electrical conductivity study of nanocomposite films, magnetic properties of nanospheres, generation spectroscopy of nanoparticle monolayer, au nanoparticles on light emitting polymers, etc.

This handbook deals with the technology frontiers, its applications, the current & future challenges etc. This book will be an invaluable resource to all academicians, industrialists, scientists, upcoming entrepreneurs & technocrats.
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