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**Iron-binary Phase Diagrams** - Ortrud Kubaschewski - 1982

**The Index to Binary Phase Collections** - William G. Moffatt - 1979

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**The Handbook of Binary Phase Diagrams** - - 1984

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**Applications of Phase Diagrams in Metallurgy and Ceramics** - Gesina C. Carter - 1978

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**The New Metals and Alloys Indexes -- Search Manual** - - 1993

A new Metals and Alloys (M & A) Indexes to the Powder Diffraction File (PDF) has been developed. These indexes will be immediately useful to material scientists because the indexes share many features with references such as Hansen, Elliot, Shunk, Pearson, and Villars and Calvert. These indexes, as contained in the Search Manual, may be used independently or in conjunction with the Powder Diffraction File. The book contains four indexes: two contain data for all materials in the M & A PDF, and two contain supporting data. The permuted-sort Alphabetical Formula Index brings together all entries containing a given element in alphabetical formula order. It has n entries for an n-component material and a straight-line format for the element being sorted to simplify reading the index. Thus, chemical knowledge can make identifications easier. Further, within binary and ternary phase diagrams, phases are listed in...
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Miniaturization and mass replications have begun to lead the optical industry in the transition from traditional analog to novel digital optics. As digital optics enter the realm of mainstream technology through the worldwide sale of consumer electronic devices, this timely book aims to present the topic of digital optics in a unified way. Ranging from micro-optics to nanophotonics, and design to fabrication through to integration in final products, it reviews the various physical implementations of digital optics in either micro-refractives, waveguide (planar lightwave chips), diffractive and hybrid optics or sub-wavelength structures (resonant gratings, surface plasmons, photonic crystals and metamaterials). Finally, it presents a comprehensive list of industrial and commercial applications that are taking advantage of the unique properties of digital optics. Applied Digital Optics is aimed primarily at optical engineers and product development and technical marketing managers; it is also of interest to graduate-level photonics students and micro-optic foundries. Helps optical engineers review and choose the appropriate software tools to design, model and generate fabrication files. Gives product managers access to an exhaustive list of applications available in today’s market for integrating such digital optics, as well as where the next potential application of digital optics might be. Provides a broad view for technical marketing managers in all aspects of digital optics, and how such optics can be classified. Explains the numerical implementation of optical design and modelling techniques. Enables micro-optics foundries to integrate the latest fabrication and replication techniques, and accordingly fine tune their own fabrication processes.
practical problems in the geosciences, various physical implementations of digital optics in either micro-refractives, waveguide (planar lightwave chips), diffractive and hybrid optics or sub-wavelength structures (resonant gratings, surface plasmons, photonic crystals and metamaterials). Finally, it presents a comprehensive list of industrial and commercial applications that are taking advantage of the unique properties of digital optics. Applied Digital Optics is aimed primarily at optical engineers and product development and technical marketing managers; it is also of interest to graduate-level photonics students and micro-optic foundries. Helps optical engineers review and choose the appropriate software tools to design, model and generate fabrication files. Gives product managers access to an exhaustive list of applications available in today’s market for integrating such digital optics, as well as where the next potential application of digital optics might be. Provides a broad view for technical marketing managers in all aspects of digital optics, and how such optics can be classified. Explains the numerical implementation of optical design and modelling techniques. Enables micro-optics foundries to integrate the latest fabrication and replication techniques, and accordingly fine tune their own fabrication processes.

Practical Chemical Thermodynamics for Geoscientists - Bruce Fegley, Jr. - 2012-10-22
Practical Chemical Thermodynamics for Geoscientists covers classical chemical thermodynamics and focuses on applications to practical problems in the geosciences, environmental sciences, and planetary sciences. This book will provide a strong theoretical foundation for students, while also proving beneficial for earth and planetary scientists seeking a review of thermodynamic principles and their application to a specific problem. Strong theoretical foundation and emphasis on applications Numerous worked examples in each chapter Brief historical summaries and biographies of key thermodynamicists—including their fundamental research and discoveries Extensive references to relevant literature

Measurement of the Thermodynamic Properties of Multiple Phases - Ron D. Weir - 2005
Design thoroughly investigates the foundational characteristics, architectural aspects, and practical considerations, while offering readers detailed and systematic design and prototyping processes of typical use cases representing IoT and wearable technology. Later chapters discuss crucial issues, including PCB design, cloud and edge topologies, privacy and health concerns, and regulatory policies. Readers will also benefit from the inclusion of: A thorough introduction to the applications of IoT and wearable technology, including biomedicine and healthcare, fitness and wellbeing, sports, home automation, and more Discussions of wearable components and technologies, including microcontrollers and microprocessors, sensors, actuators and communication modules An exploration of the characteristics and basics of the communication protocols and technologies used in IoT and wearable devices An overview of the most important security challenges, threats, attacks and vulnerabilities faced by IoT and wearable devices along with potential solutions Perfect for research and development scientists working in the wearable technology and Internet of Things spaces, Fundamentals of IoT and Wearable Technology Design will also earn a place in the libraries of undergraduate and graduate students studying wearable technology and IoT, as well as professors and practicing technologists in the area.

**Fundamentals of IoT and Wearable Technology Design** - Haider Raad - 2020-12-12

Explore this indispensable guide covering the fundamentals of IoT and wearable devices from a leading voice in the field. Fundamentals of IoT and Wearable Technology Design delivers a comprehensive exploration of the foundations of the Internet of Things (IoT) and wearable technology. Throughout the textbook, the focus is on IoT and wearable technology and their applications, including mobile health, environment, home automation, and smart living. Readers will learn about the most recent developments in the design and prototyping of these devices. This interdisciplinary work combines technical concepts from electrical, mechanical, biomedical, computer, and industrial engineering, all of which are used in the design and manufacture of IoT and wearable devices. Fundamentals of IoT and Wearable Technology Design thoroughly investigates the foundational characteristics, architectural aspects, and
detailed and systematic design and prototyping processes of typical use cases representing IoT and wearable technology. Later chapters discuss crucial issues, including PCB design, cloud and edge topologies, privacy and health concerns, and regulatory policies. Readers will also benefit from the inclusion of: A thorough introduction to the applications of IoT and wearable technology, including biomedicine and healthcare, fitness and wellbeing, sports, home automation, and more Discussions of wearable components and technologies, including microcontrollers and microprocessors, sensors, actuators and communication modules An exploration of the characteristics and basics of the communication protocols and technologies used in IoT and wearable devices An overview of the most important security challenges, threats, attacks and vulnerabilities faced by IoT and wearable devices along with potential solutions Perfect for research and development scientists working in the wearable technology and Internet of Things spaces, Fundamentals of IoT and Wearable Technology Design will also earn a place in the libraries of undergraduate and graduate students studying wearable technology and IoT, as well as professors and practicing technologists in the area.

Optical Neural Networks - Cornelia Denz - 2013-11-11
During the next years neural networks and systems amenable to instructions will extend their influence in science and technology. A prominent point of interest in this field is assigned to optical networks: they are small and flexible, and due to their ability of parallel processing they are devoted to the construction of small systems. This monograph explains the fundamentals of optical neural networks to physicists, engineers and device constructors.

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Optics Letters - - 2008
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Introduction to Digital Mobile Communication - Yoshihiko Akaiwa - 2015-05-13
Introduces digital mobile communications with an emphasis on digital transmission methods This book presents mathematical analyses of signals, mobile radio channels, and digital modulation methods. The new edition covers the evolution of wireless communications technologies and systems. The major new topics are OFDM (orthogonal frequency domain multiplexing), MIMO (multi-input multi-output) systems, frequency-domain equalization, the turbo codes, LDPC (low density parity check code), ACELP (algebraic code excited linear predictive) voice coding, dynamic scheduling for wireless packet data transmission and nonlinearity compensating digital pre-distorter amplifiers. The new systems using the above mentioned technologies include the second generation evolution systems, the third generation systems with their evolution systems, LTE and LTE-advanced systems, and advanced wireless local area network systems. The second edition of Digital Mobile Communication: Presents basic concepts and applications to a variety of mobile communication systems Discusses current applications of modern digital mobile communication systems Covers the evolution of wireless communications technologies and systems in conjunction with their background The second edition of Digital Mobile Communication is an important textbook for university students, researchers, and engineers involved in wireless communications.

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**Scientific and Technical Aerospace Reports** - 1994
Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

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**Introduction to Modern EW Systems** - Andrea De Martino - 2012
Master the latest electronic warfare (EW) techniques and technologies related to on-board military platforms with this authoritative resource. You gain expert design guidance on technologies and equipment used to detect and identify emitter threats, giving you an advantage in the never-ending chess game between sensor guided weapons and EW systems. This unique book offers you deeper insight into EW systems principles of operation and their mathematical descriptions, arming you with better knowledge for your specific design applications. Moreover, you get practical information on how to counter modern communications data links which provide connectivity and command flow among the armed forces in the battlefield. Taking a sufficiently broad perspective, this comprehensive volume offers you a panoramic view of the various physical domains - RF, Infrared, and electronics - that are present in modern electronic warfare systems. This in-depth book is supported with over 280 illustrations and more than 560 equations.

**Femtosecond Laser Micromachining** - Roberto Osellame - 2012-03-05
Femtosecond laser micromachining of transparent material is a powerful and versatile technology. In fact, it can be applied to several materials. It is a maskless technology that allows rapid device prototyping, has intrinsic three-dimensional capabilities and can produce both photonic and microfluidic devices. For these reasons it is ideally suited for the fabrication of complex microsystems with unprecedented functionalities. This book is mainly focused on micromachining of transparent materials which, due to the nonlinear absorption mechanism of ultrashort pulses, allows unique three-dimensional capabilities and can be exploited for the fabrication of complex microsystems with unprecedented functionalities. This book presents an overview of the state of the art of this rapidly emerging topic with contributions from leading
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Phase-Locked Loops - John L. Stensby - 1997-06-19
Applications of phase-locked loops play an increasingly important role in modern electronic systems, and the last 25 years have seen new developments in the underlying theories as well. Phase-Locked Loops presents the latest information on the basic theory and applications of PLLs. Organized in a logical format, it first introduces the subject in a qualitative manner and discusses key applications. Next, it develops basic models for components of a PLL, and these are used to develop a basic PLL model. The text then discusses both linear and nonlinear methods that are used to analyze the basic PLL model. This book includes extensive coverage of the nonlinear behavior of phase-locked loops, an important area of this field and one where exciting new research is being performed. No other book available covers this critical area in such careful detail. Improvements brought about by the advent of the personal computer, especially in the use of numerical results, are integrated into the text. This book also focuses on PLL component technologies used in system implementation.

Applied Science & Technology Index - - 1997

Advances in Multimedia Information Processing-Pcm 2001 - Heung-Yeung Shum - 2001
This book constitutes the refereed proceedings of the Second IEEE Pacific-Rim Conference on Multimedia (IEEE-PCM 2001), held in Beijing, China in October 2001. The revised 104 regular and 53 poster papers presented were carefully reviewed and selected from a total of 244 papers. The papers are organized in sections on wearable computing, retrieval techniques, coding techniques, systems, visions and graphics, face, multimedia retrieval, multimedia education, multimedia presentation and databases, data hiding, image and video coding, retrieval, speech and sound, networking, spoken dialog, multimedia security, multimedia networking, learning and recognition, and watermarking.
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and sound, networking, spoken dialog,
multimedia security, multimedia networking,
learning and recognition, and watermarking.

Physical Chemistry of Semiconductor
Materials and Processes - Sergio Pizzini -
2015-10-26
The development of semiconductor devices
began a little more than a century ago, with the
discovery of the electrical conductivity of ionic
solids. Today, solid state technologies form the
background of the society in which we live. The
aim of this book is threefold: to present the
background physical chemistry on which the
technology of solid state devices is based;
secondly, to describe specific issues such as the
role of defects on the properties of solids, and
the crucial influence of surface properties; and
ultimately, to look at the physics and chemistry
of growth processes, both at the bulk and
thin-film level, together with some issues
relating to the properties of nano-devices.
Divided into five chapters, it covers:
Thermodynamics of solids, including phases and
their properties and structural order Point
defects in semiconductors Extended defects in
semiconductors and their interactions with point
defects and impurities Growth of semiconductor
materials Physical chemistry of semiconductor
materials processing With applications across all
solid state technologies, the book is useful for
advanced students and researchers in materials
science, physics, chemistry, electrical and
electronic engineering. It is also useful for those
in the semiconductor industry.

Alloy Phase Stability - G.M. Stocks -
2012-12-06
One of the ultimate goals of materials research is
to develop a fundamental and predictive
understanding of the physical and metallurgical
properties of metals and alloys. Such an
understanding can then be used in the design of
materials having novel properties or
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of metallurgy. Traditionally, the search for new
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trial and error basis, guided by the skill and
intuition of the metallurgist, large volumes of
experimental data, the principles of 19th century
thermodynamics and ad hoc semi-
phenomenological models. Recently, the situation
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and determine their properties. Today theory can
begin to offer guidance in predicting the
properties of alloys and in developing new alloy
systems. Historically, attempts directed toward
understanding phase stability and phase
transitions have proceeded along distinct and
seemingly diverse lines. Roughly, we can divide
These approaches into the following broad categories. 1. Experimental determination of phase diagrams and related properties, 2. Thermodynamic/statistical mechanical approaches based on semi phenomenological models, and 3. Ab initio quantum mechanical methods. Metallurgists have traditionally concentrated their efforts in categories 1 and 2, while theoretical physicists have been preoccupied with 2 and 3.

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One of the ultimate goals of materials research is to develop a fundamental and predictive understanding of the physical and metallurgical properties of metals and alloys. Such an understanding can then be used in the design of materials having novel properties or combinations of properties designed to meet specific engineering applications. The development of new and useful alloy systems and the elucidation of their properties are the domain of metallurgy. Traditionally, the search for new alloy systems has been conducted largely on a trial and error basis, guided by the skill and intuition of the metallurgist, large volumes of experimental data, the principles of 19th century thermodynamics and ad hoc semi-phenomenological models. Recently, the situation has begun to change. For the first time, it is possible to understand the underlying mechanisms that control the formation of alloys and determine their properties. Today theory can begin to offer guidance in predicting the properties of alloys and in developing new alloy systems. Historically, attempts directed toward understanding phase stability and phase transitions have proceeded along distinct and seemingly diverse lines. Roughly, we can divide these approaches into the following broad categories. 1. Experimental determination of phase diagrams and related properties, 2. Thermodynamic/statistical mechanical approaches based on semi phenomenological models, and 3. Ab initio quantum mechanical methods. Metallurgists have traditionally concentrated their efforts in cate gories 1 and 2, while theoretical physicists have been preoccupied with 2 and 3.

Phase-Locked Loops for Wireless Communications - Donald R. Stephens - 2012-12-06
This book is intended for the graduate or advanced undergraduate engineer. The primary motivation for writing the text was to present a complete tutorial of phase-locked loops with a consistent notation. As such, it can serve as a textbook in formal classroom instruction, or as a self-study guide for the practicing engineer. A former colleague, Kevin Kreitzer, had suggested that I write a text, with an emphasis on digital phase-locked loops. As modern designers, we were continually receiving requests from other engineers asking for a definitive reference on digital phase-locked loops. There are several good papers in the literature, but there was not a good textbook for either classroom or self-paced study. From my own experience in designing low phase noise synthesizers, I also knew that third-order analog loop design was omitted from most texts. With those requirements, the material in the text seemed to flow naturally. Chapter 1 is the early history of phase-locked loops. I believe that historical knowledge can provide insight to the development and progress of a field, and phase-locked loops are no exception. As discussed in Chapter 1, consumer electronics (color television) prompted a rapid growth in phase-locked loop theory and applications, much like the wireless communications growth today. xiv Preface Although all-analog phase-locked loops are becoming rare, the continuous time nature of analog loops allows a good introduction to phase-locked loop theory.
the-index-to-binary-phase-collections

optoelectronics continue apace in the late 1990s. the early history of phase-locked loops. I believe that historical knowledge can provide insight to the development and progress of a field, and phase-locked loops are no exception. As discussed in Chapter 1, consumer electronics (color television) prompted a rapid growth in phase-locked loop theory and applications, much like the wireless communications growth today.

Preface Although all-analog phase-locked loops are becoming rare, the continuous time nature of analog loops allows a good introduction to phase-locked loop theory.

Micro-Optics - H. P. Herzig - 1997-04-26
This text examines the technology behind the plethora of modern industrial and domestic technologies which incorporate micro-optics eg. CDs, cameras, automated manufacturing systems, mobile communications etc. It includes a simple but comprehensive introduction to micro-optical developments design, and an overview of fabrication and replication technology. The theoretical, practical and industrial developments in micro-scale optoelectronics continue apace in the late 1990s. In this book, a distinguished group of physicists and engineers describe the current state of research and applications in micro-optics. It provides the theoretical background and an overview of current technology, with several chapters taking a deeper look at specific recent applications and future trends. The book concentrates on diffractive and refractive micro-optical elements, such as lenses, fan-out gratings, optimized phase elements and polarisers. Sections are included on the simulation and optimization of design for micro-optics and subsequently the efficient transformation from design to real optical elements, using techniques such as e-beam writing, laser beam writing, lithography, etching and thin film deposition.

Chinese Journal of Electronics - - 2002

Chinese Journal of Electronics - - 2002

Phase Transformations in Metals and Alloys - David A. Porter - 2021-11-08
Revised to reflect recent developments in the field, Phase Transformation in Metals and Alloys, Fourth Edition, continues to be the most authoritative and approachable resource on the subject. It supplies a comprehensive overview of specific types of phase transformations, supplemented by practical case studies of engineering alloys. The book’s unique presentation links a basic understanding of theory with application in a gradually progressive yet exciting manner. Based on the authors’ teaching notes, the text takes a pedagogical approach and provides examples for applications and problems that can be readily used for exercises. NEW IN THE FOURTH EDITION 40% of the figures and 30% of the text Insights provided by numerical modelling techniques such as ab initio, phase field, cellular automaton, and molecular dynamics Insights from the application of advanced experimental techniques, such as high-energy X-ray diffraction, high-resolution transmission electron microscopy, scanning electron microscopy, combined with electron backscattered diffraction New treatment of ternary phase diagrams and solubility products The concept of paraequilibrium in systems containing highly mobile interstitial elements Thermodynamics of grain boundaries and the influence of segregation on grain boundary diffusion Reference to software tools for solving
Introduction to concepts related to coincident site lattices and methods for determining the dislocation content of grain boundaries and interfaces. Updated treatment of coherency and interface structure including the important fcc-bcc interfaces. Treatment of metallic glasses expanded to cover critical cooling rate. Austin–Rickets equation introduced as an alternative to the Avrami equation in the case of precipitation kinetics. Discussion of the effects of overlap in nucleation, growth, and coarsening. Discussion of pearlite and bainite transformations updated. Entirely new and extensive treatment of diffusionless martensitic transformations covering athermal and thermally activated martensite in ferrous systems as well as shape memory, superelasticity, and rubber-like behavior in ordered nonferrous alloys. New practical applications covering spinodal alloys, fir-tree structures in aluminum castings, Al–Cu–Li aerospace alloys, superelastic and shape memory alloys, quenched and partitioned steels, advanced high-strength steels and martensitic stainless steels. Each chapter now concludes with a summary of the main points. References to scientific publications and suggestions for further reading updated to reflect experimental and computational advances.

Aimed at students studying metallurgy and materials science and engineering, the Fourth Edition retains the previous editions’ popular easy-to-follow style and excellent mix of basic and advanced information, making it ideal for those who are new to the field. A new solutions manual and PowerPoint figure slides are available to adopting professors.
Adaptive Optics for Biological Imaging brings together groundbreaking research on the use of adaptive optics for biological imaging. The book builds on prior work in astronomy and vision science. Featuring contributions by leaders in this emerging field, it takes an interdisciplinary approach that makes the subject accessible to nonspecialists who want to use adaptive optics techniques in their own work in biology and bioengineering. Organized into three parts, the book covers principles, methods, and applications of adaptive optics for biological imaging, providing the reader with the following benefits: Gives a general overview of applied optics, including definitions and vocabulary, to lay a foundation for clearer communication across disciplines Explains what kinds of optical aberrations arise in imaging through various biological tissues, and what technology can be used to correct for these aberrations Explores research done with a variety of biological samples and imaging instruments, including wide-field, confocal, and two-photon microscopes Discusses both indirect wavefront sensing, which uses an iterative approach, and direct wavefront sensing, which uses a parallel approach Since the sample is an integral part of the optical system in biological imaging, the field will benefit from participation by biologists and biomedical researchers with expertise in applied optics. This book helps lower the barriers to entry for these researchers. It also guides readers in selecting the approach that works best for their own applications.
Nuclear Science Abstracts - - 1967

Optical Technologies for Telecommunications - - 2006
Issues for 2004- contain reports from the 5th-conferences.

Satellite Geodesy - Günter Seeber - 2003
Completely revised and updated edition. The book covers the entire field of satellite geodesy (status spring/break summer 2002). Basic chapters on reference systems, time, signal propagation, and satellite orbits are updated. All currently important

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Intended for both the novice and professional, this text aims to approach problems with currently available tools and methods in the modern analytical chemistry domain. It covers all fields from basic theory and principles of analytical chemistry to instrumentation classification, design and purchasing. This edition includes information on X-ray methods and analysis, capillary electrophoresis, infrared and Raman technique comparisons, and more.

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Telecommunications is fundamental to modern society, with nearly everyone on the planet having access to a mobile phone, Wi-Fi, or satellite and terrestrial broadcast systems. This book is a concise analysis of both the basics of telecommunications as well as numerous advanced systems. It begins with a discussion of why we perform modulation of a carrier signal, continuing with a study of noise affecting all telecommunications links, be they digital or analogue in form. Digital communications techniques are examined in Modern Telecommunications: Basic Principles and Practices. Such an examination is crucial since radio, television, and satellite broadcasts are transmitted using a digital format. Analogue modulations are also considered. The logic behind such an investigation is because, whereas most broadcast systems are moving towards digital transmission, analogue techniques are still very much prevalent (most notably with AM and FM broadcasts). A topic that is often neglected in text books on telecommunications but is at the forefront of Modern Telecommunications concerns transmission lines. This is an important area of work since every length of coaxial cable used to convey signals from an antenna to a receiver is a transmission line. It is vitally important that a transmission line linking a transmitter to the antenna is matched and this topic is explored in great detail in several chapters dealing with Smith charts. Explains the background behind digital TV and radio as well as the legacy of analogue transmissions. Presents materials in a way that minimizes mathematics, making the topic more approachable and interesting to users. Provides a look at familiar systems that readers encounter in their everyday life (including mobile phones, Wi-Fi hotspots, satellites, digital TV, etc.). Demonstrates techniques and topics through end-of-chapter problems. Presents materials in an introductory form, making the information easily understandable and suitable for an undergraduate option course.

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**Lightwave Communications** - George C. Papen
- 2019-01-10

This pioneering, course-tested text is the first to combine communications theory with the physics of optical communications. Comprehensive and rigorous, it brings together an in-depth treatment of the physical characteristics of the guided lightwave channel with the study of modern methods of algorithmic-based communication in which a lightwave communication signal can be described are integrated to provide a unified explanation of how a commonplace bit stream is transformed into a physical lightwave, how that lightwave travels through an optical fiber, and how it is then transformed back into the bit stream. Background fundamentals such as linear systems and electromagnetics are explained in relation to modern topics such as channel models, encoding, modulation and interference, and end-of-chapter problems are provided throughout. This is an essential text for students taking courses on optical communications, as well as researchers and professionals working in the area.

**Lightwave Communications** - George C. Papen
- 2019-01-10

This pioneering, course-tested text is the first to combine communications theory with the physics of optical communications. Comprehensive and rigorous, it brings together an in-depth treatment of the physical characteristics of the guided lightwave channel with the study of modern methods of algorithmic-based communication in time and space. The many different levels at which a lightwave communication signal can be described are integrated to provide a unified explanation of how a commonplace bit stream is transformed into a physical lightwave, how that lightwave travels through an optical fiber, and how it is then transformed back into the bit stream. Background fundamentals such as linear systems and electromagnetics are explained in relation to modern topics such as channel models, encoding, modulation and interference, and end-of-chapter problems are provided throughout. This is an essential text for students taking courses on optical communications, as well as researchers and professionals working in the area.