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Titolo	Nanoscale Materials and Devices for Electronics, Photonics and Solar Energy / / edited by Anatoli Korkin, Stephen Goodnick, Robert Nemanich
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Descrizione fisica	1 online resource (291 p.)
Collana	Nanostructure Science and Technology, , 1571-5744
Disciplina	620.5
Soggetti	Nanotechnology Lasers Photonics Renewable energy resources Optical materials Electronic materials Optics, Lasers, Photonics, Optical Devices Nanotechnology and Microengineering Renewable and Green Energy Optical and Electronic Materials
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Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Ultra-Low-Power Device Operation -- Ultra-Low-Power Pseudospintronics Devices via Exciton Condensation in Coupled Two-Dimensional Material Systems -- Graphene-Based Photonics and Plasmonics -- Materials Challenges for Concentrated Solar Power -- Atomistic Simulations of Electronic and Optical Properties of Semiconductor Nanostructures -- What Happens When Molecules Meet Nanostructures: The Convergence of Chemistry and Electronics at the Nanoscale -- Terahertz-Wave Generation Using Graphene and Compound Semiconductor Nano-Heterostructures -- Optics of Hybrid Nanomaterials in the Strong Coupling Regime.
Sommario/riassunto	This book presents research dedicated to solving scientific and

technological problems in many areas of electronics, photonics and renewable energy. 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. The low cost of natural energy sources have created economic barriers to the development of alternative and more efficient solar energy systems, fuel cells and batteries. Nanotechnology is widely accepted as a source of potential solutions in securing future progress for information and energy technologies. Nanoscale Materials and Devices for Electronics, Photonics and Solar Energy 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.