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Lens Design Fundamentals-Rudolf Kingslake 2012-12-02 A large part of this book is devoted to a study of possible design procedures for various types of lens or mirror systems, with fully worked examples of each. The reader is urged to follow the logic of these examples and be sure that he understands what is happening, noticing particularly how each available degree of freedom is used to control one aberration. Not every type of lens has been considered, of course, but the design techniques illustrated here can readily be applied to the design of other more complex systems. It is assumed that the reader has access to a small computer to help with the ray tracing, otherwise he may find the computations so time-consuming that he is liable to lose track of what he is trying to accomplish.
Lens Design Fundamentals-Rudolf Kingslake 2009-11-20 Thoroughly revised and expanded to reflect the substantial changes in the field since its publication in 1978 Strong emphasis on how to effectively use software design packages, indispensable to today’s lens designer Many new lens design problems and examples – ranging from simple lenses to complex zoom lenses and mirror systems – give insight for both the newcomer and specialist in the field Rudolf Kingslake is regarded as the American father of lens design; his book, not revised since its publication in 1978, is viewed as a classic in the field. Naturally, the area has developed considerably since the book was published, the most obvious changes being the availability of powerful lens design software packages, theoretical advances, and new surface fabrication technologies. This book provides the skills and knowledge to move into the exciting world of contemporary lens design and develop practical lenses needed for the great variety of 21st-century applications. Continuing to focus on fundamental methods and procedures of lens design, this revision by R. Barry Johnson of a classic modernizes symbology and nomenclature, improves conceptual clarity, broadens the study of aberrations, enhances discussion of multi-mirror systems, adds tilted and decentered systems with eccentric pupils, explores use of aberrations in the optimization process, enlarges field flattener concepts, expands discussion of image analysis, includes many new exemplary examples to illustrate concepts, and much more. Optical engineers working in lens design will find this book an invaluable guide to lens design in traditional and emerging areas of application; it is also suited to advanced undergraduate or graduate course in lens design principles and as a self-learning tutorial and reference for the practitioner. Rudolf Kingslake (1903-2003) was a founding faculty member of the Institute of Optics at The University of Rochester (1929) and remained teaching until 1983. Concurrently, in 1937 he became head of the lens design department at Eastman Kodak until his retirement in 1969. Dr. Kingslake published numerous papers, books, and was awarded many patents. He was a Fellow of SPIE and OSA, and an OSA President (1947-48). He was awarded the Progress Medal from SMPTE (1978), the Frederic Ives Medal (1973), and the Gold Medal of SPIE (1980). R. Barry Johnson has been involved for over 40 years in lens design, optical systems design, and electro-optical systems engineering. He has been a faculty member at three academic institutions engaged in optics education and research, co-founder of the Center for Applied Optics at the University of Alabama in Huntsville, employed by a number of companies, and provided consulting services. Dr. Johnson is an SPIE Fellow and Life Member, OSA Fellow, and an SPIE President (1987). He published numerous papers and has been awarded many patents. Dr. Johnson was founder and Chairman of the SPIE Lens Design Working Group (1988-2002), is an active Program Committee member of the International Optical Design Conference, and perennial co-chair of the annual SPIE Current Developments in Lens Design and Optical Engineering Conference. Thoroughly revised and expanded to reflect the substantial changes in the field since its publication in 1978 Strong emphasis on how to effectively use software design packages, indispensable to today’s lens designer Many new lens design problems and examples – ranging from simple lenses to complex zoom lenses and mirror systems – give insight for both the newcomer and specialist in the field
Lens Design Fundamentals, 2nd Edition-Rudolf Kingslake 2009 Thoroughly revised and expanded to reflect the substantial changes in the field since its publication in 1978 Strong emphasis on how to effectively use software design packages, indispensable to today's lens designer Many new lens design problems and examples - ranging from simple lenses to complex zoom lenses and mirror systems - give insight for both the newcomer and specialist in the field Rudolf Kingslake is regarded as the American father of lens design; his book, not revised since its publication in 1978, is viewed as a classic in the field. Naturally, the area has developed considerably since the book was published, the most obvious changes being the availability of powerful lens design software packages, theoretical advances, and new surface fabrication technologies. This book provides the skills and knowledge to move into the exciting world of contemporary lens design and develop practical lenses needed for the great variety of 21st-century applications. Continuing to focus on fundamental methods and procedures of lens design, this revision by R. Barry Johnson of a classic modernizes symbology and nomenclature, improves conceptual clarity, broadens the study of aberrations, enhances discussion of multi-mirror systems, adds tilted and decentered systems with eccentric pupils, explores use of aberrations in the optimization process, enlarges field flattener concepts, expands discussion of image analysis, includes many new exemplary examples to illustrate concepts, and much more. Optical engineers working in lens design will find this book an invaluable guide to lens design in traditional and emerging areas of application; it is also suited to advanced undergraduate or graduate course in lens design principles and as a self-learning tutorial and reference for the practitioner. Rudolf Kingslake (1903-2003) was a founding faculty member of the Institute of Optics at The University of Rochester (1929) and remained teaching until 1983. Concurrently, in 1937 he became head of the lens design department at Eastman Kodak until his retirement in 1969. Dr. Kingslake published numerous papers, books, and was awarded many patents. He was a Fellow of SPIE and OSA, and an OSA President (1947-48). He was awarded the Progress Medal from SMPTE (1978), the Frederic Ives Medal (1973), and the Gold Medal of SPIE (1980). R. Barry Johnson has been involved for over 40 years in lens design, optical systems design, and electro-optical systems engineering. He h...
Optical Design Fundamentals for Infrared Systems-Max J. Riedl 2001 The practical, popular 1995 tutorial has been thoroughly revised and updated, reflecting developments in technology and applications during the past decade. New chapters address wave aberrations, thermal effects, design examples, and diamond turning.
Lens Design Fundamentals, Second Edition-Rudolf Kingslake 2010
Interior Design Fundamentals-Steven B. Webber 2019-10-17 "The book's greatest strength is approaching the subject through the lens of design thinking. There is a need to emphasize design thinking at early foundation levels in interior design." Lee Keen, Louisiana State University, USA Learn the basics of interior design, design thinking, and the design process. Envision yourself in the role of professional designer as you learn about design phases, spatial well-being, color theory, professional practice, finishes, furnishings, lighting, environmental systems, and more. Case studies, review questions, and exercises in every chapter will help you see how the topics will affect your career. PLEASE NOTE: Purchasing or renting this ISBN does not include access to the STUDIO resources that accompany this text. To receive free access to the STUDIO content with new copies of this book, please refer to the book + STUDIO access card bundle ISBN 9781501327087.
Optical System Design-Rudolf Kingslake 2012-12-02 Optical System Design covers the basic knowledge of optics and the flow of light through an optical system. This book is organized into 16 chapters that deal with various components of an optical system, from light and images to spectroscopic apparatus. The book first discusses the simple components of an optical system, including its light, lens, oblique beams, and photochemical aspects. It then deals with the system’s projection, plane mirrors, prisms, magnifying instruments, and telescope. Other components considered are the surveying instruments, mirror imaging systems, photographic optics, and spectroscopic apparatus. This book is of value to undergraduate students with courses in geometrical optics and system design.

Field Guide to Lens Design-Julie Bentley 2012-01-01 The process of designing lenses is both an art and a science. While advancements in the field over the past two centuries have done much to transform it from the former category to the latter, much of the lens design process remains encapsulated in the experience and knowledge of industry veterans. This Field Guide provides a working reference for practicing physicists, engineers, and scientists for deciphering the nuances of basic lens design. The book begins with an outline of the general process before delving into aberrations, basic lens design forms, and optimization. An entire section is devoted to techniques for improving lens performance. Sections on tolerancing, stray light, and optical systems are followed by an appendix covering related topics such as optical materials, nonimaging concepts, designing for sampled imaging, and ray tracing fundamentals.
Introduction to Lens Design-José Sasián 2019-09-30 A concise introduction to lens design, including the fundamental theory, concepts, methods and tools used in the field. Covering all the essential concepts and providing suggestions for further reading at the end of each chapter, this book is an essential resource for graduate students working in optics and photonics.
Fundamental Optical Design-Michael J. Kidger 2002 This book provides all the essential and best elements of Kidger's many courses taught worldwide on lens and optical design. It is written in a direct style that is compact, logical, and to the point--a tutorial in the best sense of the word. "I read my copy late last year and read it straight through, cover to cover. In fact, I read it no less than three times. Its elegant expositions, valuable insights, and up-front espousal of pre-design theory make it an outstanding work. It's in the same league with Conrady and Kingslake." Warren Smith.
Lens Design-Donald Dilworth 2018-07-31
Optical Engineering Fundamentals-Bruce H. Walker 1998 This text aims to expose students to the science of optics and optical engineering without the complications of advanced physics and mathematical theory.
Spectrograph Design Fundamentals-John James 2007-02-08 This book was first published in 2007, a time of enormous change in the field of optical spectrometry. Although the basic optical principles remained unchanged, the design considerations were very different and, in many cases, more demanding. Developments in computer ray-tracing and computer-aided design coped with the extra impositions and allowed the construction of a new generation of spectrographs. The book covers the general principles of spectrographic design at the time, and the practical and engineering aspects of a broad range of spectrographs and spectrometers. The book deals with materials and methods of construction and includes suggestions for the choice of optical table, the design of slit mechanisms, and adjustable mirror, grating and lens mounts, with suggestions for the alignment and calibration of the finished instrument.
Intermediate Optical Design-Michael J. Kidger 2004 This second volume based on Michael Kidger's popular short courses and workshops is aimed at readers already familiar with the concepts presented in Fundamental Optical Design (SPIE Press Vol. PM92). It begins with a sweeping discussion of optimization that is written with the user in mind and continues with a unique look at the role of higher-order aberrations. The book's key feature is its astounding presentation of a wide range of practical design examples, covering such problems as secondary spectrum correction, high numerical aperture designs, lasers, zoom lenses, tilted or decentered optical systems, and price and performance requirements. Each scenario is accompanied by an in-depth discussion that goes well beyond the ray aberration plot, including useful insights into an optical designer's thought processes
A Course in Lens Design-Chris Velzel 2014-03-28 A Course in Lens Design is an instruction in the design of image-forming optical systems. It teaches how a satisfactory design can be obtained in a straightforward way. Theory is limited to a minimum, and used to support the practical design work. The book introduces geometrical optics, optical instruments and aberrations. It gives a description of the process of lens design and of the strategies used in this process. Half of its content is devoted to the design of sixteen types of lenses, described in detail from beginning to end. This book is different from most other books on lens design because it stresses the importance of the initial phases of the design process: (paraxial) lay-out and (thin-lens) pre-design. The argument for this change of accent is that in these phases much information can be obtained about the properties of the lens to be designed. This information can be used in later phases of the design. This makes A Course in Lens Design a useful self-study book and a suitable basis for an introductory course in lens design. The mathematics mainly used is college algebra, in a few sections calculus is applied. The book could be used by students of engineering and technical physics and by engineers and scientists.
The Art and Science of Optical Design-Robert R. Shannon 1997-06-13 The Art and Science of Optical Design is a comprehensive introduction to lens design, covering the fundamental physical principles and key engineering issues. Several practical examples of modern computer-aided lens design are worked out in detail from start to finish. The basic theory and results of optics are presented early on in the book, along with a discussion of optical materials. Aberrations, and their correction, and image analysis are then covered in great detail. Subsequent chapters deal with design optimisation and tolerance analysis. Several design examples are then given, beginning with basic lens design forms, and progressing to advanced systems, such as gradient index and diffractive optical components. In covering all aspects of optical design, including the use of modern lens design software, this book will be invaluable to students of optical engineering as well as to anyone engaged in optical design at any stage.
A History of the Photographic Lens-Rudolf Kingslake 1989-11-22 The lens is generally the most expensive and least understood part of any camera. In this book, Rudolf Kingslake traces the historical development of the various types of lenses from Daguerre's invention of photography in 1839 through lenses commonly used today. From an early lens still being manufactured for use in low-cost cameras to designs made possible through such innovations as lens coating, rare-earth glasses, and computer aided lens design and testing, the author details each major advance in design and fabrication. The book explains how and why each new lens type was developed, and why most of them have since been abandoned. This authoritative history of lens technology also includes brief biographies of several outstanding lens designers and manufacturers of the past.
The Art of Game Design-Jesse Schell 2014-11-06 Good game design happens when you view your game from as many perspectives as possible. Written by one of the world's top game designers, The Art of Game Design presents 100+ sets of questions, or different lenses, for viewing a game’s design, encompassing diverse fields such as psychology, architecture, music, visual design, film, software engineering, theme park design, mathematics, puzzle design, and anthropology. This Second Edition of a Game Developer Front Line Award winner: Describes the deepest and most fundamental principles of game design Demonstrates how tactics used in board, card, and athletic games also work in top-quality video games Contains valuable insight from Jesse Schell, the former chair of the International Game Developers Association and award-winning designer of Disney online games The Art of Game Design, Second Edition gives readers useful perspectives on how to make better game designs faster. It provides practical instruction on creating world-class games that will be played again and again.
Lens Design-Haiyin Sun 2016-12-19 A Practical Guide to Lens Design focuses on the very detailed practical process of lens design. Every step from setup specifications to finalizing the design for production is discussed in a straight forward, tangible way. Design examples of several widely used modern lenses are provided. Optics basics are introduced and basic functions of Zemax are described. Zemax will be used throughout the book.
Fundamentals and Basic Optical Instruments-Daniel Malacara Hernández 2017-11-22 Fundamentals and Basic Optical Instruments includes thirteen chapters providing an introductory guide to the basics of optical engineering, instrumentation, and design. Topics include basic geometric optics, basic wave optics, and basic photon and quantum optics. Paraxial ray tracing, aberrations and optical design, and prisms and refractive optical components are included. Polarization and polarizing optical devices are covered, as well as optical instruments such as telescopes, microscopes, and spectrometers.
Introduction to Lens Design-Joseph M. Geary 2002-01-01
Handbook of Visual Optics, Volume Two-Pablo Artal 2017-02-24 Handbook of Visual Optics offers an authoritative overview of encyclopedic knowledge in the field of physiological optics. It builds from fundamental concepts to the science and technology of instruments and practical procedures of vision correction, integrating expert knowledge from physics, medicine, biology, psychology, and engineering. The chapters comprehensively cover all aspects of modern study and practice, from optical principles and optics of the eye and retina to novel ophthalmic tools for imaging and visual testing, devices and techniques for visual correction, and the relationship between ocular optics and visual perception.
Optical Design-Max J. Riedl 2009-01-01 This text is written for engineers and scientists who have some experience in the field of optics and want to know more about the details and derivations of equations used in optical design. Organized by topic, the book begins with the fundamental law of geometrical optics, Snell's law of refraction, and states the paraxial ray trace equations, then moves on to thin lenses and increasingly more sophisticated components and multi-element systems. Each topic is covered in depth and provides comprehensive information on performance and limitations. While the text is based on general optical laws, special emphasis has been placed on the two major infrared regions--the mid-wave (MWIR) and the long-wave (LWIR). This is particularly important with regard to diffractive hybrids, which have found their place in these long-wavelength areas for the correction of chromatic aberrations and athermalization. Comments relating to single-point diamond turning have also been included because this process is predominantly used to produce optical elements for the infrared regions.
The Art of Game Design-Jesse Schell 2008-08-04 Anyone can master the fundamentals of game design - no technological expertise is necessary. The Art of Game Design: A Book of Lenses shows that the same basic principles of psychology that work for board games, card games and athletic games also are the keys to making top-quality videogames. Good game design happens when you view your game from many different perspectives, or lenses. While touring

through the unusual territory that is game design, this book gives the reader one hundred of these lenses - one hundred sets of insightful questions to ask yourself that will help make your game better. These lenses are gathered from fields as diverse as psychology, architecture, music, visual design, film, software engineering, theme park design, mathematics, writing, puzzle design, and anthropology. Anyone who reads this book will be inspired to become a better game designer - and will understand how to do it.

OPTICAL SYSTEM DESIGN-Robert Fischer 2000-07-21 This classic resource provides a clear, well-illustrated introduction to the essentials of optical design-from basic principles to cutting-edge design methods.

The Art of Game Design-Jesse Schell 2019-08-20 Presents over 100 sets of questions, or different lenses, for viewing a game’s design. Written by one of the world's top game designers, this book describes the deepest and most fundamental principles of game design, demonstrating how tactics used in board, card, and athletic games also work in video games. It provides practical instruction on creating world-class games that will be played again and again. New to this edition: many great examples from new VR and AR platforms as well as examples from modern games such as Uncharted 4 and The Last of Us, Free to Play games, hybrid games, transformational games, and more.

Modern Optical Engineering-Warren J. Smith 1990 A revised version of a text which was first published in 1966. The book is designed as a general reference book for engineers and assumes a broad knowledge of current optical systems and their design. Additional topics include fibre optics, thin films and CAD systems.

Aspheric Freeform Lens Design-CHAPARRO-ROMO GONZALEZ-ACUNA 2020-04-08 This book presents an in-depth look at lenses free of spherical aberrations and is provided using illustrative examples. Mathematical principles behind lenses free of spherical aberration are included with an introduction to set theory, the conics, continuity, real analysis and topology. Physical principles are covered as well as a step by step guide to mathematical model for deducing the general formula of the stigmatic lens, in order to design a singlet free of spherical aberration. Subsequently, the characteristics of these lenses and the equations that describes them are studied. Finally, several implications of these lenses are studied, such as freeform lenses, optical systems, axicons, telescopes and more. Scenarios with on-axis objects and off-axis objects are considered. Cases where the object is real or virtual, and the image is real or virtual are also presented. The book is a valuable resource for industrial specialists and academics in lens design and optics, and an insightful guide for optical physics students.

Educational Game Design Fundamentals-George Kalmpourtzis 2018-07-11 Can we learn through play? Can we really play while learning? Of course! But how?! We all learn and educate others in our own unique ways. Successful educational games adapt to the particular learning needs of their players and facilitate the learning objectives of their designers. Educational Game Design Fundamentals embarks on a journey to explore the necessary aspects to create games that are both fun and help players learn. This book examines the art of educational game design through various perspectives and presents real examples that will help readers make more informed decisions when creating their own games. In this way, readers can have a better idea of how to prepare for and organize the design of their educational games, as well as evaluate their ideas through several prisms, such as feasibility or learning and intrinsic values. Everybody can become education game designers, no matter what their technical, artistic or pedagogic backgrounds. This book refers to educators and designers of all sorts: from kindergarten to lifelong learning, from corporate training to museum curators and from tabletop or video game designers to theme park creators!

Gradient-Index Optics-C. Gomez-Reino 2012-12-06 This book provides a comprehensive and thorough treatment on fundamentals and applications of light propagation through inhomogeneous media. The authors present a description of the phenomena, components and technology used in GRIN Optics, and analyze various applications.

Lens Design-Milton Laikin 2018-10-03 There is no shortage of lens optimization software on the market to deal with today's complex optical systems for all sorts of custom and standardized applications. But all of these software packages share one critical flaw: you still have to design a starting solution. Continuing the bestselling tradition of the author's previous books, Lens Design, Fourth Edition is still the most complete and reliable guide for detailed design information and procedures for a wide range of optical systems. Milton Laikin draws on his varied and extensive experience, ranging from innovative cinematographic and special-effects optical systems to infrared and underwater lens systems, to cover a vast range of special-purpose optical systems and their detailed design and analysis. This edition has been updated to replace obsolete glass types and now includes several new designs and sections on stabilized systems, the human eye, spectrographic systems, and diffractive systems. A new CD-ROM accompanies this edition, offering extensive lens prescription data and executable ZEMAX files corresponding to figures in the text. Filled with sage advice and completely illustrated, Lens Design, Fourth Edition supplies hands-on guidance for the initial design and final optimization for a plethora of commercial, consumer, and specialized optical systems.

Blackbody Radiation-Sean M. Stewart 2016-09-19 Shelving Guide: Electrical Engineering In 1900 the great German theoretical physicist Max Planck formulated a correct mathematical description of blackbody radiation. Today, understanding the behavior of a blackbody is of importance to many fields including thermal and infrared systems engineering, pyrometry, astronomy, meteorology, and illumination. This book gives an account of the development of Planck’s equation together with many of the other functions closely related to it. Particular attention is paid to the computational aspects employed in the evaluation of these functions together with the various aids developed to facilitate such calculations. The book is divided into three sections. Section I – Thermal radiation and the blackbody problem are introduced and discussed. Early developments made by experimentalists and theoreticians are examined as they strove to understand the problem of the blackbody. Section II – The development of Planck’s equation is explained as are the all-important fractional functions of the first and second kinds which result when Planck’s equation is integrated between finite limits. A number of theoretical developments are discussed that stem directly from Planck’s law, as are the various computational matters that arise when numerical evaluation is required. Basic elements of radiometry that tie together and use many of the theoretical and computational ideas developed is also presented. Section III – A comprehensive account of the various computational aids such as tables, nomograms, graphs, and radiation slide rules devised and used by generations of scientists and engineers when working with blackbody radiation are presented as are more recent aids utilizing computers and digital devices for real-time computations. Scientists and engineers working in fields utilizing blackbody sources will find this book to be a valuable guide in understanding many of the computational aspects and nuances associated with Planck’s equation and its other closely related functions. With over 700 references, it provides an excellent research resource.

Fundamentals of Light Microscopy and Electronic Imaging-Douglas B. Murphy 2012-08-22 Fundamentals of Light Microscopy and Electronic Imaging, Second Edition provides a coherent introduction to the principles and applications of the integrated optical microscope system, covering both theoretical and practical considerations. It expands and updates discussions of multi-spectral imaging, intensified digital cameras, signal colocalization, and uses of objectives, and offers guidance in the selection of microscopes and electronic cameras, as well as appropriate auxiliary optical systems and fluorescent tags. The book is divided into three sections covering optical principles in diffraction and image formation, basic modes of light microscopy, and components of modern electronic imaging systems and image processing operations. Each chapter introduces relevant theory, followed by descriptions of instrument alignment and image interpretation. This revision includes new chapters on live cell imaging, measurement of protein dynamics, deconvolution microscopy, and interference microscopy. PowerPoint slides of the figures as well as other supplementary materials for instructors are available at a companion website: www.wiley.com/go/murphy/lightmicroscopy

The Diary of a Nobody-George Grossmith 2018-07-24 The Diary of a Nobody is an English comic novel that records the daily events in the lives of a London clerk, Charles Pooter, his wife Carrie, his son Lupin, and numerous friends and acquaintances over a period of 15 months.

High Performance Silicon Imaging-Daniel Durini 2019-10-19 High Performance Silicon Imaging: Fundamentals and Applications of CMOS and CCD Sensors, Second Edition, covers the fundamentals of silicon image sensors, addressing existing performance issues and current and emerging solutions. Silicon imaging is a fast growing area of the semiconductor industry. Its use in cell phone cameras is already well established, with emerging applications including web, security, automotive and digital cinema cameras. The book has been revised to reflect the latest state-of-the art developments in the field, including 3D imaging, advances in achieving lower signal noise, and new applications for consumer markets. The fundamentals section has also been expanded to include a chapter on the characterization and testing of CMOS and CCD sensors that is crucial to the success of new applications. This book is an excellent resource for both academics and engineers working in the optics, photonics, semiconductor and electronics industries. Covers the fundamentals of silicon-based image sensors and technical advances, focusing on performance issues Looks at image sensors in applications, such as mobile phones, scientific imaging, and TV broadcasting, and in automotive, consumer and biomedical applications Addresses the theory behind 3D imaging and 3D sensor development, including challenges and opportunities

Optical Design for Biomedical Imaging-Rongguang Liang 2010-01-01 Designing an efficient imaging system for biomedical optics requires a solid understanding of the special requirements of the optical systems for biomedical imaging and the optical components used in the systems. However, a lack of reference books on optical design (imaging and illumination) for biomedical imaging has led to some inefficient systems. This book fills the gap between biomedical optics and optical design by addressing the fundamentals of biomedical optics and optical engineering, and biomedical imaging systems. The first half provides a brief introduction to biomedical optics and then covers the fundamentals

of optics, optical components, light sources, detectors, optical imaging system design, and illumination system design. This also includes important issues related to biomedical imaging, such as autofluorescence from optical materials. The second half of the text covers various biomedical imaging techniques and their optical systems, along with design examples.
Modern Lens Design-Warren Smith 2004-10-22 Unlike the first edition, which was more a collection of lens designs for use in larger projects, the 2nd edition of Modern Lens Design is an optical “how-to.” Delving deep into the mechanics of lens design, optics legend Warren J. Smith reveals time-tested methods for designing top-quality lenses. He deals with lens design software, primarily OSLO, by far the current market leaders, and provides 7 comprehensive worked examples, all new to this edition. With this book in hand, there’s no lens an optical engineer can’t design.
Handbook of Optical Design-Daniel Malacara-Hernández 2003-09-21 Infused with more than 500 tables and figures, this reference clearly illustrates the intricacies of optical system design and evaluation and considers key aspects of component selection, optimization, and integration for the development of effective optical apparatus. The book provides a much-needed update on the vanguard in the field with vivid e
Eon's Door-J. G. McKenney 2011 ***A Reader Views Award winner and Eric Hoffer Award finalist*** The Dark Forest is moving and a horde of bloodthirsty monsters is on the hunt. For the peaceful denizens of Erla, time is running out. Two thousand years have passed since the three clans fled the world of humans through Eon's Door to find sanctuary in a realm called Erla, and now a prophecy left to them by the ancient race that created the tree portal is coming true. A trusted sage has stolen the portal's key and is using the awesome power that separated the worlds to tear apart the very soul of Nature. The key must be taken back and Eon's Door closed--before it's too late. Hope lies with a "child of doubt" from the world the clans left behind and the courageous young Erlan who's been sent to find him. Together they must retrieve the key and close Eon's Door. It won't be easy. Abominations of beasts and trees stand between them and their goal. Even worse, the sage knows the prophecy and is expecting them. "Avatar meets The Lord of the Rings." "A captivating storyline with a lovely surprise at the end...beautiful imagery, and a great read." Sift Book Reviews
Handbook of Optical Systems, Volume 1-Herbert Gross 2005-03-11 The state-of-the-art full-colored handbook gives a comprehensive introduction to the principles and the practice of calculation, layout, and understanding of optical systems and lens design. Written by reputed industrial experts in the field, this text introduces the user to the basic properties of optical systems, aberration theory, classification and characterization of systems, advanced simulation models, measuring of system quality and manufacturing issues. In this Volume Volume 1 gives a general introduction to the field of technical optics. Although part of the series, it acts as a fully selfstanding book. With more than 700 full color graphs and it is a intuitive introduction for the beginner and a comprehensive reference for the professional. Table of Contents 1 Introduction 2 Paraxial optics 3 Dielectric interfaces 4 Materials 5 Raytracing 6 Photometry 7 Lightsources 8 Sensors and receivers 9 Theory of color 10 Optical systems 11 Aberrations 12 Waveoptics 13 Plates and prisms 14 Gratings 15 Special components 16 Testing Other Volumes Volume 2: Physical Image Formation Volume 3: Aberration Theory and Correction of Optical Systems Volume 4: Survey of Optical Instruments Volume 5: Advanced Physical Optics

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