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Nota di contenuto	FUTURE TRENDS IN MICROELECTRONICS; CONTENTS; Preface; 1 PHYSICS: THE FOUNDATIONS; Is Fault-Tolerant Quantum Computation Really Possible?; Quantum Computation - Future of Microelectronics?; Semiconductor Spintronics: Progress and Challenges; Towards Semiconductor Spin Logic; Molecular Meso- and Nanodevices: Are the Molecules Conducting?; The Problem of a Perfect Lens Made From a Slab With Negative Refraction; Is There a Linewidth Theory for Semiconductor Lasers?; Fermi Liquid Behavior of GaAs Quantum Wires; 2 BIOLOGY: WE ARE ALL ZOA; Towards Molecular Medicine Interfacing the Brain - With Microelectronics?Synthetic Biology: Synthesis and Modification of a Chemical Called Poliovirus; Guided Evolution in Interacting Microchemostat Arrays for Optimization of Photobacterial Hydrogen Production; Improvements in Light Emitters by Controlling Spontaneous Emission: From LEDs to Biochips; 3 ELECTRONICS: CHALLENGES AND SOLUTIONS; Nanomanufacturing

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Sommario/riassunto

In this book leading professionals in the semiconductor microelectronics field discuss the future evolution of their profession. The following are some of the questions discussed: Does CMOS technology have a real problem? Do transistors have to be smaller or just better and made of better materials? What is to come after semiconductors? Superconductors or molecular conductors? Is bottom-up self-assembling the answer to the limitation of top-down lithography? Is it time for Optics to become a force in computer evolution? Quantum Computing, Spintronics? Where is the pr

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