1. Record Nr. UNINA9910410047503321

Titolo	Quantum Dot Optoelectronic Devices / / edited by Peng Yu, Zhiming M. Wang
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-35813-5
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (VIII, 326 p. 177 illus., 163 illus. in color.)
Collana	Lecture Notes in Nanoscale Science and Technology, , 2195-2159 ; ; 27
Disciplina	621.38152
Soggetti	Nanotechnology Quantum optics Microwaves Optical engineering Quantum Optics Microwaves, RF and Optical Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter1: Quantum dot based thin film III-V solar cells -- Chapter2: The development of quantum emitters based on semiconductor quantum dots -- Chapter3: Cesium Lead Halide Perovskite Quantum Dots in Light: Dynamics and Applications -- Chapter4: Quantum Dot Materials towards High Speed and Ultrafast Laser Applications -- Chapter5: Quantum Dot Interfaces for Memristor -- Chapter6: Bioresource derived Graphene Quantum Dots: A Tale of Sustainable Materials and their Applications -- Chapter7: Gate-defined quantum dots: fundamentals and applications -- Chapter8: Colloidal Quantum Dots for Highly Efficient Photovoltaics -- Chapter9: Progress on Quantum Communication with Quantum Dot Devices.
Sommario/riassunto	This book captures cutting-edge research in semiconductor quantum dot devices, discussing preparation methods and properties, and providing a comprehensive overview of their optoelectronic applications. Quantum dots (QDs), with particle sizes in the nanometer range, have unique electronic and optical properties. They have the potential to open an avenue for next-generation optoelectronic

methods and devices, such as lasers, biomarker assays, field effect transistors, LEDs, photodetectors, and solar concentrators. By bringing together leaders in the various application areas, this book is both a comprehensive introduction to different kinds of QDs with unique physical properties as well as their preparation routes, and a platform for knowledge sharing and dissemination of the latest advances in a novel area of nanotechnology. .