

1. Record Nr.	UNINA9910132294903321
Titolo	The nano-micro interface . 2 Volume Set : bridging the micro and nano worlds // edited by Marcel Van de Voorde, Matthias Werner, and Hans-Jorg Fecht
Pubbl/distr/stampa	Weinheim, Germany : , : Wiley-VCH Verlag, , 2015 ©2015
ISBN	3-527-67921-9 3-527-67919-7 3-527-67922-7
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (749 p.)
Disciplina	620.5
Soggetti	Nanotechnology Microtechnology Biomimicry Biomimetic materials
Lingua di pubblicazione	Tedesco
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	The Nano-Micro Interface; Contents; Foreword; Acknowledgment; List of Contributors; Introduction; Volume 1; Part I Nanotechnology Research Funding and Commercialization Prospects - Political, Social and Economic Context for the Science and Application of Nanotechnology; Chapter 1 A European Strategy for Micro- and Nanoelectronic Components and Systems; 1.1 Introduction; 1.2 Why are Micro- and Nanoelectronics Essential for Europe?; 1.2.1 An Important Industry with a Significant Potential for Growth and a Massive Economic Footprint; 1.2.2 A Key Technology for Addressing the Societal Challenges 1.3 A Changing Industrial Landscape for Micro- and Nanoelectronics1.3.1 Technology Progress Opens New Opportunities; 1.3.2 Escalating R&D&I Costs and a More Competitive R&D&I Environment; 1.3.3 New Business and Production Models; 1.3.4 Equipment Manufacturers Own Key Elements of the Value Chain; 1.4 Europe's Strengths and Weaknesses; 1.4.1 Industry Structured around Centers of Excellence

and Wider Supply Chains Covering all Europe; 1.4.2 Leading in Essential Vertical Markets, Almost Absent in Some Large Segments; 1.4.3 Undisputed European Leadership in Materials and Equipment 1.4.4 Investments of EU Companies Remain Relatively Modest 1.5 European Efforts So Far; 1.5.1 Regional and National Efforts Reinforcing the Clusters of Excellence; 1.5.2 A Growing and More Coordinated Investment in R&D&I at EU Level; 1.5.3 Technology Breakthroughs but Gaps in the Innovation Chain; 1.6 The Way Forward - A European Industrial Strategy; 1.6.1 Objective: Reverse the Decline of EU's Share of World's Supply; 1.6.2 Focus on Europe's Strengths, Build on and Reinforce Europe's Leading Clusters; 1.6.3 Seize Opportunities Arising in Non-conventional Fields and Support SMEs Growth 1.7 The Actions 1.7.1 Towards a European Strategic Roadmap for Investment in the Field; 1.7.2 The Joint Technology Initiative: A Tripartite Model for Large-Scale Projects; 1.7.3 Building on and Supporting Horizontal Competitiveness Measures; 1.7.4 International Dimension; 1.8 Conclusions; Annex 1.A; References; Chapter 2 Governmental Strategy for the Support of Nanotechnology in Germany; 2.1 Introduction; 2.2 Future Options; 2.3 From Basic Science Funding to the Nanotechnology Action Plan; 2.4 Funding Situation 2011; 2.5 Patent Applications in Nanotechnology: An International Comparison 2.6 Innovation Accompanying Measures 2.6.1 Outreach and Citizen Dialogues; 2.6.2 Chances - Risks Communication; 2.6.3 Database for Nanomaterials; 2.6.4 Education; 2.7 Involved Organizations; 2.8 Cooperation of the Governmental Bodies; 2.9 International Cooperation; 2.9.1 Research Marketing; 2.9.2 Activities within the Framework of the European Union; 2.10 Activities within the Framework of the Organization for Economic Cooperation and Development (OECD); References; Chapter 3 Overview on Nanotechnology R&D and Commercialization in the Asia Pacific Region; 3.1 Introduction 3.2 Public Investments

Sommario/riassunto

Controlling the properties of materials by modifying their composition and by manipulating the arrangement of atoms and molecules is a dream that can be achieved by nanotechnology. As one of the fastest developing and innovative -- as well as well-funded -- fields in science, nanotechnology has already significantly changed the research landscape in chemistry, materials science, and physics, with numerous applications in consumer products, such as sunscreens and water-repellent clothes. It is also thanks to this multidisciplinary field that flat panel displays, highly efficient solar cells, a
