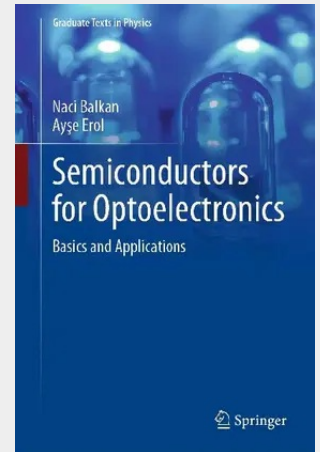


Semiconductors for Optoelectronics

Basics and Applications

This book provides in-depth knowledge about the fundamental physical properties of bulk and low dimensional semiconductors (LDS). It also explains their applications to optoelectronic devices. The book incorporates two major themes. The first theme, starts from the fundamental principles governing the classification of solids according to their electronic properties and leads to a detailed analysis of electronic band structure and electronic transport in solids. It then focuses on the electronic transport and optical properties of semiconductor compounds, size quantization and the analysis of abrupt p-n junctions where a full analysis of the fundamental properties of intrinsic and doped semiconductors is given. The second theme is device-oriented. It aims to provide the reader with understanding of the design, fabrication and operation of optoelectronic devices based on novel semiconductor materials, such as high-speed photo detectors, light emitting diodes, multi-mode and single-mode lasers and high efficiency solar cells. The book appeals to researchers and high-level undergraduate students.

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