1. Record Nr. UNINA9910254605303321

Autore	Ghatak Kamakhya Prasad
Titolo	Dispersion Relations in Heavily-Doped Nanostructures / / by Kamakhya Prasad Ghatak
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-21000-9
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (LV, 625 p. 31 illus.)
Collana	Springer Tracts in Modern Physics, , 0081-3869 ; ; 265
Disciplina	537.622
Soggetti	Semiconductors Nanotechnology Microwaves Optical engineering Nanoscience Nanostructures Solid state physics Microwaves, RF and Optical Engineering Nanoscale Science and Technology Solid State Physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	From the Contents: The DR in Quantum Wells (QWs) of Heavily Doped (HD) Non-Parabolic Semiconductors -- The DR in Nano-Wires (NWs) of Heavily Doped (HD) Non-Parabolic Semiconductors -- The DR in Quantum Box (QB) of Heavily Doped (HD) Non-Parabolic Semiconductors -- The DR in doping superlattices of HD Non-Parabolic Semiconductors -- The DR in Accumulation and Inversion Layers of Non-Parabolic Semiconductors.
Sommario/riassunto	This book presents the dispersion relation in heavily doped nano-structures. The materials considered are III-V, II-VI, IV-VI, GaP, Ge, Platinum Antimonide, stressed, GaSb, Te, II-V, HgTe/CdTe superlattices and Bismuth Telluride semiconductors. The dispersion relation is discussed under magnetic quantization and on the basis of carrier energy spectra. The influences of magnetic field, magneto inversion,

and magneto nipi structures on nano-structures is analyzed. The band structure of optoelectronic materials changes with photo-excitation in a fundamental way according to newly formulated electron dispersion laws. They control the quantum effect in optoelectronic devices in the presence of light. The measurement of band gaps in optoelectronic materials in the presence of external photo-excitation is displayed. The influences of magnetic quantization, crossed electric and quantizing fields, intense electric fields on the on the dispersion relation in heavily doped semiconductors and super-lattices are also discussed. This book contains 200 open research problems which form the integral part of the text and are useful for graduate students and researchers. The book is written for post graduate students, researchers and engineers.