

# Fundamentals of Modern Optics

## Winter Term 2014/2015

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### Table of content

0. Introduction.....	4
1. Ray optics - geometrical optics (covered by lecture Introduction to Optical Modeling).....	15
1.1 Introduction.....	15
1.2 Postulates.....	15
1.3 Simple rules for propagation of light.....	16
1.4 Simple optical components.....	16
1.5 Ray tracing in inhomogeneous media (graded-index - GRIN optics).....	20
1.5.1 Ray equation.....	20
1.5.2 The eikonal equation.....	22
1.6 Matrix optics.....	23
1.6.1 The ray-transfer-matrix.....	23
1.6.2 Matrices of optical elements.....	23
1.6.3 Cascaded elements.....	24
2. Optical fields in dispersive and isotropic media.....	25
2.1 Maxwell's equations.....	25
2.1.1 Adaption to optics.....	25
2.1.2 Temporal dependence of the fields.....	29
2.1.3 Maxwell's equations in Fourier domain.....	30
2.1.4 From Maxwell's equations to the wave equation.....	30
2.1.5 Decoupling of the vectorial wave equation.....	32
2.2 Optical properties of matter.....	33
2.2.1 Basics.....	33
2.2.2 Dielectric polarization and susceptibility.....	36
2.2.3 Conductive current and conductivity.....	38
2.2.4 The generalized complex dielectric function.....	39
2.2.5 Material models in time domain.....	43
2.3 The Poynting vector and energy balance.....	45
2.3.1 Time averaged Poynting vector.....	45
2.3.2 Time averaged energy balance.....	46
2.4 Normal modes in homogeneous isotropic media.....	49
2.4.1 Transverse waves.....	50
2.4.2 Longitudinal waves.....	51
2.4.3 Plane wave solutions in different frequency regimes.....	52
2.4.4 Time averaged Poynting vector of plane waves.....	58
2.5 The Kramers-Kronig relation.....	59
2.6 Beams and pulses - analogy of diffraction and dispersion.....	62
2.7 Diffraction of monochromatic beams in homogeneous isotropic media.....	64
2.7.1 Arbitrarily narrow beams (general case).....	65
2.7.2 Fresnel- (paraxial) approximation.....	72
2.7.3 The paraxial wave equation.....	76
2.8 Propagation of Gaussian beams.....	78
2.8.1 Propagation in paraxial approximation.....	79
2.8.2 Propagation of Gauss beams with q-parameter formalism.....	84
2.8.3 Gaussian optics.....	84

# Fundamentals Of Optics 3ed

**Elizabeth M. Slayter, Henry S. Slayter**



## **Fundamentals Of Optics 3ed:**

**Fundamentals of Optics ... Third Edition** Francis Arthur JENKINS (and WHITE (Harvey Elliott)),Harvey Elliott White,1957      **Fundamentals of Optics** Francis Arthur Jenkins,1957      **Optics** Kailash K. Sharma,2006-09-27 Optics clearly explains the principles of optics using excellent pedagogy to support student learning Beginning with introductory ideas and equations K K Sharma takes the reader through the world of optics by detailing problems encountered advanced subjects and actual applications Elegantly written this book rigorously examines optics with over 300 illustrations and several problems in each chapter The book begins with light propagation in anisotropic media considered much later in most books Nearly one third of the book deals with applications of optics This simple idea of merging the sometimes overwhelming and dry subject of optics with real world applications will create better future engineers It will make optics jump off the page for readers and they will see it take shape in the world around them In presenting optics practically as well as theoretically readers will come away not only with a complete knowledge base but a context in which to place it This book is recommended for optical engineers libraries senior undergraduate students graduate students and professors Strong emphasis on applications to demonstrate the relevance of the theory Includes chapter on problem solving of ray deviations focusing errors and distortion Problems are included at the end of each chapter for thorough understanding of this dense subject matter      **Handbook of Deposition Technologies for Films and Coatings** Rointan Framroze Bunshah,1994 This second edition edited by the world renowned Dr Rointain Bunshah is an extensive update of the many improvements in deposition technologies mechanisms and applications Considerably more material was added in Plasma Assisted Vapor Deposition processes as well as Metallurgical Coating Applications      **Handbook of Deposition Technologies for Films and Coatings** Rointan F. Bunshah,1994-12-31 This second edition edited by the world renowned Dr Rointain Bunshah is an extensive update of the many improvements in deposition technologies mechanisms and applications Considerably more material was added in Plasma Assisted Vapor Deposition processes as well as Metallurgical Coating Applications      **Handbook of Ellipsometry** Harland Tompkins,Eugene A Irene,2005-01-06 The Handbook of Ellipsometry is a critical foundation text on an increasingly critical subject Ellipsometry a measurement technique based on phase and amplitude changes in polarized light is becoming popular in a widening array of applications because of increasing miniaturization of integrated circuits and breakthroughs in knowledge of biological macromolecules deriving from DNA and protein surface research Ellipsometry does not contact or damage samples and is an ideal measurement technique for determining optical and physical properties of materials at the nano scale With the acceleration of new instruments and applications now occurring this book provides an essential foundation for the current science and technology of ellipsometry for scientists and engineers in industry and academia at the forefront of nanotechnology developments in instrumentation integrated circuits biotechnology and pharmaceuticals Divided into four parts this comprehensive handbook covers the theory of ellipsometry

instrumentation applications and emerging areas Experts in the field contributed to its twelve chapters covering various aspects of ellipsometry      **Introduction to Radiometry and Photometry, Second Edition** William Ross

McCluney,2014-11-01 This second edition of an Artech House classic title describes in detail the relationship between radiometry and photometry It covers information needed to solve problems in radiation transfer and detection detectors measuring instruments and concepts in colorimetry This revised second edition presents an updated treatment of modern radiometry and photometry including brand new sections on applications and developments in light sources and scientific instruments for measuring radiation and light Engineers are also provided with an exciting new chapter on the use of computerized optical ray tracing for virtual experiments on optical systems      Light and Electron Microscopy Elizabeth M. Slayter, Henry S. Slayter, 1992-10-30 The compound optical microscope in its various modern forms is probably the most familiar of all laboratory instruments and the electron microscope once an exotic rarity has now become a standard tool in biological and materials research Both instruments are often used effectively with little knowledge of the relevant theory or even of how a particular type of microscope functions Eventually however proper use interpretation of images and choices of specific applications demand an understanding of fundamental principles This book describes the principles of operation of each type of microscope currently available and of use to biomedical and materials scientists It explains the mechanisms of image formation contrast and its enhancement accounts for ultimate limits on the size of observable details resolving power and resolution and finally provides an account of Fourier optical theory Principles behind the photographic methods used in microscopy are also described and there is some discussion of image processing methods The book will appeal to graduate students and researchers in the biomedical sciences and it will be helpful to students taking a course involving the principles of microscopy      **Physics, Metaphysics, and God - Third Edition** Jack W. Geis, 2010-07-15 At long last a promising

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**A User's Guide to Ellipsometry** Harland G. Tompkins, 2013-03-21 This text on optics for graduate students explains how to determine material properties and parameters for inaccessible substrates and unknown films as well as how to measure extremely thin films Its 14 case studies illustrate concepts and reinforce applications of ellipsometry particularly in relation to the semiconductor industry and to studies involving corrosion and oxide growth A User s Guide to Ellipsometry will enable readers to move beyond limited turn key applications of ellipsometers In addition to its comprehensive discussions of the measurement of film thickness and optical constants in film it also considers the trajectories of the ellipsometric parameters  $\Delta$  and  $\Psi$  and how changes in materials affect parameters This volume also addresses the use of polysilicon a material commonly employed in the microelectronics industry and the effects of substrate roughness Three appendices provide helpful references

**Introduction to Infrared and Electro-Optical Systems, Third Edition** Ronald G. Driggers, Melvin H. Friedman, John W. Devitt, Orge Fuxhi, Anjali Singh, 2022-08-31 This newly revised and updated edition offers a current and complete introduction to the analysis and design of Electro Optical EO imaging systems The Third Edition provides numerous updates and several new chapters including those covering Pilotage Infrared Search and Track and Simplified Target Acquisition Model The principles and components of the Linear Shift Invariant LSI infrared and electro optical systems are detailed in full and help you to combine this approach with calculus and domain transformations to achieve a successful imaging system analysis Ultimately the steps described in this book lead to results in quantitative characterizations of performance metrics such as modulation transfer functions minimum resolvable temperature difference minimum resolvable contrast and probability of object discrimination The book includes an introduction to two dimensional functions and mathematics which can be used to describe image transfer characteristics and imaging system components You also learn diffraction concepts of coherent and incoherent imaging systems which show you the fundamental limits of their performance By using the evaluation procedures contained in this desktop reference you become capable of predicting both sensor test and field performance and quantifying the effects of component variations The book contains over 800 time saving equations and includes numerous analyses and designs throughout It also includes a reference link to special website prepared by the authors that augments the book in the classroom and serves as an additional resource for practicing engineers With its comprehensive coverage and practical approach this is a strong resource for engineers needing a bench reference for sensor and basic scenario performance calculations Numerous analyses and designs are given throughout the text It is also an excellent text for upper level students with an interest in electronic imaging systems

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## **Table of Contents Fundamentals Of Optics 3ed**

1. Understanding the eBook Fundamentals Of Optics 3ed
  - The Rise of Digital Reading Fundamentals Of Optics 3ed
  - Advantages of eBooks Over Traditional Books
2. Identifying Fundamentals Of Optics 3ed
  - Exploring Different Genres
  - Considering Fiction vs. Non-Fiction
  - Determining Your Reading Goals
3. Choosing the Right eBook Platform
  - Popular eBook Platforms
  - Features to Look for in an Fundamentals Of Optics 3ed
  - User-Friendly Interface
4. Exploring eBook Recommendations from Fundamentals Of Optics 3ed
  - Personalized Recommendations
  - Fundamentals Of Optics 3ed User Reviews and Ratings
  - Fundamentals Of Optics 3ed and Bestseller Lists
5. Accessing Fundamentals Of Optics 3ed Free and Paid eBooks
  - Fundamentals Of Optics 3ed Public Domain eBooks
  - Fundamentals Of Optics 3ed eBook Subscription Services
  - Fundamentals Of Optics 3ed Budget-Friendly Options
6. Navigating Fundamentals Of Optics 3ed eBook Formats



- ePub, PDF, MOBI, and More
  - Fundamentals Of Optics 3ed Compatibility with Devices
  - Fundamentals Of Optics 3ed Enhanced eBook Features
7. Enhancing Your Reading Experience
    - Adjustable Fonts and Text Sizes of Fundamentals Of Optics 3ed
    - Highlighting and Note-Taking Fundamentals Of Optics 3ed
    - Interactive Elements Fundamentals Of Optics 3ed
  8. Staying Engaged with Fundamentals Of Optics 3ed
    - Joining Online Reading Communities
    - Participating in Virtual Book Clubs
    - Following Authors and Publishers Fundamentals Of Optics 3ed
  9. Balancing eBooks and Physical Books Fundamentals Of Optics 3ed
    - Benefits of a Digital Library
    - Creating a Diverse Reading Collection Fundamentals Of Optics 3ed
  10. Overcoming Reading Challenges
    - Dealing with Digital Eye Strain
    - Minimizing Distractions
    - Managing Screen Time
  11. Cultivating a Reading Routine Fundamentals Of Optics 3ed
    - Setting Reading Goals Fundamentals Of Optics 3ed
    - Carving Out Dedicated Reading Time
  12. Sourcing Reliable Information of Fundamentals Of Optics 3ed
    - Fact-Checking eBook Content of Fundamentals Of Optics 3ed
    - Distinguishing Credible Sources
  13. Promoting Lifelong Learning
    - Utilizing eBooks for Skill Development
    - Exploring Educational eBooks
  14. Embracing eBook Trends
    - Integration of Multimedia Elements
    - Interactive and Gamified eBooks

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