

Iec 62471 Photobiological Safety Of Lamps And Lamp Systems

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Handbook of Advanced Lighting Technology - Robert Karlicek 2016-05-08

The Handbook of Advanced Lighting Technology is a major reference work on the subject of light source science and technology, with particular focus on solid-state light sources - LEDs and OLEDs - and the development of 'smart' or 'intelligent' lighting systems; and the integration of advanced light sources, sensors, and adaptive control architectures to provide tailored illumination which is 'fit to purpose.' The concept of smart lighting goes hand-in-hand with the development of solid-state light sources, which offer levels of control not previously available with conventional lighting systems. This has impact not only at the scale of the individual user, but also at an environmental and wider economic level. These advances have enabled and motivated significant research activity on the human factors of lighting, particularly related to the impact of lighting on healthcare and education, and the Handbook provides detailed reviews of work in these areas. The potential applications for smart lighting span the entire spectrum of technology, from domestic and commercial lighting, to breakthroughs in biotechnology, transportation, and light-based wireless communication. Whilst most current research globally is in the field of solid-state lighting, there is renewed interest in the development of conventional and non-conventional light sources for specific applications. This Handbook comprehensively reviews the basic physical principles and device technologies behind all light source types and includes discussion of the state-of-the-art. The book essentially breaks down into five major sections: Section 1: The physics, materials, and device technology of established, conventional, and emerging light sources, Section 2: The science and technology of solid-state (LED and OLED) light sources, Section 3: Driving, sensing and control, and the integration of these different technologies under the concept of smart lighting, Section 4: Human factors and applications, Section 5: Environmental and economic factors and implications

Laser Safety - Roy Henderson 2003-12-01

Covering both underlying theory and practical applications, Laser Safety provides a unique and readily-understandable review of current laser safety. This resource explains in detail the biological effects of laser radiation, particularly on the eye, and the provisions and requirements of the international laser safety standard IEC 60825-1, including a full description of the recently revised system of laser classification. It elucidates the rationale for the often-complex laser emission and exposure limits given in the standard, and provides detailed guidance for using the standard to carry out quantitative laser assessments. The authors also discuss practical issues of risk assessment, safety controls, eye protection, and laser safety management. This practical and comprehensive handbook will be useful for anyone involved in laser safety, including academic and medical researchers, laser manufacturers, and compliance officers.

Biomedical Photonics Handbook, Second Edition - Tuan Vo-Dinh 2014-07-29

Shaped by Quantum Theory, Technology, and the Genomics Revolution The integration of photonics, electronics, biomaterials, and nanotechnology holds great promise for the future of medicine. This topic has recently experienced an explosive growth due to the noninvasive or minimally invasive nature and the cost-effectiveness of photonic modalities in medical diagnostics and therapy. The second edition of the Biomedical Photonics Handbook presents recent fundamental developments as well as important applications of biomedical photonics of interest to scientists, engineers, manufacturers, teachers, students, and clinical providers. The first volume, Fundamentals, Devices, and Techniques, focuses on the fundamentals of biophotonics, optical techniques, and devices. Represents the Collective Work of over 150

Scientists, Engineers, and Clinicians Designed to display the most recent advances in instrumentation and methods, as well as clinical applications in important areas of biomedical photonics to a broad audience, this three-volume handbook provides an inclusive forum that serves as an authoritative reference source for a broad audience involved in the research, teaching, learning, and practice of medical technologies. What's New in This Edition: A wide variety of photonic biochemical sensing technologies has already been developed for clinical monitoring of physiological parameters, such as blood pressure, blood chemistry, pH, temperature, and the presence of pathological organisms or biochemical species of clinical importance. Advanced photonic detection technologies integrating the latest knowledge of genomics, proteomics, and metabolomics allow sensing of early disease states, thus revolutionizing the medicine of the future. Nanobiotechnology has opened new possibilities for detection of biomarkers of disease, imaging single molecules, and in situ diagnostics at the single-cell level. In addition to these state-of-the-art advancements, the second edition contains new topics and chapters including: • Fiber Optic Probe Design • Laser and Optical Radiation Safety • Photothermal Detection • Multidimensional Fluorescence Imaging • Surface Plasmon Resonance Imaging • Molecular Contrast Optical Coherence Tomography • Multiscale Photoacoustics • Polarized Light for Medical Diagnostics • Quantitative Diffuse Reflectance Imaging • Interferometric Light Scattering • Nonlinear Interferometric Vibrational Imaging • Multimodality Theranostics Nanoplatfroms • Nanoscintillator-Based Therapy • SERS Molecular Sentinel Nanoprobes • Plasmonic Coupling Interference Nanoprobes Comprised of three books: Volume I: Fundamentals, Devices, and Techniques; Volume II: Biomedical Diagnostics; and Volume III: Therapeutics and Advanced Biophotonics, this second edition contains eight sections, and provides introductory material in each chapter. It also includes an overview of the topic, an extensive collection of spectroscopic data, and lists of references for further reading.

Lasers In 3d Printing And Manufacturing - Chee Kai Chua 2016-12-27

Additive Manufacturing (AM), popularly known as 3D printing, is playing an increasingly significant role in the manufacturing arena. AM has revolutionized how prototypes are to be made and small batch manufacturing should be carried out. Due to high flexibility and high efficiency of lasers, laser-assisted Manufacturing (LAM) and AM technologies are recently getting much attention over traditional methods. This textbook is a timely information resource for undergraduates, postgraduates and researchers who are interested in this emerging technology. The book will cover the basics of lasers, optics and materials used for manufacturing and 3D printing. It will also include several case studies for readers to apply their understanding of the topics, provide sufficient theoretical background and insights to today's key laser-assisted AM processes and conclude with the future prospects of this exciting technology. This is the first textbook tailored specifically for Lasers in 3D Printing and Manufacturing with detailed explanations. The book will focus on laser-assisted 3D printing and Additive Manufacturing (AM) from basic principles of lasers, optics and AM materials to advanced AM technologies, including in-depth discussion on critical aspects throughout the laser-assisted AM processes, such as optical system design, laser-material interaction and laser parameters' optimization.

11th International Symposium on Automotive Lighting - ISAL 2015 - Proceedings of the Conference - Tran Quoc Khanh 2015-10-09

It is a pleasure to present the proceedings of the 11th International Symposium on Automotive Lighting,

which took place in Darmstadt on September 28–30, 2015. This conference is the document of a series of successful conferences since the first PAL-conference in 1995 and shows the latest innovative potentials of the automotive industry in the application of lighting technologies.

Circadian Lighting Design in the LED Era - Maurizio Rossi 2019-02-06

This book explores how lighting systems based on LED sources have the ability to positively influence the human circadian system, with benefits for health and well-being. The opening chapters examine the functioning of the human circadian system, its response to artificial lighting, potential health impacts of different types of light exposure, and current researches in circadian photometry. A first case study analyzes the natural lighting available in an urban interior, concluding that it is unable to activate the human circadian system over the entire year. Important original research is then described in which systems suitable for artificial circadian lighting in residential interiors and offices were developed after testing of new design paradigms based on LED sources. Readers will also find a detailed analysis of the LED products available or under development globally that may contribute to optimal artificial circadian lighting, as well as the environmental sensors, control interfaces, and monitoring systems suitable for integration with new LED lighting systems. Finally, guidelines for circadian lighting design are proposed, with identification of key requirements.

Application of IEC 62471 for the Assessment of Blue Light Hazard to Light Sources and Luminaires - British Standards Institute Staff 1912-07-31

Electric lamps, Luminaires, Lighting systems, Light hazards, Safety measures, Classification systems, Measurement, Eyes, Infrared radiation, Ultraviolet radiation, Risk assessment, Labels

Effects of Different Light Spectra on Secondary/Specialized Metabolite Accumulation and Plant Resistance Mechanisms - Inga Mewis 2021-11-26

Quantum Dot - Fouad Sabry 2022-01-16

What Is Quantum Dot Quantum dots (QDs) are semiconductor particles a few nanometres in size, having optical and electronic properties that differ from larger particles due to quantum mechanics. They are a central topic in nanotechnology. When the quantum dots are illuminated by UV light, an electron in the quantum dot can be excited to a state of higher energy. In the case of a semiconducting quantum dot, this process corresponds to the transition of an electron from the valence band to the conduction band. The excited electron can drop back into the valence band releasing its energy by the emission of light. This light emission (photoluminescence) is illustrated in the figure on the right. The color of that light depends on the energy difference between the conduction band and the valence band, or transition between discretized energy states when band structure is no longer a good definition in QDs. How You Will Benefit (I) Insights, and validations about the following topics: Chapter 1: Quantum dot Chapter 2: Quantum dot solar cell Chapter 3: Light-emitting diode Chapter 4: Quantum dot display Chapter 5: Health and safety hazards of nanomaterials Chapter 6: Nanotoxicology Chapter 7: Photocatalysis Chapter 8: Potential well (II) Answering the public top questions about quantum dot. (III) Real world examples for the usage of quantum dot in many fields. (IV) 17 appendices to explain, briefly, 266 emerging technologies in each industry to have 360-degree full understanding of quantum dot' technologies. Who This Book Is For Professionals, undergraduate and graduate students, enthusiasts, hobbyists, and those who want to go beyond basic knowledge or information for any kind of quantum dot.

[Interior Lighting](#) - Wout van Bommel 2019-08-13

This book outlines the underlying principles on which interior lighting should be based, provides detailed information on the lighting hardware available today and gives guidance for the design of interior lighting installations resulting in good visual performance and comfort, alertness and health. The book is divided into three parts. Part One discusses the fundamentals of the visual and non-visual mechanisms and the practical consequences for visual performance and comfort, for sleep, daytime alertness and performance, and includes chapters on age effects, therapeutic effects and hazardous effects of lighting. Part Two deals with the lighting hardware: lamps (with emphasis on LEDs), gear, drivers and luminaires including chapters about lighting controls and LEDs beyond lighting. Part Three is the application part, providing the link between theory and practice and supplying the reader with the knowledge needed for lighting design. It

describes the relevant lighting criteria for good and efficient interior lighting and discusses the International, European and North American standards and recommendations for interior lighting. A particular focus is on solid state light sources (LEDs) and the possibility to design innovative, truly-sustainable lighting installations that are adaptable to changing circumstances. The design of such installations is difficult and the book offers details of the typical characteristics of the many different solid state light sources, and of the aspects determining the final quality of interior lighting. Essential reading for interior lighting designers, lighting engineers and architects, the book will also be a useful reference for researchers and students. Reviews of Road Lighting by the same author: "If you are going to design streetlighting, you must read this book...a solid, comprehensive textbook written by an acknowledged expert in the field - if you have a query about any aspect of streetlighting design, you will find the answer here." - LUX, August 2015 "...a really comprehensive book dealing with every aspect of the subject well...essential text for reference on this subject" - Lighting Journal, March 2015

Encyclopaedia of Medical Physics - Slavik Tabakov 2021-07-19

This second updated edition of the Encyclopaedia of Medical Physics contains over 3300 cross-referenced entries related to medical physics and associated technologies. The materials are supported by over 1300 figures and diagrams. The Encyclopaedia also includes over 600 synonyms, abbreviations and other linked entries. Featuring over 100 contributors who are specialists in their respective areas, the encyclopaedia describes new and existing methods and equipment in medical physics. This all-encompassing reference covers the key areas of x-ray diagnostic radiology, magnetic resonance imaging (MRI), nuclear medicine, ultrasound imaging, radiotherapy, radiation protection (both ionising and non-ionising) as well as related general terms. It has been updated throughout to include the newest technologies and developments in the field, such as proton radiotherapy, phase contrast imaging, multi-detector computed tomography, 3D/4D imaging, new clinical applications of various imaging modalities, and the relevant regulations regarding radiation protection and management. Features: Contains over 3300 entries with accompanying diagrams, images, formulas, further reading, and examples Covers both the classical and newest elements in medical imaging, radiotherapy, and radiation protection Discusses material at a level accessible to graduate and postgraduate students in medical physics and related disciplines as well as medical specialists and researchers

New Frontiers for Design of Interior Lighting Products - Andrea Siniscalco 2021-05-27

This book explores the single components that commonly constitute luminaires for interiors, describing their operating principles, families, strengths and weaknesses. It opens with the product classification and main standard requirements. The following chapters describe the different components: light sources, power supplies, thermal dissipation techniques, control technologies, optical systems. The description focuses on the most recent technologies to allow the reader to consider a product design capable of confronting future lighting scenarios. The book provides a simple path addressed to all those who want to try their hand at designing luminaires for interiors, even without a specific engineering background.

Visual and Non-Visual Effects of Light - Agnieszka Wolska 2020-07-29

The introduction of artificial lighting extends the time of wakefulness after dark and enables work at night, thus disturbing the human circadian rhythm. The understanding of the physiological mechanisms of visual and non-visual systems may be important for the development and use of proper light infrastructure and light interventions for different workplace settings, especially for shift work conditions. *Visual and Non-Visual Effects of Light: Working Environment and Well-Being* presents the impact of lighting in the working environment on human health, well-being and visual performance. The physiological explanation of the visual and non-visual effects of light on humans which discusses the biological bases of image and non-image forming vision at the cellular level may be of particular interest to any professional in the field of medicine, physiology, and biology. It is one of the intentions of this book to put forward some recommendations and examples of lighting design which take into account both the visual and non-visual effects of light on humans. These may be of particular interest to any professional in the field of lighting, occupational safety and health, and interior design. "What effects on health can a light 'overdose' or light deficiency have? What is bad light? The authors of the monograph provide answers to these questions. Just as for a physicist, the dual nature of light comprises an electromagnetic wave and a photon, the duality of

light for a physician comprises visual and non-visual effects." -----Prof Jacek Przybylski, Medical University of Warsaw "This is a unique publication in the field of lighting technology. The authors have skillfully combined both the technical and biomedical aspects involved, which is unprecedented in the literature available. As a result, an important study has been created for many professional groups, with a significant impact on the assessment of risks associated with LED sources." -----Prof Andrzej Zając, Military University of Technology, Warsaw

Bringing a Medical Device to the Market - Gennadi Saiko 2022-09-29

Many of us in science have this "Aha!" moment when the mental puzzle is put together and you get a clear picture of a product, which will change the world. Moreover, you have a clear understanding of how it can be a commercial success. So, you decide to start a new company, a startup, and have a clear path to success. However, soon you come face to face with reality, where things are much more complicated. Only a minute fraction of startups survives and becomes successful. This is particularly true in the complex world of medical devices. There are many good books on startups but this book is specifically about startups specializing in medical devices, which are very different from other ones. It is written by a MedDev entrepreneur for first-time MedTech entrepreneurs.

Hunter's Diseases of Occupations, Tenth Edition - Peter J Baxter 2010-10-29

Winner of the 2011 BMA book awards: medicine category In the five decades since its first publication, Hunter's Diseases of Occupations has remained the pre-eminent text on diseases caused by work, universally recognized as the most authoritative source of information in the field. It is an important guide for doctors in all disciplines who may encounter occupational diseases in their practice, covering topics as diverse as work and stress, asbestos-related disease, working at high altitude and major chemical incidents, many of which are highly topical. The Tenth Edition of Hunter's Diseases of Occupations has been fully revised and updated, presenting all practitioners considering an occupational cause for a patient's condition with comprehensive coverage of work-related diseases as they present in modern and developing industrialised societies. It draws on the wide-ranging and in-depth clinical knowledge and experience, and academic excellence, of top experts in the field.

Gaze Interaction and Applications of Eye Tracking: Advances in Assistive Technologies -

Majaranta, Päivi 2011-10-31

Recent advances in eye tracking technology will allow for a proliferation of new applications. Improvements in interactive methods using eye movement and gaze control could result in faster and more efficient human computer interfaces, benefitting users with and without disabilities. Gaze Interaction and Applications of Eye Tracking: Advances in Assistive Technologies focuses on interactive communication and control tools based on gaze tracking, including eye typing, computer control, and gaming, with special attention to assistive technologies. For researchers and practitioners interested in the applied use of gaze tracking, the book offers instructions for building a basic eye tracker from off-the-shelf components, gives practical hints on building interactive applications, presents smooth and efficient interaction techniques, and summarizes the results of effective research on cutting edge gaze interaction applications.

Optical Sensors - Jörg Haus 2010-01-12

Providing an overview of the necessary components and the range of applications from light-barriers to high-resolution surface-scanning interferometers, this is a valuable introduction to the technology of optical sensors as well as a reference for experienced practitioners. The first part of the book introduces readers to the basics of sensor principles by describing the most important components that can be found in all optical sensors. Based on this opto-electronic toolbox, the second part then goes on to give numerous examples of optical sensors with respect to their applications.

Biomedical Photonics Handbook - Tuan Vo-Dinh 2014-07-29

Shaped by Quantum Theory, Technology, and the Genomics Revolution The integration of photonics, electronics, biomaterials, and nanotechnology holds great promise for the future of medicine. This topic has recently experienced an explosive growth due to the noninvasive or minimally invasive nature and the cost-effectiveness of photonic modalities in medical diagnostics and therapy. The second edition of the Biomedical Photonics Handbook presents recent fundamental developments as well as important applications of biomedical photonics of interest to scientists, engineers, manufacturers, teachers, students,

and clinical providers. The first volume, Fundamentals, Devices, and Techniques, focuses on the fundamentals of biophotonics, optical techniques, and devices. Represents the Collective Work of over 150 Scientists, Engineers, and Clinicians Designed to display the most recent advances in instrumentation and methods, as well as clinical applications in important areas of biomedical photonics to a broad audience, this three-volume handbook provides an inclusive forum that serves as an authoritative reference source for a broad audience involved in the research, teaching, learning, and practice of medical technologies. What's New in This Edition: A wide variety of photonic biochemical sensing technologies has already been developed for clinical monitoring of physiological parameters, such as blood pressure, blood chemistry, pH, temperature, and the presence of pathological organisms or biochemical species of clinical importance. Advanced photonic detection technologies integrating the latest knowledge of genomics, proteomics, and metabolomics allow sensing of early disease states, thus revolutionizing the medicine of the future. Nanobiotechnology has opened new possibilities for detection of biomarkers of disease, imaging single molecules, and in situ diagnostics at the single-cell level. In addition to these state-of-the-art advancements, the second edition contains new topics and chapters including: • Fiber Optic Probe Design • Laser and Optical Radiation Safety • Photothermal Detection • Multidimensional Fluorescence Imaging • Surface Plasmon Resonance Imaging • Molecular Contrast Optical Coherence Tomography • Multiscale Photoacoustics • Polarized Light for Medical Diagnostics • Quantitative Diffuse Reflectance Imaging • Interferometric Light Scattering • Nonlinear Interferometric Vibrational Imaging • Multimodality Theranostics Nanoplatfroms • Nanoscintillator-Based Therapy • SERS Molecular Sentinel Nanoprobes • Plasmonic Coupling Interference Nanoprobes Comprised of three books: Volume I: Fundamentals, Devices, and Techniques; Volume II: Biomedical Diagnostics; and Volume III: Therapeutics and Advanced Biophotonics, this second edition contains eight sections, and provides introductory material in each chapter. It also includes an overview of the topic, an extensive collection of spectroscopic data, and lists of references for further reading.

The Sun and Photovoltaic Technologies - Tomislav Pavlovic 2019-10-26

This book covers solar energy and the use of solar radiation in connection with lighting. It provides a detailed introduction to solar energy, photovoltaic (PV) solar energy conversion, and solar lighting technologies, while also discussing all of these elements in the context of the Balkan Peninsula. In the context of solar energy, the book covers a range of elements, from the structure of the sun, to PV solar plants. It subsequently addresses the status quo of solar technologies in Bulgaria, Serbia and the Republika Srpska and analyses the development of these technologies over the years, including their economic status, and how these aspects have shaped their current status. Undergraduate and graduate students, researchers and professionals, particularly those based in the Balkans, will find this book both informative and interesting.

An Introduction to Optical Wireless Mobile Communication - Harald Haas 2021-09-30

The use of the optical spectrum for wireless communications has gained significant interest in recent years. Applications range from low-rate simplex transmission links using existing embedded CMOS cameras in smartphones, referred to as optical camera communications (OCC), mobile light fidelity (LiFi) networking in homes, offices, urban and sub-sea environments to free-space gigabit interconnects in data centers and point-to-point long-range wireless backhaul links outdoors and in space. This exciting book focuses on the use of optical wireless communications (OWC) for mobile use cases. The book discusses existing conventional radio frequency (RF)-based wireless access technology and presents the challenges that can impact the requirements of the future wave of new wireless services in the context of artificial intelligence (AI) driven autonomous systems and machine-type communications. The relationship between visible light communications (VLC) and light fidelity (LiFi), is explored, and the major advantages of VLC and LiFi such as security and data density, and discuss existing research challenges are also introduced. Channel modeling techniques are provided for mobile multiuser scenarios, and will introduce key building blocks to achieve LiFi cellular networks achieving orders of magnitude improvements of area spectral efficiency compared to state-of-the-art. Challenges that arise from moving from a static point-to-point visible light link to a LiFi network that is capable of serving hundreds of mobile and fixed nodes are discussed. An overview of recent standardization activities and the commercialization challenges of this disruptive technology is

also provided.

Solid State Lighting Reliability - W.D. van Driel 2012-09-06

Solid State Lighting Reliability: Components to Systems begins with an explanation of the major benefits of solid state lighting (SSL) when compared to conventional lighting systems including but not limited to long useful lifetimes of 50,000 (or more) hours and high efficacy. When designing effective devices that take advantage of SSL capabilities the reliability of internal components (optics, drive electronics, controls, thermal design) take on critical importance. As such a detailed discussion of reliability from performance at the device level to sub components is included as well as the integrated systems of SSL modules, lamps and luminaires including various failure modes, reliability testing and reliability performance. A follow-up, Solid State Lighting Reliability Part 2, was published in 2017.

Women in Infrastructure - Peggy Layne 2022

The status of Americas infrastructure is graded every four years by the American Society of Civil Engineers (ASCE) and reports are provided on the various categories. In this book, prominent women engineers discuss many of the eighteen infrastructure categories from the 2021 ASCE Infrastructure Report Card providing background, analysis of the issues facing the category and projections for the future. Categories covered include aviation, bridges, dams, water and wastewater, energy, hazardous waste, inland waterways, levees, ports, public parks, rail, roads, solid waste, and transit. Case studies from the authors work are included throughout. These topics touch on many of the challenges facing the world today and these solutions by women researchers and practitioners are valuable for their technical excellence and their non-traditional perspective. As an important part of the Women in Engineering and Science book series, the work highlights the contribution of women leaders in many of the infrastructure categories, inspiring women and men, girls and boys to enter and apply themselves to secure our future infrastructure. Provides insight into womens contributions to the field of infrastructure and what the issues are with respect to improving the grades across the infrastructure categories as enumerated in the ASCE Report Card; Presents information from academia, research, and industry into advances, applications, and threats for infrastructure; Discusses infrastructure challenges and solutions.

Biomedical Photonics Handbook, 3 Volume Set - Tuan Vo-Dinh 2014-07-29

Shaped by Quantum Theory, Technology, and the Genomics RevolutionThe integration of photonics, electronics, biomaterials, and nanotechnology holds great promise for the future of medicine. This topic has recently experienced an explosive growth due to the noninvasive or minimally invasive nature and the cost-effectiveness of photonic modalities in

Federal Register - 2012-08

Indoor Thermal Comfort - Francesca Romana d'Ambrosio Alfano 2020-12-07

As the century begins, natural resources are under increasing pressure, threatening public health and development. As a result, the balance between man and nature has been disrupted, with climatic changes whose effects are starting to be irreversible. Due to the relationship between the quality of the indoor built environment and its energy demand, thermal comfort issues are still relevant in the disciplinary debate. This is also because the indoor environment has a potential impact on occupants' health and productivity, affecting their physical and psychological conditions. To achieve a sustainable compromise in terms of comfort and energy requirements, several challenging questions must be answered with regard to design, technical, engineering, psychological, and physiological issues and, finally, potential interactions with other IEQ issues that require a holistic way to conceive the building envelope design. This Special Issue collected original research and review articles on innovative designs, systems, and/or control domains that can enhance thermal comfort, work productivity, and wellbeing in a built environment, along with works considering the integration of human factors in buildings' energy performance.

Office Buildings - Pranab Kumar Nag 2018-12-31

This book brings together concepts from the building, environmental, behavioural and health sciences to provide an interdisciplinary understanding of office and workplace design. Today, with changes in the world of work and the relentless surge in technology, offices have emerged as the repositories of organizational symbolism, denoted by the spatial design of offices, physical settings and the built

environment (architecture, urban locale). Drawing on Euclidian geometry that quantifies space as the distance between two or more points, a body of knowledge on office buildings, the concept of office and office space, and the interrelationships of spatial and behavioural attributes in office design are elucidated. Building and office work-related illnesses, namely sick building syndrome and ailments arising from the indoor environment, and the menace of musculoskeletal disorders are the alarming manifestations that critically affect employee satisfaction, morale and work outcomes. With a focus on office ergonomics, the book brings the discussion on the fundamentals of work design, with emphasis on computer workstation users. Strategic guidance of lighting systems and visual performance in workplaces are directed for better application of ergonomics and improvement in office indoor environment. It discusses the profiles of bioclimatic, indoor air quality, ventilation intervention, lighting and acoustic characteristics in office buildings. Emphasis has been given to the energy performance of buildings, and contemporary perspectives of building sustainability, such as green office building assessment schemes, and national and international building-related standards and codes. Intended for students and professionals from ergonomics, architecture, interior design, as well as construction engineers, health care professionals, and office planners, the book brings a unified overview of the health, safety and environment issues associated with the design of office buildings.

Assistive Technologies: Concepts, Methodologies, Tools, and Applications - Management Association, Information Resources 2013-08-31

Individuals with disabilities often have difficulty accomplishing tasks, living independently, and utilizing information technologies; simple aspects of daily life taken for granted by non-disabled individuals. Assistive Technologies: Concepts, Methodologies, Tools, and Applications presents a comprehensive collection of research, developments, and knowledge on technologies that enable disabled individuals to function effectively and accomplish otherwise impossible tasks. These volumes serve as a crucial reference source for experts in fields as diverse as healthcare, information science, education, engineering, and human-computer interaction, with applications bridging multiple disciplines.

Translation and Processing of Light by the Non-Image Forming Visual System - Context, Mechanisms and Applications - Fabian-Xosé Fernandez 2021-10-18

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.

Electrical Product Compliance and Safety Engineering, Volume 2 - Steli Loznen 2021-09-30

13th International Symposium on Automotive Lightning - ISAL 2019 - Proceedings of the Conference - Tran Quoc Khanh 2019-09-19

Patty's Toxicology, 6 Volume Set - Eula Bingham 2012-07-31

Featuring the improved format used in the 5th edition, this updated set presents, in logical groupings, comprehensive toxicological data for industrial compounds, including CAS numbers, physical and chemical properties, exposure limits, and biological tolerance values for occupational exposures, making it essential for toxicologists and industrial hygienists. This edition has about 40% new authors who have brought a new and international perspective to interpreting industrial toxicology, and discusses new subjects such as nanotechnology, flavorings and the food industry, reactive chemical control to comprehensive chemical policy, metalworking fluids, and pharmaceuticals.

Handbook of Vascular Biometrics - Andreas Uhl 2020-01-01

This open access handbook provides the first comprehensive overview of biometrics exploiting the shape of

human blood vessels for biometric recognition, i.e. vascular biometrics, including finger vein recognition, hand/palm vein recognition, retina recognition, and sclera recognition. After an introductory chapter summarizing the state of the art in and availability of commercial systems and open datasets/open source software, individual chapters focus on specific aspects of one of the biometric modalities, including questions of usability, security, and privacy. The book features contributions from both academia and major industrial manufacturers.

Antioxidants in Systems of Varying Complexity - Lyudmila N. Shishkina 2019-09-02

This volume brings together innovative research, new concepts, and novel developments in the study of chemistry and biological activity of antioxidants. It is a collection of chapters on new scientific research and practical applications from chemists at several prestigious scientific institutions. It looks at recent significant research and reports on new methodologies and important applications in the field of chemical kinetics.

Ultra-Realistic Imaging - Hans Bjelkhagen 2016-04-19

Ultra-high resolution holograms are now finding commercial and industrial applications in such areas as holographic maps, 3D medical imaging, and consumer devices. Ultra-Realistic Imaging: Advanced Techniques in Analogue and Digital Colour Holography brings together a comprehensive discussion of key methods that enable holography to be used as a technique of ultra-realistic imaging. After a historical review of progress in holography, the book: Discusses CW recording lasers, pulsed holography lasers, and reviews optical designs for many of the principal laser types with emphasis on attaining the parameters necessary for digital and analogue holography Gives a full review of current photosensitive materials for colour holography Covers modern methods of analogue holography and digital holographic printing Introduces mathematical and geometrical notation for horizontal parallax-only holograms and practical computational algorithms for the full-parallax case Reviews systems and the image processing algorithms required to convert the raw image data to the format required by digital printers Develops the physical theory of the holographic grating and the hologram Provides an up-to-date review of illumination sources, including LED and laser diode sources Written by leaders in dynamic holography, this handbook provides complete coverage of real-time colour holographic processes, including applications. The book covers not only the optics and theory behind such holographic systems, but also laser technologies, recording devices, data acquisition and processing techniques, materials for reproduction, and current and developing applications.

Handbook of Solid-State Lighting and LEDs - Zhe Chuan Feng 2017-06-12

This handbook addresses the development of energy-efficient, environmentally friendly solid-state light sources, in particular semiconductor light emitting diodes (LEDs) and other solid-state lighting devices. It reflects the vast growth of this field and impacts in diverse industries, from lighting to communications, biotechnology, imaging, and medicine. The chapters include coverage of nanoscale processing, fabrication of LEDs, light diodes, photodetectors and nanodevices, characterization techniques, application, and recent

advances. Readers will obtain an understanding of the key properties of solid-state lighting and LED devices, an overview of current technologies, and appreciation for the challenges remaining. The handbook will be useful to material growers and evaluators, device design and processing engineers, newcomers, students, and professionals in the field.

On the interacting visual and non-visual effects - Lucia R. Ronchi 2012

Standards, Quality Control, and Measurement Sciences in 3D Printing and Additive Manufacturing - Chee Kai Chua 2017-06-03

Standards, Quality Control and Measurement Sciences in 3D Printing and Additive Manufacturing addresses the critical elements of the standards and measurement sciences in 3D printing to help readers design and create safe, reliable products of high quality. With 3D printing revolutionizing the process of manufacturing in a wide range of products, the book takes key features into account, such as design and fabrication and the current state and future potentials and opportunities in the field. In addition, the book provides an in-depth analysis on the importance of standards and measurement sciences. With self-test exercises at the end of each chapter, readers can improve their ability to take up challenges and become proficient in a number of topics related to 3D printing, including software usage, materials specification and benchmarking. Helps the reader understand the quality framework tailored for 3D printing processes Explains data format and process control in 3D printing Provides an overview of different materials and characterization methods Covers benchmarking and metrology for 3D printing

Patty's Industrial Hygiene, Physical and Biological Agents - Barbara Cohrssen 2021-03-23

Since the first edition in 1948, Patty's Industrial Hygiene and Toxicology has become a flagship publication for Wiley. During its nearly seven decades in print, it has become a standard reference for the fields of occupational health and toxicology. The volumes on industrial hygiene are cornerstone reference works for not only industrial hygienists but also chemists, engineers, toxicologists, lawyers, and occupational safety personnel. Volume 3 covers Recognition and Evaluation of Physical Agents and Biohazards. All of the chapters have been updated and a new chapter on Robotics has been added. These subjects are increasing in importance to industrial hygienists.

2018 VII Lighting Conference of the Visegrad Countries (Lumen V4) - IEEE Staff 2018-09-18

The International Scientific Conference Lumen V4 2018 is the 7th conference of this type aimed particularly at problems concerning lighting technology in the area of science, research and work experience Conference is aimed at designers, research and university staff, architects, health officers, suppliers of electric installations, dealers, investors and lighting system operators, as well as public interested in the field of lighting technology Conference can be basically visited by those interested in the field can attend the conference a lecturer who wants to present the results of his work or exhibitors presenting their goods or services