Nanophotonics has emerged as a major technology and applications domain, exploiting the interaction of light-emitting and light-sensing nanostructured materials. These devices are lightweight, highly efficient, low on power consumption, and are cost effective to produce. The authors of this book have been involved in pioneering work in manufacturing photonic devices from carbon nanotube (CNT) nanowires and provide a series of practical guidelines for their design and manufacture, using processes such as nano-robotic manipulation and assembly methods. They also introduce the design and operational principles of opto-electrical sensing devices at the nano scale. Thermal annealing and packaging processes are also covered, as key elements in a scalable manufacturing process. Examples of applications of different nanowire based photonic devices are presented. These include applications in the fields of electronics (e.g. FET, CNT Schotty diode) and solar energy.

- Discusses opto-electronic nanomaterials, characterization and properties from an engineering perspective, enabling the commercialization of key emerging technologies
- Provides scalable techniques for nanowire structure growth, manipulation and assembly (i.e. synthesis)
- Explores key application areas such as sensing, electronics and solar energy

Contents:

Preface
Acknowledgments
About the Editors
List of Contributers
Chapter 1 Introduction
  1.1 Overview
  1.2 Impact of Nanomaterials
  1.3 Challenges and Difficulties in Manufacturing Nanomaterials-Based Devices
    1.3.1 Role of Microfluidics
    1.3.2 Role of Robotic Nanoassembly
  1.4 Summary
  References

Chapter 2 Nanomaterials Processing for Device Manufacturing
  2.1 Introduction
  2.2 Characteristics of Carbon Nanotubes
  2.3 Classification of Carbon Nanotubes using Microfluidics
    2.3.1 Dielectrophoretic Phenomenon on CNTs
    2.3.2 Experimental Results: Separation of Semiconducting CNTs
  2.4 Deposition of CNTs by Microrobotic Workstation
Chapter 3 Design and Generation of Dielectrophoretic Forces for Manipulating Carbon Nanotubes

3.1 Overview

3.2 Dielectrophoretic Force Modeling
   3.2.1 Modeling of Electrorotation for Nanomanipulation
   3.2.2 Dynamic Modeling of Rotational Motion of Carbon Nanotubes for Intelligent Manufacturing of CNT-Based Devices
   3.2.3 Dynamic Effect of Fluid Medium on Nano Particles by Dielectrophoresis

3.3 Theory for Microelectrode and Electric Field Design for Carbon Nanotube Applications
   3.3.1 Microelectrode Design
   3.3.2 Theory for Microelectrode Design

3.4 Electric Field Design

3.5 Carbon Nanotubes Application-Simulation Results
   3.5.1 Dielectrophoretic Force: Simulation Results
   3.5.2 Electrorotation (Torque): Simulation Results
   3.5.3 Rotational Motion of Carbon Nanotubes: Simulation Results

3.6 Summary

References

Chapter 4 Atomic Force Microscope-Based Nanorobotic System for Nanoassembly

4.1 Introduction to AFM and Nanomanipulation
   4.1.1 AFM's Basic Principle
   4.1.2 Imaging Mode of AFM
   4.1.3 AFM-Based Nanomanipulation

4.2 AFM-Based Augmented Reality System
   4.2.1 Principle for 3D Nanoforce Feedback
   4.2.2 Principle for Real-Time Visual Feedback Generation
   4.2.3 Experimental Testing and Discussion

4.3 Augmented Reality System Enhanced by Local Scan
   4.3.1 Local Scan Mechanism for Nanoparticle
   4.3.2 Local Scan Mechanism for Nanorod
   4.3.3 Nanomanipulation with Local Enhanced Augmented Reality System
4.4 CAD-Guided Automated Nanoassembly

4.5 Modeling of Nanoenvironments

4.6 Automated Manipulation of CNT

4.7 Summary

References

Chapter 5 On-Chip Band Gap Engineering of Carbon Nanotubes

5.1 Introduction

5.2 Quantum Electron Transport Model

5.2.1 Nonequilibrium Green's Functions

5.2.2 Poisson's Equation and Self-Consistent Algorithm

5.3 Electrical Breakdown Controller of a CNT

5.3.1 Extended Kalman Filter for Fault Detection

5.4 Effects of CNT Breakdown

5.4.1 Current-Voltage Characteristics

5.4.2 Infrared Responses

5.5 Summary

References

Chapter 6 Packaging Processes for Carbon Nanotube-Based Devices

6.1 Introduction

6.2 Thermal Annealing of Carbon Nanotubes

6.3 Electrical and Optical Responses of Carbon Nanotubes After Thermal Annealing

6.4 Parylene Thin Film Packaging

6.5 Electrical and Optical Stability of the CNT-Based Devices After Packaging

6.6 Summary

References

Chapter 7 Carbon Nanotube Schottky Photodiodes

7.1 Introduction

7.2 Review of CNT Photodiodes

7.3 Design of CNT Schottky Photodiodes

7.4 Symmetric Schottky Photodiodes

7.5 Asymmetric Schottky Photodiodes

7.6 Summary
Chapter 8 Carbon Nanotube Field-Effect Transistor-Based Photodetectors

8.1 Introduction
8.2 Back-Gate Au-CNT-Au Transistors
8.3 Back-Gate Ag-CNT-Ag Transistors
8.4 Back-Gate Au-CNT-Ag Transistors
8.5 Middle-Gate Transistors
8.6 Multigate Transistors
8.7 Detector Array Using CNT-Based Transistors
8.8 Summary

Chapter 9 Nanoantennas on Nanowire-Based Optical Sensors

9.1 Introduction
9.2 Nanoantenna Design Consideration for IR Sensors
   9.2.1 Optical Nanoantennas Combined with CNT-Based IR Sensors
9.3 Theoretical Analysis: Nanoantenna Near-Field Effect
9.4 Fabrication of Nano Sensor Combined with Nanoantenna
9.5 Photocurrent Measurement on Nano Sensor Combined with Nanoantenna
9.6 Summary

Chapter 10 Design of Photonic Crystal Waveguides

10.1 Introduction
10.2 Review of the Photonic Crystal
10.3 Principle for Photonic Crystal
10.4 Phototonic Band Gap of Photonic Crystal
   10.4.1 Effect from Dielectric Constants
   10.4.2 Effect from Different Structures
10.5 Photonic Crystal Cavity
   10.5.1 Basic Design of Photonic Crystal Defect
   10.5.2 Defect from Dielectric Constants
   10.5.3 Defect from Dielectric Size
10.5.4 Effect from Lattice Number

10.6 Design and Experimental Results of Photonic Crystal Cavity
   10.6.1 Design
   10.6.2 Photoresponses of CNT-Based IR Sensors with Photonic Crystal Cavities
   10.6.3 Photocurrent Mapping of the CNT-Based IR Sensors with Photonic Crystal Cavities

10.7 Summary

References

Chapter 11 Organic Solar Cells Enhanced by Carbon Nanotubes
   11.1 Introduction
   11.2 Application of Carbon Nanotubes in Organic Solar Cells
   11.3 Fabrication of Carbon Nanotube-Enhanced Organic Solar Cells
   11.4 Performance Analysis of OSCs Enhanced by CNTs
      11.4.1 J-V of SWCNTs-Enhanced OSCs Under Illumination
      11.4.2 J-V of SWCNTs-Enhanced OSCs in Dark
   11.5 Electrical Role of SWCNTs in OSCs
   11.6 Summary

References

Chapter 12 Development of Optical Sensors Using Graphene
   12.1 Introduction
   12.2 Fabrication of Graphene-Based Devices
   12.3 Dielectrophoretic Effect on Different Graphene Flakes
   12.4 Electrical and Optical Behaviors of Various Graphene-Based Devices
   12.5 Summary

References

Chapter 13 Indium Antimonide (InSb) Nanowire-Based Photodetectors
   13.1 Introduction
   13.2 Growth of InSb Nanowires
   13.3 Photodetectors Using Single InSb Nanowires
      13.3.1 Symmetric InSb Nanowire Photodetectors
      13.3.2 Asymmetric InSb Nanowire Photodetectors
   13.4 Summary

References
Chapter 14 Carbon Nanotube-Based Infrared Camera Using Compressive Sensing

14.1 Introduction

14.2 Theoretical Foundation of Compressive Sensing

14.2.1 General Idea

14.2.2 Sparsity

14.2.3 Restricted Isometry Property

14.2.4 Random Matrix

14.2.5 Compressive Sensing Applications

14.3 Compressive Sensing for Single-Pixel Photodetectors

14.3.1 System Architecture

14.3.2 Measurement Matrix

14.3.3 Data Sampling and Image Reconstruction Algorithm

14.4 Experimental Setup and Results

14.4.1 Static Measurement

14.4.2 Dynamic Observation

14.4.3 Performance Analysis

14.5 Summary and Perspectives

References

Index
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