Record Nr. UNINA9911006550703321 Nano-optoelectronic sensors and devices : nanophotonics from design **Titolo** to manufacturing / / edited by Ning Xi , King Wai Chiu Lai Pubbl/distr/stampa Amsterdam;; Boston,: Elsevier/William Andrew, 2011 **ISBN** 1-283-31106-2 9786613311061 1-4377-3472-3 Edizione [1st edition] Descrizione fisica 1 online resource (273 p.) Collana Micro & nano technologies series Altri autori (Persone) XiNing LaiKing Wai Chiu Disciplina 621.36 681.2 Soggetti Optical detectors Optoelectronic devices Nanotechnology **Nanophotonics** Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Front cover; Nano-Optoelectronic Sensors and Devices: Nanophotonics from Design to Manufacturing; Copyright; Table of Contents; Preface; Acknowledgments; About the Editors; List of Contributors; 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; 2.5 Summary; References; Chapter 3. Design and Generation of Dielectrophoretic Forces for Manipulating

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Sommario/riassunto

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 opera