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Nota di contenuto	Molecular Nanoelectronics by Molecular Layer Epitaxy -- The Nanoscale Application-Specific Integrated Circuit (ASIC) Development Process -- Fundamentals of Oxide Resistive Random Access Memories (RRAM) -- Current Trends in Nanotechnology for Information and Energy Transformation and Storage -- Quantum Confinement Effects in Nanoelectronic Materials -- High-throughput Materials Discovery and Development: Breakthroughs and Challenges in the Mapping of the Materials Genome -- Digital Design and Computer Architecture in the Era of System on Chip (SoC) and Internet of Things (IoT) -- Atomic Layer Processing: Basics, Materials, Processes and Applications -- Theory and Technology of Wave Vision -- Ultimate Information Storage: What Does Physics Have to Say?
Sommario/riassunto	This book presents research dedicated to solving scientific and

technological problems in many areas of electronics, photonics and renewable energy. Energy and information are interconnected and are essential elements for the development of human society. Transmission, processing and storage of information requires energy consumption, while the efficient use and access to new energy sources requires new information (ideas and expertise) and the design of novel systems such as photovoltaic devices, fuel cells and batteries. Semiconductor physics creates the knowledge base for the development of information (computers, cell phones, etc.) and energy (photovoltaic) technologies. The exchange of ideas and expertise between these two technologies is critical and expands beyond semiconductors. Continued progress in information and renewable energy technologies requires miniaturization of devices and reduction of costs, energy and material consumption. The latest generation of electronic devices is now approaching nanometer scale dimensions, new materials are being introduced into electronics manufacturing at an unprecedented rate, and alternative technologies to mainstream CMOS are evolving. Nanotechnology is widely accepted as a source of potential solutions in securing future progress for information and energy technologies. Semiconductor Nanotechnology features chapters that cover the following areas: atomic scale materials design, bio- and molecular electronics, high frequency electronics, fabrication of nanodevices, magnetic materials and spintronics, materials and processes for integrated and subwave optoelectronics, nanoCMOS, new materials for FETs and other devices, nanoelectronics system architecture, nano optics and lasers, non-silicon materials and devices, chemical and biosensors, quantum effects in devices, nano science and technology applications in the development of novel solar energy devices, and fuel cells and batteries.