

<<半导体光学和输运现象>>

图书基本信息

书名：<<半导体光学和输运现象>>

13位ISBN编号：9787030313935

10位ISBN编号：7030313933

出版时间：2011-6

出版时间：科学出版社

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页数：495

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内容概要

Well-balanced and up-to-date introduction to the field of semiconductor optics , including transport phenomena in semiconductors. Starting with the theoretical fundamentals of this field the book develops , assuming a basic knowledge of solid-state physics. The application areas of the theory covered include semiconductor lasers , detectors , electro-optic modulators , single-electron transistors , microcavities and double-barrier resonant tunneling diodes. One hundred problems with hints for solution help the readers to deepen their knowledge.

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章节摘录

版权页：插图：Semiconductors have entered our everyday life to such a degree that the notion of a "silicon age" has been employed. Silicon is in fact the most important material as far as commercial applications of semiconductors are concerned. However, while silicon satisfies most of our current needs for electronics, it is only of limited use for optoelectronic applications. Semiconductor lasers, which are at the heart of compact disc players (present in most households), laser printers, and light modulators, the key to today's telecommunication systems, require a direct band gap. Hence, many other semiconductor materials are subjects of current interest. Moreover, today's scientists are no longer satisfied with the variety of bulk materials provided by nature, but have become artists who design semiconductor heterostructures and mesoscopic semiconductor devices corresponding to their needs and interests. This often results in surprising and quite remarkable material properties. Many of these structures, and their optical and transport properties will be discussed in this book.

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编辑推荐

《国外物理名著系列30:半导体光学和输运现象(影印版)》为国外物理名著系列之一。

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