Zemax Diode Collimator

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Handbook of Distributed Feedback Laser Diodes, Second Edition - Geert Morthier 2013-09-01
Since the first edition of this book was published in 1997, the photonics landscape has evolved considerably and so has the role of distributed feedback (DFB) laser diodes. Although tunable laser diodes continue to be introduced in advanced optical communication systems, DFB laser diodes are still widely applied in many deployed systems. This also includes wavelength tunable DFB laser diodes and DFB laser diode arrays, usually integrated with intensity or phase modulators and semiconductor optical amplifiers. This valuable resource gives professionals a comprehensive description of the different effects that determine the behavior of a DFB laser diode. Special attention is given to two new chapters on wavelength tunable DFB laser diodes and bistable and unstable DFB laser diodes. Among many other updates throughout the reference, semi-conductor and electromagnetic professionals are also provided two new appendices. This book fully covers the underlying theory, commercial applications, necessary design criteria, and future direction of this technology.
Double-Prism Multi-mode Scanning: Principles and Technology - Anhu Li 2018-11-19
This book introduces double-prism multi-mode scanning theory and technology, focusing on double Risley-prism, multi-mode scanning models, methods and key techniques applied in multi-mode optical scanning and target tracking fields. It is first book to systematically and comprehensively describe basic multi-mode scanning theory and practical implementation techniques utilizing double Risley prisms. It includes rigorous modeling of double Risley-prism multi-mode scanning systems and high-efficiency solution algorithms for inverse problems with abundant illustrative examples and scanning error analyses, along with design guidance and performance test on specific scanning devices. Further, it presents the latest research results for forward scanning models and inverse tracking algorithms, sub-microradian fine scanning modeling with tilting double Risley prisms, nonlinear control strategy for double prism motion, calibration and experiment techniques for various double-prism layouts, as well as opto-mechanical system design and analysis. Featuring rigorous theoretical derivations illustrated with corresponding examples and original scanning apparatus, the book is a valuable reference resource for those developing and applying multi-mode scanning techniques in photoelectric scanning and tracking areas.
High Power Diode Lasers - Friedrich Bachmann 2007-05-26
This book summarizes a five year research project, as well as subsequent results regarding high power diode laser systems and their application in materials processing. The text explores the entire chain of technology, from the semiconductor technology, through cooling mounting and assembly, beam shaping and system technology, to applications in the processing of such materials as metals and polymers. Includes theoretical models, a range of important parameters and practical tips.
Basic Optical Engineering for Engineers and Scientists - Haiyin Sun 2018

Exploring the World with the Laser - Dieter Meschede 2018-01-02
This edition contains carefully selected contributions by leading scientists in high-resolution laser spectroscopy, quantum optics and laser physics. Emphasis is given to ultrafast laser phenomena, implementations of frequency combs, precision spectroscopy and high resolution metrology. Furthermore, applications of the fundamentals of quantum mechanics are widely covered. This book is dedicated to Nobel prize winner Theodor W. Hänsch on the occasion of his 75th birthday. The contributions are reprinted from a topical collection published in Applied Physics B, 2016. Selected contributions are available open access under a CC BY 4.0 license via link.springer.com. Please see the copyright page for further details.
Lasers & Optronics - 1995

Laser Beam Shaping - Fred M. Dickey 2018-09-03
Laser Beam Shaping: Theory and Techniques addresses the theory and practice of every important technique for lossless beam shaping. Complete with experimental results as well as guidance on when beam shaping is practical and when each technique is appropriate, the Second Edition is updated to reflect significant developments in the field. This authoritative text: Features new chapters on axicon light ring generation systems, laser-beam-splitting (fan-out) gratings, vortex beams, and microlens diffusers Describes the latest advances in beam profile measurement technology and laser beam shaping using diffractive diffusers Contains new material on wavelength dependence, channel integrators, geometrical optics, and optical software Laser Beam Shaping: Theory and Techniques, Second Edition not only provides a working understanding of the fundamentals, but also offers insight into the potential application of laser-beam-profile shaping in laser system design.
Light-emitting Diodes - 2002

DN to [lambda] - James R. Janesick 2007
Contains more than 230 figures that present experimental CCD and CMOS data products and modeling simulations connected to photon transfer. This title also provides hundreds of relations that support photon transfer theory, simulations, and data.
Microrobotics and Microsystem Fabrication - Armin Sulzmann 1998

Wavefront Shaping for Biomedical Imaging - Joel Kubby 2019-05-31
Learn about the theory, techniques and applications of wavefront shaping in biomedical imaging using this unique text. With authoritative contributions from researchers who are defining the field, cutting-edge theory is combined with real-world practical examples, experimental data and the latest research trends to provide the first book-level treatment of the subject. It is suitable for both background reading and use in a course, with coverage of essential topics such as adaptive optical microscopy, deep tissue microscopy, time reversal and optical phase conjugation, and tomography. The latest images from the forefront of biomedical imaging are included, and full-colour versions are available in the eBook version. Researchers, practitioners and graduate students in optics, biophotonics, biomedical engineering, and biology who use biomedical imaging tools and are looking to advance their knowledge of the subject will find this an indispensable resource.
Optical Modeling and Performance Predictions - Mark A. Kahan 2004
Proceedings of SPIE present the original research papers presented at SPIE conferences and other high-quality conferences in the broad-ranging fields of optics and photonics. These books provide prompt access to the latest innovations in research and technology in their respective fields. Proceedings of SPIE are among the most cited references in patent literature.
Laser Beam Shaping Applications - Fred M. Dickey 2017-02-24

This new edition details the important features of beam shaping and exposes the subtleties of the theory and techniques that are best demonstrated through proven applications. New chapters cover illumination light shaping in optical lithography; optical micro-manipulation of live mammalian cells through trapping, sorting, and transfection; and laser beam shaping through fiber optic beam delivery. The book discusses applications in lithography, laser printing, optical data storage, stable isotope separation, and spatially dispersive lasers. It also provides a history of the field and includes extensive references.

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.

Recent Advances in Computer Science and Information Engineering - Zhihong Qian 2012-02-04

CSIE 2011 is an international scientific Congress for distinguished scholars engaged in scientific, engineering and technological research, dedicated to build a platform for exploring and discussing the future of Computer Science and Information Engineering with existing and potential application scenarios. The congress has been held twice, in Los Angeles, USA for the first and in Changchun, China for the second time, each of which attracted a large number of researchers from all over the world. The congress turns out to develop a spirit of cooperation that leads to new friendship for addressing a wide variety of ongoing problems in this vibrant area of technology and fostering more collaboration over the world. The congress, CSIE 2011, received 2483 full paper and abstract submissions from 27 countries and regions over the world. Through a rigorous peer review process, all submissions were refereed based on their quality of content, level of innovation, significance, originality and legibility. 688 papers have been accepted for the international congress proceedings ultimately.

Adaptive Optics for Industry and Medicine - Christopher Dainty 2008

This proceedings volume presents the very latest developments in non-astronomical adaptive optics. This international workshop, the sixth in a biennial series, was the largest ever held and boasted significant involvement by industry. Adaptive optics is on the verge of being used in many products; indeed, at this meeting, the use of adaptive optics in DVD players was disclosed for the first time. Sample Chapter(s). Liquid Crystal Lenses For Correction Of Presbyopia (586 KB). Contents: Wavefront Correctors and Control: Liquid Crystal Lenses for Correction of Presbyopia (G Li & N Peyghambarian); Woofer-Tweeter Adaptive Optics (T Farrell & C Dainty); Wavefront Sensors: A Fundamental Limit for Wavefront Sensing (C Paterson); Direct Diffractive Image Simulation (A P Maryasov et al.); Adaptive Optics in Vision Science: A Study of Field Aberrations in the Human Eye (A V Goncharov et al.); Characterization of an AO-OCT System (J W Evans et al.); Adaptive Optics in Optical Storage and Microscopy: Commercialization of the Adaptive Scanning Optical Microscope (ASOM) (B Potsaid et al.); Towards Four Dimensional Particle Tracking for Biological Applications (H I Campbell et al.); Adaptive Optics in Lasers: New Results in High Power Lasers Beam Correction (A Kudryashov et al.); Adaptive Optics Control of Solid-State Lasers (W Lubeigt et al.); Adaptive Optics in Communication and Atmospheric Compensation: Fourier Image Sharpness Sensor for Laser Communications (K N Walker & R K Tyson); Adaptive Optics System for a Small Telescope (G Vdovin et al.); and other papers. Readership: Industry- and university-level researchers in optics and laser physics.

Optical Architectures for Augmented-, Virtual-, and Mixed-reality Headsets - Bernard C. Kress 2020

"This book is a timely review of the various optical architectures, display technologies, and building blocks for modern consumer, enterprise, and defense head-mounted displays for various applications, including smart glasses, smart eyewear, and virtual-reality, augmented-reality, and mixed-reality headsets. Special attention is paid to the facets of the human perception system and the need for a human-centric optical design process that allows for the most comfortable headset that does not compromise the user's experience. Major challenges--from wearability and visual comfort to sensory and display immersion--must be overcome to meet market analyst expectations, and the book reviews the most appropriate optical technologies to address such challenges, as well as the latest product implementations"--

Testing, Packaging, and Reliability of Semiconductor Lasers V - Society of Photo-optical Instrumentation Engineers 2000

High-Power Diode Lasers - Roland Diehl 2003-07-01

Starting from the basics of semiconductor lasers with emphasis on the generation of high optical output power the reader is introduced in a tutorial way to all key technologies required to fabricate high-power diode-laser sources. Various applications are exemplified.

Introduction to Lens Design - Joseph M. Geary 2002-01-01

The Microflow Cytometer - Frances S. Ligler 2010-05-31

"Great book! Excellent compilation. From history of the very early days of flow cytometers to the latest unique unconventional microflow cytometers. From commercialization philosophy to cutting edge engineering designs. From fluid mechanics to optics to electronic circuit considerations. Well balanced and comprehensive."--Shuichi Takayama University of Michigan, USA.

Handbook of Optoelectronic Device Modeling and Simulation - Joachim Piprek 2017-10-12

Optoelectronic devices are now ubiquitous in our daily lives, from light emitting diodes (LEDs) in many household appliances to solar cells for energy. This handbook shows how we can probe the underlying and highly complex physical processes using modern mathematical models and numerical simulation for optoelectronic device design, analysis, and performance optimization. It reflects the wide availability of powerful computers and advanced commercial software, which have opened the door for non-specialists to perform sophisticated modeling and simulation tasks. The chapters comprise the know-how of more than a hundred experts from all over the world. The handbook is an ideal starting point for beginners but also gives experienced researchers the opportunity to renew and broaden their knowledge in this expanding field.

Plasmonics in Biology and Medicine - 2005

Summaries of Papers Presented at the Optical Fiber Communication Conference ... - 2005

A Practical Guide to Handling Laser Diode Beams - Haiyin Sun 2015-03-19

This book offers the reader a practical guide to the control and characterization of laser diode beams. Laser diodes are the most widely used lasers, accounting for 50% of the global laser market. Correct handling of laser diode beams is the key to the successful use of laser diodes, and this requires an in-depth understanding of their unique properties. Following a short introduction to the working principles of laser diodes, the book describes the basics of laser diode beams and beam propagation, including Zemax modeling of a Gaussian beam propagating through a lens. The core of the book is concerned with laser diode beam manipulations: collimating and focusing, circularization and astigmatism correction, coupling into a single mode optical fiber, diffractive optics and beam shaping, and manipulation of multi transverse mode beams. The final chapter of the book covers beam characterization methods, describing the measurement of spatial and spectral properties, including wavelength and linewidth measurement techniques. The book is a significantly revised and expanded version of the title Laser Diode Beam Basics, Manipulations and Characterizations by the same author. New topics introduced in this volume include: laser diode types and working principles, non-paraxial Gaussian beam, Zemax modeling, numerical analysis of a laser diode beam, spectral property characterization methods, and power and energy characterization techniques. The book approaches the subject in a practical way with mathematical content kept to the

minimum level required, making the book a convenient reference for laser diode users.
Packaging of High Power Semiconductor Lasers - Xingsheng Liu 2014-07-14
This book introduces high power semiconductor laser packaging design. The challenges of the design and various packaging and testing techniques are detailed by the authors. New technologies and current applications are described in detail.
Space Telescopes and Instrumentation I - 2006

Optical Engineering - 2005-04
Publishes papers reporting on research and development in optical science and engineering and the practical applications of known optical science, engineering, and technology.
Laser Beam Shaping - Society of Photo-optical Instrumentation Engineers 2000
...ideal for optical engineers, scientists and students who have a need to apply laser beam shaping techniques, to improve laser processes including researchers doing research in designing, procuring, or assessing the need for beam shaping with respect to a given application.-Chemical Business, 2001 This text provides all the basic information needed to research, develop, and design beam shaping systems. It includes sections on diffraction theory, geometrical optics, shaping element design, beam profile measurement technology with applications and techniques for lossless beam shaping.
Illumination and Source Engineering - Angelo V. Arecchi 1998

Laser Diode Beam Basics, Manipulations and Characterizations - Haiyin Sun 2012-06-16
Many optical design technical books are available for many years which mainly deal with image optics design based on geometric optics and using sequential raytracing technique. Some books slightly touched laser beam manipulation optics design. On the other hand many books on laser diodes have been published that extensively deal with laser diode physics with little touching on laser diode beam manipulations and characterizations. There are some internet resources dealing with laser diode beams. However, these internet resources have not covered enough materials with enough details on laser diode beam manipulations and characterizations. A technical book concentrated on laser diode beam manipulations and characterizations can fit in to the open and provide useful information to laser diode users. Laser Diode Beam Basics, Manipulations and Characterizations is concentrated on the very practical side of the subject, it only discusses the basic physics and mathematics that are necessary for the readers in order to understand the subject. This book is intended to provide a practical guidance and reference to those scientists and engineers who are still new to laser diode applications, and to those undergraduate and graduate students who are studying lasers and optics. Readers are expected to be able to fast and easily find the most practical and useful information about laser diodes in this book without the need of searching through a sea of information.
6th International Symposium of Space Optical Instruments and Applications - H. Paul Urbach 2021-02-22
This proceedings volume contains selected and expanded contributions presented at the 6th International Symposium of Space Optical Instruments and Applications, held in Delft, the Netherlands on Sep 24th–25th, 2019. The meeting was organized by the Sino-Holland Space Optical Instruments Joint Laboratory and supported by TU Delft. The symposium focused on key innovations of space-based optical instruments and applications, and the newest developments in theory, technology and applications in optics, in both China and Europe. It thus provided a platform for exchanges on the latest research and current and planned optical missions. The major topics covered in these conference proceedings are: space optical remote sensing system design; advanced optical system design and manufacturing; remote sensor calibration and measurement; remote sensing data processing and information retrieval; and remote sensing data applications.
Laser Focus World - 2005
"Global electro-optic technology and markets." "Photonics technologies & solutions for technical professionals worldwide."
Optical Coherence Tomography and Its Non-medical Applications - Michael Wang 2020-05-27
Optical coherence tomography (OCT) is a promising non-invasive non-contact 3D imaging technique that can be used to evaluate and inspect material surfaces, multilayer polymer films, fiber coils, and coatings. OCT can be used for the examination of cultural heritage objects and 3D imaging of microstructures. With subsurface 3D fingerprint imaging capability, OCT could be a valuable tool for enhancing security in biometric applications. OCT can also be used for the evaluation of fastener flushness for improving aerodynamic performance of high-speed aircraft. More and more OCT non-medical applications are emerging. In this book, we present some recent advancements in OCT technology and non-medical applications.
Advances in Optical Data Storage Technology - Duanyi Xu 2005
Proceedings of SPIE present the original research papers presented at SPIE conferences and other high-quality conferences in the broad-ranging fields of optics and photonics. These books provide prompt access to the latest innovations in research and technology in their respective fields. Proceedings of SPIE are among the most cited references in patent literature.
Diode Laser Arrays - Dan Botez 2005-11-24
This book provides a comprehensive overview of the fundamental principles and applications of semiconductor diode laser arrays. All of the major types of arrays are discussed in detail, including coherent, incoherent, edge- and surface-emitting, horizontal- and vertical-cavity, individually addressed, lattice- matched and strained-layer systems. The initial chapters cover such topics as lasers, amplifiers, external-cavity control, theoretical modeling, and operational dynamics. Spatially incoherent arrays are then described in detail, and the uses of vertical-cavity surface emitter and edge-emitting arrays in parallel optical-signal processing and multi-channel optical recording are discussed. Researchers and graduate students in solid state physics and electrical engineering studying the properties and applications of such arrays will find this book invaluable.
A Practical Guide to Handling Laser Diode Beams - Haiyin Sun 2015-02-20
This book offers the reader a practical guide to the control and characterization of laser diode beams. Laser diodes are the most widely used lasers, accounting for 50% of the global laser market. Correct handling of laser diode beams is the key to the successful use of laser diodes, and this requires an in-depth understanding of their unique properties. Following a short introduction to the working principles of laser diodes, the book describes the basics of laser diode beams and beam propagation, including Zemax modeling of a Gaussian beam propagating through a lens. The core of the book is concerned with laser diode beam manipulations: collimating and focusing, circularization and astigmatism correction, coupling into a single mode optical fiber, diffractive optics and beam shaping, and manipulation of multi transverse mode beams. The final chapter of the book covers beam characterization methods, describing the measurement of spatial and spectral properties, including wavelength and linewidth measurement techniques. The book is a significantly revised and expanded version of the title Laser Diode Beam Basics, Manipulations and Characterizations by the same author. New topics introduced in this volume include: laser diode types and working principles, non-paraxial Gaussian beam, Zemax modeling, numerical analysis of a laser diode beam, spectral property characterization methods, and power and energy characterization techniques. The book approaches the subject in a practical way with mathematical content kept to the minimum level required, making the book a convenient reference for laser diode users.
Springer Handbook of Lasers and Optics - Frank Träger 2012-05-05
This new edition features numerous updates and additions. Especially 4 new chapters on Fiber Optics, Integrated Optics, Frequency Combs and Interferometry reflect the changes since the first edition. In addition, major complete updates for the chapters: Optical Materials and Their Properties, Optical Detectors, Nanooptics, and Optics far Beyond the Diffraction Limit. Features Contains over 1000 two-color illustrations. Includes over 120 comprehensive tables with properties of optical materials and light sources. Emphasizes physical concepts over extensive mathematical derivations. Chapters with summaries, detailed index Delivers a wealth of up-to-date references.
VCSELs - Rainer Michalzik 2012-10-16
The huge progress which has been achieved in the field is covered here, in the first comprehensive monograph on vertical-cavity surface-emitting lasers (VCSELs) since eight years. Apart from chapters

reviewing the research field and the laser fundamentals, there are comprehensive updates on red and blue emitting VCSELs, telecommunication VCSELs, optical transceivers, and parallel-optical links for computer interconnects. Entirely new contributions are made to the fields of vectorial three-dimensional optical modeling, single-mode VCSELs, polarization control, polarization dynamics, very-high-speed design, high-power emission, use of high-contrast gratings, GaInNAsSb long-wavelength VCSELs, optical video links, VCSELs for optical mice and sensing, as well as VCSEL-based laser printing. The book appeals to researchers, optical engineers and graduate students.

Diode Pumped Solid State (DPSS) Lasers - Mark W. Dowley 1998