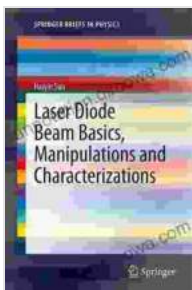


# Laser Diode Beam Basics Manipulations And Characterizations Springerbriefs In

Laser diodes have become ubiquitous in modern technology, powering everything from telecommunications to medical devices. Their compact size, low cost, and high efficiency make them ideal for a wide range of applications. However, the raw output of a laser diode is often not suitable for use in practical applications. The beam may be too divergent, too large, or have an undesirable shape. Therefore, it is often necessary to manipulate and characterize the beam to meet the requirements of the specific application.

This book provides a comprehensive overview of the basics of laser diode beams, including their manipulation and characterization. The book is divided into three parts. Part 1 introduces the basics of laser diode beams, including their properties and how they are generated. Part 2 discusses the various methods for manipulating laser diode beams, including beam shaping, collimation, and focusing. Part 3 describes the different techniques for characterizing laser diode beams, including beam profiling, beam quality measurement, and beam diagnostics.



## Laser Diode Beam Basics, Manipulations and Characterizations (SpringerBriefs in Physics) by Haiyin Sun

★★★★☆ 4.3 out of 5

Language	: English
Hardcover	: 386 pages
Item Weight	: 1.63 pounds
Dimensions	: 6 x 0.88 x 9 inches
File size	: 2790 KB
Text-to-Speech	: Enabled
Screen Reader	: Supported

Enhanced typesetting : Enabled  
Word Wise : Enabled  
Print length : 87 pages



This book is intended for a wide range of readers, including students, researchers, and engineers. No prior knowledge of laser diodes is required. The book is written in a clear and concise style, with numerous illustrations and examples to help the reader understand the concepts. Appendices provide a summary of the mathematical formulas used in the book, as well as a glossary of terms.

## **Part 1: Basics of Laser Diode Beams**

The first part of the book provides an to the basics of laser diode beams. Chapter 1 begins with a brief history of laser diodes and their development. Chapter 2 discusses the basic principles of laser diode operation, including the different types of laser diodes and the factors that affect their performance. Chapter 3 introduces the properties of laser diode beams, including their wavelength, divergence, and power.

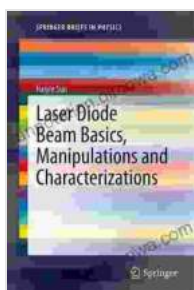
## **Part 2: Manipulation of Laser Diode Beams**

The second part of the book discusses the various methods for manipulating laser diode beams. Chapter 4 introduces the concept of beam shaping and describes the different types of beam shaping techniques. Chapter 5 discusses the methods for collimating laser diode beams, which is necessary to reduce the beam divergence. Chapter 6 covers the techniques for focusing laser diode beams, which is necessary to increase the beam power density.

## Part 3: Characterization of Laser Diode Beams

The third part of the book describes the different techniques for characterizing laser diode beams. Chapter 7 introduces the concept of beam profiling and describes the different types of beam profilers. Chapter 8 discusses the methods for measuring beam quality, which is a measure of the beam's focusability. Chapter 9 covers the techniques for beam diagnostics, which is used to identify and correct problems with laser diode beams.

This book provides a comprehensive overview of the basics of laser diode beams, including their manipulation and characterization. The book is intended for a wide range of readers, including students, researchers, and engineers. No prior knowledge of laser diodes is required. The book is written in a clear and concise style, with numerous illustrations and examples to help the reader understand the concepts. Appendices provide a summary of the mathematical formulas used in the book, as well as a glossary of terms.



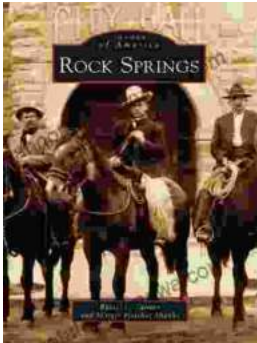
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