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Nota di contenuto	Materials at atomic scale -- Atomic electronics –electronics based on atoms -- Nanoelectronic devices beyond Moore’s law: Quantum devices with low power and high gain (tunnelling devices, phase change devices, quantum dots for memory applications, ballistic devices , spintronic devices and superconducting devices) -- Quantum computing (theory and implementation of quantum gates and computers) -- Neuromorphic computing –artificial synapses and neurons based on atomically thin materials -- Optical computing -- Perspectives-main concepts that could be implemented by industry in the next 10 years.
Sommario/riassunto	This book explores emerging topics in atomic- and nano-scale electronics after the era of Moore’s Law, covering both the physical principles behind, and technological implementations for many devices

that are now expected to become key elements of the future of nanoelectronics beyond traditional complementary metal-oxide semiconductors (CMOS). Moore’s law is not a physical law itself, but rather a visionary prediction that has worked well for more than 50 years but is rapidly coming to its end as the gate length of CMOS transistors approaches the length-scale of only a few atoms. Thus, the key question here is: “What is the future for nanoelectronics beyond CMOS?” The possible answers are found in this book. Introducing novel quantum devices such as atomic–scale electronic devices, ballistic devices, memristors, superconducting devices, this book also presents the reader with the physical principles underlying new ways of computing, as well as their practical implementation. Topics such as quantum computing, neuromorphic computing are highlighted here as some of the most promising candidates for ushering in a new era of atomic-scale electronics beyond CMOS.