106-E, Kamla Nagar, New Delhi-110007, India. Tel: 91-11-23843955, 23845654, 23845886, +918800733955 Mobile: +91-9811043595

Email: npcs.ei@gmail.com, info@entrepreneurindia.co
Website: www.entrepreneurIndia.co

#### **Nanotechnology Handbook**

Code: NI222	Format: paperback
Indian Price: ₹1675	US Price: \$150
Pages: 680	ISBN: 9788178331249
Publisher: Asia Pacific Business Press Inc.	

# **Description**

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. Currently the trends are mixed and one can build a variety of structures of all scales. For example one can build large scale supramolecular structures serving as templates for building circuits with nanoscale components. On the nanoelectronics architecture side, there have also been many interesting developments trying to cope with the increasing density and smallness of components and the needs of self assembly and fault tolerance. In the emerging field of nanotechnology, the production of nanostructures having special physical and chemical properties with respect to those of bulk materials is an objective due to their limited size and high density of corner or edge surface sites. Metal nanoparticles have received significant scientific and technological interest because of their use in applications such as catalysis, electronics, optics, optoelectronics, biological and chemical sensing and SERS. Nanotechnology is now creating a growing sense of excitement in the life sciences, especially biomedical devices and biotechnology, as there is an immense opportunity to arrange and rearrange molecular structures. 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% The book contains polymeric nanofibres, synthesis of nanostructure, analysis of electron currents through nanojunctions, water soluble carbon nanotubes, nanoelectronic switching networks, growth of silica nanorods, magnetic nanostructures, nanomachining of microscope tips and carbon nanotubes, nanocrystalline semiconductors and many more.

The present book is a sincere attempt to make the readers aware of the evolutionary trends underlying modern engineering practice which are grounded not only on the tried & true principles & techniques of the past, but also on more recent & current advances. This book will be an invaluable resource to technocrats, researches new entrepreneurs, technical institutions & introduction to this field.

### **Content**

- 1. Polymeric nanofibres
- 2. Synthesis of nanostructure
- 3. Assembly of nanocrystals
- 4. Electrosynthesis of CeO2 nanotubes
- 5. 2D patterned nanocrystal arrays
- 6. Analysis of electron currents through nanojunctions
- 7. Multi-walled carbon nanotubes decorated with titanium nanoparticles
- 8. Synthesis and Self-organisation of Au nanoparticles
- 9. Water soluble carbon nanotubes
- 10. Nanospheres for Photoluminescence
- 11. Nanocables from Poly (dimethyl siloxane)
- 12. Nanorod arrays and their field emission properties
- 13. Oxidation of OTS monolayers
- 14. Three dimentional tungsten nanoscale conductors
- 15. Tungsten nanogratings by nanojoule energy
- 16. Macroscopically films by zone casting
- 17. Uniform arrays of nanoholes and nanopillars
- 18. Electropolymerization of nano-dimensioned polypyrrole micro ring
- 19. Resistance switching of an individual nanowire heterostructure
- 20. Nanoelectronic switching networks
- 21. Photolumininescence in anodic aluminium oxide membranes

- 22. Wrapping of carbon nanotubes by DNA
- 23. Synthesis of poly (3, 4-ethylenedioxy thiophee) nanotubes
- 24. Functionalization of Lanthadum hydroxide nanowires
- 25. Switching behaviour in multiferroic nanostructures
- 26. Growth of super paramagnetic nanospheres
- 27. Synthesis of magic-sized nanocrystals
- 28. Rapid synthesis and application of polyhedral gold nanocrystals
- 29. Nanocrystalline iron-carbon materials
- 30. Microcantilevers coupled with a nanofibre
- 31. Calibration of nanomechanochemical sensors
- 32. Growth of silica nanorods
- 33. Lithography of nanoscale patterning and manufacturing
- 34. Nano-machining of microscope tips and carbon nanotubes
- 35. Structural and optical properties of nanodots
- 36. Fabrication of a tripod nanorod array
- 37. Biodiversity: An archive of opportunity for nanodevices
- 38. Magnetic nanostructures
- 39. Nanobiotechnology enables new opportunities Bacteriorhodopsin
- 40. Bioprocessing of Silk Proteins
- 41. Spider silk production
- 42. Metalloprotein based electronic nanodevices
- 43. Scalable fabrication of Zno nanorod arrays
- 44. Mechanism of anodic alumina
- 45. Thickness and density of nanowire hybrid film
- 46. Chitosan nanoparticles as a smart drug delivery system
- 47. Synthesis of composites using capsicum annum extract
- 48. The stability and electronic structure of single walled

#### ZnO nanotubes

- 49. SWNT reinforced composites
- 50. Super paramagnetic core and rhodamine B doped silica shell
- 51. Synthesis and characterization of nanoordinating solvent
- 52. Platinum coated prodes
- 53. Multiscale failure for carbon nanotube systems
- 54. Dynamical model for restricted diffusion in nano channels
- 55. Synthesis of quantum dots
- 56. Measurement of photonic crystal holes
- 57. Growth control of nanowires
- 58. Synthesis of CdSe clusters
- 59. Nanocrystalline semiconductors
- 60. Nanotechnology in Bioengineering

## **About NIIR Project Consultancy Services (NPCS)**

NIIR Project Consultancy Services (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. Its various services are: Prefeasibility study, New Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Preparation of Project Profiles and Pre-Investment and Pre-Feasibility Studies, Market Surveys and Studies, Preparation of Techno-Economic Feasibility Reports, Identification and Selection of Plant and Machinery, Manufacturing Process and/or Equipment required, General Guidance, Technical and Commercial Counseling for setting up new industrial projects and industry. NPCS also publishes various technology books, directories, databases, detailed project reports, market survey reports on various industries and profit making business. Besides being used by manufacturers, industrialists, and entrepreneurs, our publications are also used by Indian and overseas professionals including project engineers, information services bureaus, consultants and consultancy firms as one of the inputs in their research.

NIIR PROJECT CONSULTANCY SERVICES 106-E, Kamla Nagar, New Delhi-110007, India. Tel: 91-11-23843955, 23845654, 23845886, +918800733955 Mobile: +91-9811043595

Email: npcs.ei@gmail.com, info@entrepreneurindia.co Website: www.entrepreneurIndia.co