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Nota di contenuto	From the Contents: Part 1: Principle and Theoretical Background -- Progress in Nanophotonics -- Classical Theory of Electromagnetic Near Fields -- Part 2: Elemental Tools -- Near-Field Optical Fiber Probes and the Imaging Applications -- Part 3: Sensing and Spectroscopy -- Nano-Optical Imaging and Spectroscopy of Single Semiconductor Quantum Consistuents -- Part 4: Devices, Fabrication and Relevant Materials -- Integration and Evaluations of Nanophotonic Devices Using Optical Near Field -- Part 5: SystemApplications -- Architectural Approach to Nanophotonics for Information and Communication Systems -- Part 6: Related Basic Sciences -- Modulation of an Electron Beam in Optical Near-Fields.
Sommario/riassunto	In the 1990s, optical technology and photonics industry developed fast,

but further progress became difficult due to a fundamental limit of light known as the diffraction limit. This limit could be overcome using the novel technology of nano-optics or nanophotonics in which the size of the electromagnetic field is decreased down to the nanoscale and is used as a carrier for signal transmission, processing, and fabrication. Such a decrease beyond the diffraction limit is possible by using optical near-fields. The true nature of nano-optics and nanophotonics involves not only their abilities to meet the above requirements but also their abilities to realize qualitative innovations in photonic devices, fabrication techniques, energy conversion and information processing systems. The objective of this work is to review the innovations of optical science and technology by nano-optics and nanophotonics. While in conventional optical science and technology, light and matter are discussed separately, in nano-optics and nanophotonics, light and matter have to be regarded as being coupled to each other, and the energy flow between nanoparticles is bidirectional. This means that nano-optics and nanophotonics have to be regarded as a technology fusing optical fields and matter. This unique work reviews and covers the most recent topics of nano-optics, applications to device operations, fabrication techniques, energy conversion, information processing, architectures and algorithms. Each chapter is written by the leading scientists in the relevant field. Thus, this work will provide high-quality scientific and technical information to scientists, engineers, and graduate students who are and will be engaged in R&D of nano-optics and nanophotonics. Especially, the topics to be covered by this work will be popularly used by the engineers in the rapidly growing market of the optical energy conversion.