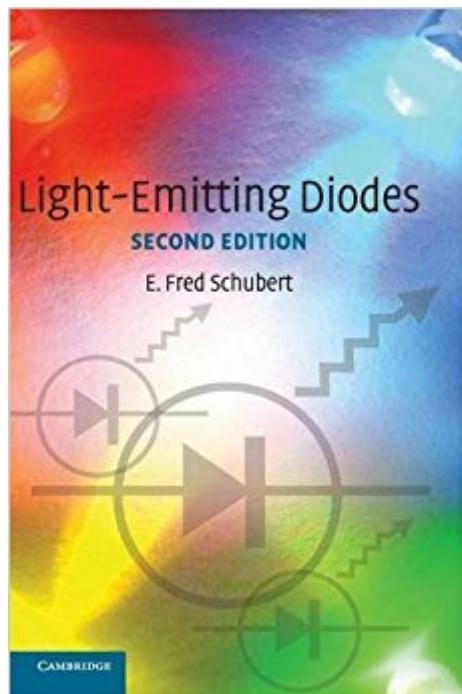


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# Light-Emitting Diodes



## Synopsis

Revised and fully updated, the second edition of this graduate textbook offers a comprehensive explanation of the technology and physics of LEDs such as infrared, visible-spectrum, ultraviolet, and white LEDs made from III-V semiconductors. Elementary properties such as electrical and optical characteristics are reviewed, followed by the analysis of advanced device structures. With nine additional chapters, the treatment of LEDs has been vastly expanded, including new material on device packaging, reflectors, UV LEDs, III-V nitride materials, solid-state sources for illumination applications, and junction temperature. Radiative and non-radiative recombination dynamics, methods for improving light extraction, high-efficiency and high-power device designs, white-light emitters with wavelength-converting phosphor materials, optical reflectors, and spontaneous recombination in resonant-cavity structures are discussed in detail. With exercises, solutions, and illustrative examples, this textbook will be of interest to scientists and engineers working on LEDs and graduate students in electrical engineering, applied physics, and materials science.

## Book Information

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## Customer Reviews

'Light-Emitting Diodes is an excellent examination of the physics and technology of semiconductor LEDs. The narration is simple and direct, and the book is well referenced for those seeking a deeper understanding of the topic.' Physics Today

Revised and fully updated, the second edition of this textbook is dedicated to the technology and

physics of LEDs including infrared, visible-spectrum, ultraviolet, and white LEDs. With nine more chapters, the subject matter has been vastly expanded. Suitable for scientists, engineers, and graduate students. Contains exercises, solutions and illustrative examples.

Schubert (RPI) has written an excellent book on LEDs that manages to explain and derive simple quantitative models for many phenomena of current interest. He tackles issues such as resonant cavity LEDs, reliability/surface recombination issues, current spreading theory, etc. Many monographs are a compendium of results in the field with hundreds of references to papers, which are briefly discussed, and are written by several authors. In contrast, Schubert, while giving copious references, is the sole author, leading to a coherent presentation well suited to learning. There are plentiful and good figures and drawings, as well as many exercises and solutions integrated into the text. There are no back of chapter problems, but this is not really a text for lower level undergraduates.

A really good book for anyone working with LEDs. Has the basic solid state physics, electrical and optical information you might need especially for the design engineer. Will not be that helpful if you are trying to design a LED luminaire. More helpful for scientific and instrumentation applications and for creating LED modeling or equations. I regret not purchasing it sooner.

This book provides the details on LED physics that I sought. It describes how key parts of the LED structure contribute to overall performance, and how LED's have been improved over the years. It is well written. I do not intend to use most of the equations included in this book, still I found it relatively easy to understand. I am already familiar with many of the silicon based technologies having worked on manufacturing processes and tools for IC's, TFT's, and solar cells (PV). This book was recommended to me by a technologist working on LED's. I recommend this book to the serious technologist who's trying to understand how to improve LED's and their use.

Great book that covers both the fundamental physics of LEDs, as well as gives the reader just the right amount of insight into their origin. The topics covered are very broad and in my mind a must own for people who are trying to enter the LED industry.

Solid book all around. Only reason for not giving 5 stars is the pictures are all black and white, which seems ridiculous especially when showing color mixing diagrams etc..

It is a good book about Light Emitting Diodes (LEDs). It provides very good info and it is a good reference for engineers who work in LED field.

In its Second Edition - this book is much improved and far more up-to-date, with plenty of practical advice as well theory/design. But still no discussion of band-structure in any detail - which I feel is a weakness of this text. Some valuable material on Nitrides is now included. Overall - this is now arguably the best LED book in the market-place at this time.

I think, the book contains all the basic information about the LEDs. It contains very helpful information regarding to the structure of LEDs, their design, the optimization of the LED performance, colorimetry, etc. I think the only negative point related to this book is that sometimes the variables/parameters in the equations are not given clearly. Therefore reader should look at the previous pages to understand these parameters/variables.

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