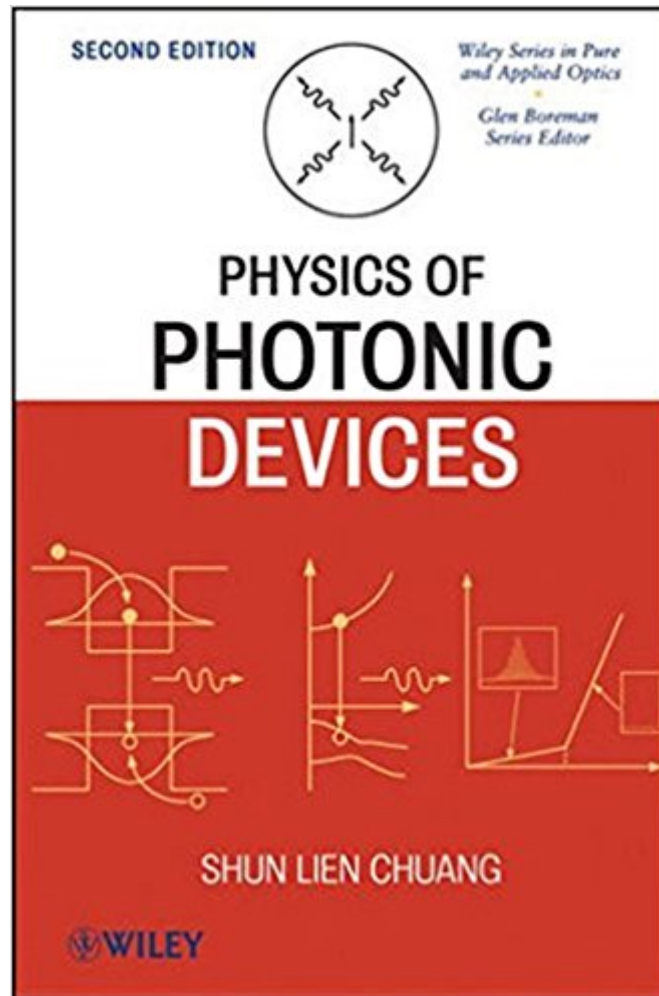




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Physics Of Photonic Devices



Synopsis

The most up-to-date book available on the physics of photonic devices This new edition of Physics of Photonic Devices incorporates significant advancements in the field of photonics that have occurred since publication of the first edition (Physics of Optoelectronic Devices). New topics covered include a brief history of the invention of semiconductor lasers, the Lorentz dipole method and metal plasmas, matrix optics, surface plasma waveguides, optical ring resonators, integrated electroabsorption modulator-lasers, and solar cells. It also introduces exciting new fields of research such as: surface plasmonics and micro-ring resonators; the theory of optical gain and absorption in quantum dots and quantum wires and their applications in semiconductor lasers; and novel microcavity and photonic crystal lasers, quantum-cascade lasers, and GaN blue-green lasers within the context of advanced semiconductor lasers. Physics of Photonic Devices, Second Edition presents novel information that is not yet available in book form elsewhere. Many problem sets have been updated, the answers to which are available in an all-new Solutions Manual for instructors. Comprehensive, timely, and practical, Physics of Photonic Devices is an invaluable textbook for advanced undergraduate and graduate courses in photonics and an indispensable tool for researchers working in this rapidly growing field.

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Customer Reviews

Emphasizes the theory of semiconductor optoelectronic devices, demonstrating comparisons between theoretical and experimental results. Presents such important topics as semiconductor

heterojunctions and band structure calculations near the band edges for bulk and quantum-well semiconductors. Details semiconductor lasers including double-heterostructure, stripe-geometry gain-guided semiconductor, distributed feedback and surface-emitting. Systematically investigates high-speed modulation of semiconductor lasers using linear and nonlinear gains. Features new subjects such as the theories on the band structures of strained semiconductors and strained quantum-well lasers. Covers key areas behind the operation of semiconductor lasers, modulators and photodetectors. --This text refers to an out of print or unavailable edition of this title.

The most up-to-date book available on the physics of photonic devices This new edition of *Physics of Photonic Devices* incorporates significant advancements in the field of photonics that have occurred since publication of the first edition (*Physics of Optoelectronic Devices*). New topics covered include a brief history of the invention of semiconductor lasers, the Lorentz dipole method and metal plasmas, matrix optics, surface plasma waveguides, optical ring resonators, integrated electroabsorption modulator-lasers, and solar cells. It also introduces exciting new fields of research such as: surface plasmonics and micro-ring resonators; the theory of optical gain and absorption in quantum dots and quantum wires and their applications in semiconductor lasers; and novel microcavity and photonic crystal lasers, quantum-cascade lasers, and GaN blue-green lasers within the context of advanced semiconductor lasers. *Physics of Photonic Devices, Second Edition* presents novel information that is not yet available in book form elsewhere. Many problem sets have been updated, the answers to which are available in an all-new *Solutions Manual* for instructors. Comprehensive, timely, and practical, *Physics of Photonic Devices* is an invaluable textbook for advanced undergraduate and graduate courses in photonics and an indispensable tool for researchers working in this rapidly growing field.

A very complete book on photonics. If there are two books that you must have this is one (the other being diode lasers by Coldren, Corzine, Masanovic). This book covers an incredible breadth of topics such as vertical cavity lasers, quantum cascade lasers, solar cells, LEDs, modulators with incredible depth. Very good coverage of rate equations, gain calculations, electromagnetics, surface plasmons, etc. The discussion and treatment of each topic spans both quantitative as well as qualitative aspects so as to help with theoretical understanding as well as applications knowledge. The author clearly has an amazing grasp of multiple topics in the areas of solid state and device physics. Highly recommended.

I am a graduate student working on a Masters for micro-scale detectors and I got this book as a reference and a learning supplement between me and some of the higher level literature papers. It has a lot of really good examples throughout the text to go along with the end of chapter problems. I would recommend this book to any upper level Physics student or Graduate student doing research in this field. The only reason it wasn't five stars is because one of the typos really caused me to suffer when I was referring to this book in another class I was taking related to this topic.

The book is clear, concise, up-to-date, and always presents the information within context with regards to fundamental equations, history, and modern-day applications. There are a few typos, as can typically be expected in the first editions. This textbook is by far the most highly regarded and studied within my grad-student research group. I highly recommend it.

This book is new and most importantly is that the price cut. Almost cheaper than a used book. It's also a prime item, so that I can receive it in two days. That's why I bought it.

As a graduate student, I think this book is a suitable reference for researches in photonics and condensed matter physics.

Before anything else I must say that there is a page in this book which is so amazing, so incredible, so ground-breaking, so absolutely mind-blowing that they had to include it twice! At least they did in my blessed copy. Ah, page 45, no other page shall ever capture the electrons of my heart like you have (p 45 deals with electron capture). I really love this; you pay \$160+ for a book and it's not even printed correctly. That is totally understandable once in a while if returns are accepted (thanks !) or on a much cheaper book, but I wonder if other buyers have the same error. The pity is that if I had not thumbed thru the tome immediately I would have missed it for awhile and probably not been able to return it. Otherwise it's a decent book.

almost a brand new book, very good

CONS: This book looks like it was made by copy/pasting from the author's PPT lecture slides with formulas and not adding additional explanations in form of short paragraphs or longer sentences. English language style of this book sometime makes it very hard to comprehend what author means. It's very disappointing that in the 2nd edition the author hasn't improved the

language. PROS: It's very comprehensive book covering almost all the major (active) optoelectronic devices. It's good as a reference, but absolute rubbish as a textbook.

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