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Antennas-John Daniel Kraus 2002 This is an exciting revision of John Kraus' classic book Antennas, which has been long known as the "Antenna Bible". A new co-author, Ronald Marhefka has joined the author team for this revision. Many new, modern applications have been added-thus the title change to Antennas with All Applications. As well, the references have been updated to include recent additions to the literature. Additionally, the book has been reorganized to make it more user-friendly for both students and professionals. The book now covers the fundamentals of various antennas and concepts in the first half of the book and then gets into more details on those same topics later in the book. This allows a one-semester course to just cover the fundamentals if desired, and a professional to focus on advanced topics if he or she wants.

Antenna Theory-Constantine A. Balanis 2012-12-03 The discipline of antenna theory has experienced vast technological changes. In response, Constantine Balanis has updated his classic text, Antenna Theory, offering the most recent look at all the necessary topics. New material includes smart antennas and fractal antennas, along with the latest applications in wireless communications. Multimedia material on an accompanying CD presents PowerPoint viewgraphs of lecture notes, interactive review questions, Java animations and applets, and MATLAB features. Like the previous editions, Antenna Theory, Third Edition meets the needs of electrical engineering and physics students at the senior undergraduate and beginning graduate levels, and those of practicing engineers as well. It is a benchmark text for mastering the latest theory in the subject, and for better understanding the technological applications. An Instructor's Manual presenting detailed solutions to all the problems in the book is available from the Wiley editorial department.

Aperture Antennas for Millimeter and Sub-Millimeter Wave Applications-Artem Boriskin 2017-09-05 This book presents the technology of millimetre waves and Terahertz (THz) antennas. It highlights the importance of moderate and high-gain aperture antennas as key devices for establishing point-to-point and point-to-multipoint radio links for far-field and near-field applications, such as high data-rate communications, intelligent transport, security imaging, exploration and surveillance systems. The book provides a comprehensive overview of the key antenna technologies developed for the mm wave and THz domains, including established ones - such as integrated lens antennas, advanced 2D and 3D horn antennas, transmit and reflect arrays, and Fabry-Perot antennas - as well as emerging metasurface antennas for near-field and far-field applications. It describes the pros and cons of each antenna technology in comparison with other available solutions, a discussion supplemented by practical examples illustrating the step-by-step implementation procedures for each antenna type. The measurement techniques available at these frequency ranges are also presented to close the loop of the antenna development cycle. In closing, the book outlines future trends in various antenna technologies, paving the way for further developments.

Presenting content originating from the five-year ESF research networking program 'Newfocus' and co-authored by the most active and highly cited research groups in the domain of mm- and sub-mm-wave antenna technologies, the book offers a valuable guide for researchers and engineers in both industry and academia. Antennas-Yi Huang 2008-09-15 Practical, concise and complete reference for the basics of modern antenna design Antennas: from Theory to Practice discusses the basics of modern antenna design and theory. Developed specifically for engineers and designers who work with radio communications, radar and RF engineering, this book offers practical and hands-on treatment of antenna theory and techniques, and provides its readers the skills to analyse, design and measure various antennas. Key features: Provides thorough coverage on the basics of transmission lines, radio waves and propagation, and antenna analysis and design Discusses industrial standard design software tools, and antenna measurement equipment, facilities and techniques Covers electrically small antennas, mobile antennas, UWB antennas and new materials for antennas Also discusses reconfigurable antennas, RFID antennas, Wide-band and multi-band antennas, radar antennas, and MIMO antennas Design examples of various antennas are provided Written in a practical and concise manner by authors who are experts in antenna design, with experience from both academia and industry This book will be an invaluable resource for engineers and designers working in RF engineering, radar and radio communications, seeking a comprehensive and practical introduction to the basics of antenna design. The book can also be used as a textbook for advanced students entering a profession in this field.

Antenna Theory and Applications-Hubregt J. Visser 2012-01-17 This comprehensive text on antenna theory explains the origin of radiation and discusses antenna parameters in-depth This book offers an in-depth coverage of fundamental antenna theory, and shows how to apply this in practice. The author discusses electromagnetic radiation and antenna characteristics such as impedance, radiation pattern, polarization, gain and efficiency. In addition, the book provides readers with the necessary tools for analyzing complex antennas and for designing new ones. Furthermore, a refresher chapter on vector algebra, including gradient, divergence and curl operation is included. Throughout the book ample examples of employing the derived theory are given and all chapters are concluded with problems, giving the reader the opportunity to test his/her acquired knowledge. Key Features: Covers the mathematical and physical background that is needed to understand electromagnetic radiation and antennas Discusses the origin of radiation and provides an in-depth explanation of antenna parameters Explores all the necessary steps in antenna analysis allowing the reader to understand and analyze new antenna structures Contains a chapter on vector algebra, which is often a stumbling block for learners in this field Includes examples and a list of problems at the end of each chapter Accompanied by a website containing solutions to the problems (for instructors) and CST modeling files (www.wiley.com/go/visser_antennas This book will serve as an invaluable reference for advanced (last year Bsc, Msc) students in antenna and RF engineering, wireless communications, electrical engineering, radio engineers and other professionals needing a reference on antenna theory. It will also be of interest to advanced/senior radio engineers, designers and developers.

Solutions Manual to Accompany Antenna Theory-Constantine A. Balanis 1982

Antenna Engineering Handbook-John Volakis 2018-11-05 The gold-standard reference on the design and application of classic and modern antennas—fully updated to reflect the latest advances and technologies This new edition of the “bible of antenna engineering” has been updated to provide start-to-finish coverage of the latest innovations in antenna design and application. You will find in-depth discussion of antennas used in modern communication systems, mobile and personal wireless technologies, satellites, radar deployments, flexible electronics, and other emerging technologies, including 5G, terahertz, and wearable electronics. Antenna Engineering Handbook, Fifth Edition, is bolstered by real-world examples, hundreds of illustrations, and an emphasis on the practical aspects of antennas. Featuring 60 chapters and contributions from more than 80 renowned experts, this acclaimed resource is edited by one of the world's leading antenna authorities. This edition features all of the classic antenna types, plus new and emerging designs, with 13 all-new chapters and important updates to nearly all chapters from past editions. Antenna Engineering Handbook, Fifth Edition, clearly explains cutting-edge applications in WLANs, automotive systems, PDAs, and handheld devices, making it an indispensable companion for today's antenna practitioners and developers. Coverage includes: •Antenna basics and classic antennas•Design approaches for antennas and arrays•Wideband and multiband antennas•Antennas for mobile devices and PDAs, automotive applications, and aircraft•Base station and smart antennas•Beamforming and 5G antennas•Millimeter-wave and terahertz antennas•Flexible, wearable, thin film, origami, dielectric, and on-chip antennas•MIMO antennas and phased arrays•Direction-finding and GPS antennas•Active antennas•Low-profile wideband antennas•Nanoantennas•Reflectors and other satellite and radio-telescope antennas•Low-frequency, HF, VHF, UHF, ECM, and ESM antennas•Impedance-matching techniques and material characteristics•Metasurface and frequency selective surfaces•Propagation and guided structures•Computational techniques and tools•Indoor and outdoor measurements

Antennas and Wave Propagation-A. R. Harish 2007 Aimed at a single-semester course on antennas at the undergraduate level, Antennas and Wave Propagation provides a lucid explanation of the fundamentals of antennas and propagation. This student-friendly text also includes simple design procedures along with a large number of examples and exercises.

Printed Antennas for Wireless Communications-Rod Waterhouse 2008-03-11 Printed antennas, also known as microstrip antennas, have a variety of beneficial properties including mechanical durability, conformability, compactness and cheap manufacturing costs. As such, they have a range of applications in both the military and commercial sectors, and are often mounted on the exterior of aircraft and spacecraft as well as incorporated into mobile radio communication devices. Printed Antennas for Wireless Communications offers a practical guide to state-of-the-art printed antenna technology used for wireless systems. Contributions from renowned global experts within both academia and industry enable the reader to design printed antennas and associated technologies, and offer valuable insights into important breakthroughs in these areas. Divided into 3 sections covering fundamental wideband printed radiating elements for wireless systems, small printed antennas for wireless systems, and advanced concepts and applications in wireless systems. Provides experimental data and applies theoretical models to present design performance trends and to give the reader an in-depth coverage of the area. Presents summaries of different approaches used in solving wireless systems such as WPAN (wireless personal area network) and MIMO (multi-input/multi-output), offering the reader an overall perspective of the pros and cons of each. Focuses on practical design, examples and 'real world' solutions. Printed Antennas for Wireless Communications offers an excellent insight on printed antennas from the theoretical to the practical; hence it will appeal to practicing design engineers within commercial and governmental/military organisations, as well as postgraduate students and researchers in communications technology

Antenna-in-Package Technology and Applications-Duixian Liu 2020-03-03 A comprehensive guide to antenna design, manufacturing processes, antenna integration, and packaging Antenna-in-Package Technology and Applications contains an introduction to the history of AIP technology. It explores antennas and packages, thermal analysis and design, as well as measurement setups and methods for AIP technology. The authors—well-known experts on the topic—explain why microstrip patch antennas are the most popular and describe the myriad constraints of packaging, such as electrical performance, thermo-mechanical reliability, compactness, manufacturability, and cost. The book includes information on how the choice of interconnects is governed by JEDEC for automatic assembly and describes low-temperature co-fired ceramic, high-density interconnects, fan-out wafer level packaging-based AIP, and 3D-printing-based AIP. The book includes a detailed discussion of the surface laminar circuit-based AIP designs for large-scale mm-wave phased arrays for 94-GHz imagers and 28-GHz 5G New Radios. Additionally, the book includes information on 3D AIP for sensor nodes, near-field wireless power transfer, and IoT applications. This important book: • Includes a brief history of antenna-in-package technology • Describes package structures widely used in AIP, such as ball grid array (BGA) and quad flat no-leads (QFN) • Explores the concepts, materials and processes, designs, and verifications with special consideration for excellent electrical, mechanical, and thermal performance Written for students in electrical engineering, professors, researchers, and RF engineers, Antenna-in-Package Technology and Applications offers a guide to material selection for antennas and packages, antenna design with manufacturing processes and packaging constraints, antenna integration, and packaging.

Antenna Handbook-Y.T. Lo 2013-06-29 Techniques based on the method of modal expansions, the Rayleigh-Stevenson expansion in inverse powers of the wavelength, and also the method of moments solution of integral equations are essentially restricted to the analysis of electromagnetic radiating structures which are small in terms of the wavelength. It therefore becomes necessary to employ approximations based on "high-frequency techniques" for performing an efficient analysis of electromagnetic radiating systems that are large in terms of the wavelength. One of the most versatile and useful high-frequency techniques is the geometrical theory of diffraction (GTD), which was developed around 1951 by J. B. Keller [1,2,3]. A class of diffracted rays are introduced systematically in the GTD via a generalization of the concepts of classical geometrical optics (GO). According to the GTD these diffracted rays exist in addition to the usual incident, reflected, and transmitted rays of GO. The diffracted rays in the GTD originate from certain "localized" regions on the surface of a radiating structure, such as at discontinuities in the geometrical and electrical properties of a surface, and at points of grazing incidence on a smooth convex surface as illustrated in Fig. 1. In particular, the diffracted rays can enter into the GO shadow as well as the lit regions. Consequently, the diffracted rays entirely account for the fields in the shadow region where the GO rays cannot exist.

Modern Antenna Design-Thomas A. Milligan 2005-07-08 A practical book written for engineers who design and use antennas The author has many years of hands on experience designing antennas that were used in such applications as the Venus and Mars missions of NASA The book covers all important topics of modern antenna design for communications Numerical methods will be included but only as much as are needed for practical applications

Frequency Independent Antennas-Victor H. Rumsey 2014-06-28 Frequency Independent Antennas provides a reasonably complete coverage of frequency independent antennas from its inception until the middle of 1965. Most of the contents have not previously been published, except in scattered journal articles, and some are original. The first six chapters are written at a fairly easy level—about the level of a beginning graduate student or the more advanced undergraduate. The last two chapters, which deal with solutions of Maxwell's equations, are at a somewhat higher level. The book opens with a discussion of some fundamental ideas about antennas. It shows how typical chapters can be understood in terms of classical electromagnetic theory; in other words, how to make sense of measured data, how to set up apparatus to get meaningful data, and how to test their significance. Separate chapters follow on the features of frequency independent, plane-sheet, spiral, and log-periodic antennas. Subsequent chapters discuss how the periodic structure theory provides a way of understanding the peculiarities of frequency independent antennas; and solutions of Maxwell's equations for idealized spiral and idealized sinusoidal structures.

Metamaterials and Metasurfaces-Josep Canet-Ferrer 2019-01-03 Metamaterials have provided applications in spectral ranges covering radio frequencies and ultraviolet. However, most applications have been extrapolated to the visible or near-infrared after being developed at the GHz level. This is due to technological reasons since fabrication of microwave antennas is not as demanding as THz resonators or plasmonic nanostructures. Accordingly, this book has been divided into three parts. In the first part, fundamentals of metamaterials and metadevices are discussed, while describing recent advances in the field. In the second part, the discussion is extended to the different spectral ranges focusing on the strategies for enabling the reconfigurability of metadevices. Given the increasing interest in THz applications, these can be found in the third part.

Progress in Compact Antennas-Laure Huitema 2014-09-10 Compact antennas are a subject of growing interest from industry and scientific community to equip wireless communicating objects. The need for high performance small antennas and RF front ends is the challenge for future and next generation mobile devices. This book brings the body of knowledge on compact antennas into a single comprehensive volume. It is designed to meet the needs of electrical engineering and physics students to the senior undergraduate and beginning graduate levels, and those of practicing engineers.

Antenna Theory-Constantine A. Balanis 1996-06-12 The Latest Resource for the Study of Antenna Theory! In a discipline that has experienced vast technological changes, this text offers the most recent look at all the necessary topics. Highlights include: • New coverage of microstrip antennas provides information essential to a wide variety of practical designs of rectangular and circular patches, including computer programs. • Applications of Fourier transform (spectral) method to antenna radiation. • Updated material on moment methods, radar cross section, mutual impedances, aperture and horn antennas, compact range designs, and antenna measurements. A New Emphasis on Design! Balanis features a tremendous increase in design procedures and equations. This presents a solid solution to the challenge of meeting real-life situations faced by engineers. Computer programs contained in the book-and accompanying software-have been developed to help engineers analyze, design, and visualize the radiation characteristics of antennas.

Microstrip and Printed Antennas: Applications-Based Designs-Ann Pandey 2019-03-31 This comprehensive resource presents antenna fundamentals balanced with the design of printed antennas. Over 70 antenna projects, along with design dimensions, design flows and antenna performance results are discussed, including antennas for wireless communication, 5G antennas and beamforming. Examples of smartphone antennas, MIMO antennas, aerospace and satellite remote sensing array antennas, automotive antennas and radar systems and many more printed antennas for various applications are also included. These projects include design dimensions and parameters that incorporate the various techniques used by industries and academia. This book is intended to serve as a practical microstrip and printed antenna design guide to cover various real-world applications. All Antenna projects discussed in this book are designed, analyzed and simulated using full-wave electromagnetic solvers. Based on several years of the author's research in antenna design and development for RF and microwave applications, this book offers an in-depth coverage of practical printed antenna design methodology for modern applications.

Solutions Manual to Accompany Antennas and Radiowave Propagation-Robert E. Collin 1985

Radio Frequency Identification-Mamun Bin Ibne Reaz 2013-06-05 RFID based application creates tremendous new business opportunities such as the support of independent living of elderly and disabled persons, efficient supply chains, efficient anti-counterfeiting and better environmental monitoring. RFID data management, scalable information systems, business process reengineering, and evaluating investments are emerging as significant technical challenges to applications underpinned by new developments in RFID technology. This book presents the contributions from world leading experts on the latest developments and state-of-the-art results in the RFID field to address these challenges. The book offers a comprehensive and systematic description of technologies, architectures, and methodologies of various efficient, secure, scalable, and reliable RFID and RFID based applications.

Microwave RF Antennas and Circuits-Ofer Aluf 2016-12-01 This book describes a new concept for analyzing RF/microwave circuits, which includes RF/microwave antennas. The book is unique in its emphasis on practical and innovative microwave RF engineering applications. The analysis is based on nonlinear dynamics and chaos models and shows comprehensive benefits and results. All conceptual RF microwave circuits and antennas are innovative and can be broadly implemented in engineering applications. Given the dynamics of RF microwave circuits and antennas, they are suitable for use in a broad range of applications. The book presents analytical methods for microwave RF antennas and circuit analysis, concrete examples, and geometric examples. The analysis is developed systematically, starting with basic differential equations and their bifurcations, and subsequently moving on to fixed point analysis, limit cycles and their bifurcations. Engineering applications include microwave RF circuits and antennas in a variety of topological structures, RFID ICs and antennas, microstrips, circulators, cylindrical RF network antennas, Tunnel Diodes (TDs), bipolar transistors, field effect transistors (FETs), IMPATT amplifiers, Small Signal (SS) amplifiers, Bias-T circuits, PIN diode circuits, power amplifiers, oscillators, resonators, filters, N-turn antennas, dual spiral coil antennas, helix antennas, linear dipole and slot arrays, and hybrid nonlinear circuits. In each chapter, the concept is developed from the basic assumptions up to the final engineering outcomes. The scientific background is explained at basic and advanced levels and closely integrated with mathematical theory. The book also includes a wealth of examples, making it ideal for intermediate graduate level studies. It is aimed at electrical and electronic engineers, RF and microwave engineers, students and researchers in physics, and will also greatly benefit all engineers who have had no formal instruction in nonlinear dynamics, but who now desire to bridge the gap between innovative microwave RF circuits and antennas and advanced mathematical analysis methods.

Selected Asymptotic Methods with Applications to Electromagnetics and Antennas-George Fikioris 2013-09-01 This book describes and illustrates the application of several asymptotic methods that have proved useful in the authors' research in electromagnetics and antennas. We first define asymptotic approximations and expansions and explain these concepts in detail. We then develop certain prerequisites from complex analysis such as power series, multivalued functions (including the concepts of branch points and branch cuts), and the all-important gamma function. Of particular importance is the idea of analytic continuation (of functions of a single complex variable); our discussions here include some recent, direct applications to antennas and computational electromagnetics. Then, specific methods are discussed. These include integration by parts and the Riemann-Lobesgue lemma, the use of contour integration in conjunction with other methods, techniques related to Laplace's method and Watson's lemma, the asymptotic behavior of certain Fourier sine and cosine transforms, and the Poisson summation formula (including its version for finite sums). Often underutilized in the literature are asymptotic techniques based on the Mellin transform: our treatment of this subject complements the techniques presented in our recent Synthesis Lecture on the exact (not asymptotic) evaluation of integrals.

Fractal Analysis-Fernando Brambila 2017-06-14 Fractal analysis has entered a new era. The applications to different areas of knowledge have been surprising. Let us begin with the fractional calculus-fractal geometry relationship, which allows for modeling with extreme precision of phenomena such as diffusion in porous media with fractional partial differential equations in fractal objects. Where the order of the equation is the same as the fractal dimension, this allows us to make calculations with enormous precision in diffusion phenomena-particularly in the oil industry, for new spillage prevention. Main applications to industry, design of fractal antennas to receive all frequencies and that is used in all cell phones, spacecraft, radars, image processing, measure, porosity, turbulence, scattering theory. Benoit Mandelbrot, creator of fractal geometry, would have been surprised by the use of fractal analysis presented in this book: "Part I: Petroleum Industry and Numerical Analysis"; "Part II: Fractal Antennas, Spacecraft, Radars, Image Processing, and Measure"; and "Part III: Scattering Theory, Porosity, and Turbulence." It's impossible to picture today's research without fractal analysis.

Handbook of Reflector Antennas and Feed Systems Volume III: Applications of Reflectors-Sudhakar Rao 2013-06-01 This is the first truly comprehensive and most up-to-date handbook available on modern reflector antennas and feed sources for diversified space and ground applications. There has never been such an all-encompassing reflector handbook in print, and no currently available title offers coverage of such recent research developments. The Handbook consists of three volumes. Volume III focuses on the range of reflector antenna applications, including space, terrestrial, and radar. The intent of this book volume is to provide practical applications and design information on reflector antennas used for several communications systems. This book covers recent developments of reflector antennas used for satellite communications, terrestrial communications, and remote sensing applications. New subjects are introduced for the first time, including satellite antennas, Terahertz antennas, PIM, multipaction, corona, deployable mesh reflector antennas, and mechanical aspects of reflector antennas. In addition, this book contains a separate topic on integrated feed assembly for reflector antennas covering analysis, design, fabrication, and test.

Printed MIMO Antenna Engineering-Mohammad S. Sharawi 2014-05-01 Wireless communications has made a huge leap during the past two decades. The multiple-input-multiple-output (MIMO) technology was proposed in the 1990's as a viable solution that can overcome the data rate limit experienced by single-input-single-output (SISO) systems. This resource is focused on printed MIMO antenna system design. Printed antennas are widely used in mobile and handheld terminals due to their conformity with the device, low cost, good integration within the device elements and mechanical parts, as well as ease of fabrication. A perfect design companion for practicing engineers, this book provides full design examples from literature, along with detailed illustrations for the various antenna geometries. This resource overviews the various applications that currently depend on printed MIMO antennas, and provides design guidelines and remarks throughout the book for guidance.

Electromagnetics, Microwave Circuit and Antenna Design for Communications Engineering-Peter Russer 2003 If you're looking for a clear, comprehensive overview of basic electromagnetics principles and applications to antenna and microwave circuit design for communications, this authoritative book is your best choice. Including concise explanations of all required mathematical concepts needed to fully comprehend the material, the book is your complete resource for understanding electromagnetics in current, emerging and future broadband communication systems, as well as high-speed analogue and digital electronic circuits and systems.

Nanoplasmonics-Grégoire Barbillon 2017-06-21 Nanoplasmonics is a young topic of research, which is part of nanophotonics and nano-optics. Nanoplasmonics concerns to the investigation of electron oscillations in metallic nanostructures and nanoparticles. Surface plasmons have optical properties, which are very interesting. For instance, surface plasmons have the unique capacity to confine light at the nanoscale. Moreover, surface plasmons are very sensitive to the surrounding medium and the properties of the materials on which they propagate. In addition to the above, the surface plasmon resonances can be controlled by adjusting the size, shape, periodicity, and materials' nature. All these optical properties can enable a great number of applications, such as biosensors, optical modulators, photodetectors, and photovoltaic devices. This book is intended for a broad audience and provides an overview of some of the fundamental knowledges and applications of nanoplasmonics.

Advanced Antenna Systems for 5G Network Deployments-Henrik Asplund 2020-06-24 Advanced Antenna Systems for 5G Network Deployments: Bridging the Gap between Theory and Practice provides a comprehensive understanding of the field of advanced antenna systems (AAS) and how they can be deployed in 5G networks. The book gives a thorough understanding of the basic technology components, the state-of-the-art multi-antenna solutions, what support 3GPP has standardized together with the reasoning, AAS performance in real networks, and how AAS can be used to enhance network deployments. Explains how AAS features impact network performance and how AAS can be effectively used in a 5G network, based on either NR and/or LTE Shows what AAS configurations and features to use in different network deployment scenarios, focusing on mobile broadband, but also including fixed wireless access Presents the latest developments in multi-antenna technologies, including Beamforming, MIMO and cell shaping, along with the potential of different technologies in a commercial network context Provides a deep understanding of the differences between mid-band and mm-Wave solutions

A Directory of Computer Software Applications- 1978

The A.R.R.L. Antenna Book- 2003

Antenna Engineering Handbook, Fourth Edition-John Volakis 2007-06-07 This edition contains 21 new chapters and a bonus eight page color insert, and new material on specialty antennas such as wideband patch antennas, antenna arrays, smart antennas, and more.

Plasma Antennas-Theodore Anderson 2011 The plasma antenna is an emerging technology that partially or fully utilizes ionized gas as the conducting medium instead of metal to create an antenna. The key advantages of plasma antennas are that they are highly reconfigurable and can be turned on and off. The disadvantage is that the plasma antennas require energy to be ionized. This unique resource provides you with a solid understanding of the efficient design and prototype development of plasma antennas, helping you to meet the challenge of reducing the power required to ionize the gas at various plasma densities. You also find thorough coverage of the technical underpinnings of plasma antennas, as well as important discussions on current markets and applications. Additionally, the book presents experimental work in the this cutting-edge area and reveals the latest developments in the field. This in-depth reference is supported with over 70 illustrations and more than 110 equations.

Antennas in Matter-Ronald Wyeth Percival King 1981 Antennas in Matter provides both an introduction to and a comprehensive description of the properties of antennas and probes embedded within or near material bodies such as the earth, the ocean, or a living organism. The theory and application of antennas designed to transmit and receive information between points above the earth's surface are for the most part well understood. This book presents a full treatment of a sequence of research that has become increasingly important in recent years—the use of underground antennas for communication with miners and subway trains and for the geophysical exploration of the earth's crust; underwater antennas, antennas embedded in or near living organisms for biomedical and diagnostics in tissue and layered media with electromagnetic properties as diverse as those of fat, muscle, and bone. The book has been designed to serve a dual purpose: the first and third parts, covering fundamentals and measurements, form a self-contained introduction for undergraduates and researchers in geophysics and bioengineering; the second part provides a detailed presentation of the theory for graduate students and researchers in electrical engineering and physics. The approach integrates analytical, numerical, and experimental methods for the solution of a variety of problems involving antennas and electromagnetic wave propagation in or near matter.

Microwave Systems and Applications-Sotirios Goudos 2017-01-11 Microwave systems are key components of every modern wireless communication system. The main objective of this book was to collect as many different state-of-the-art studies as possible in order to cover in a single volume the main aspects of microwave systems and applications. This book contains 17 chapters written by acknowledged experts, researchers, academics, and microwave engineers, providing comprehensive information and covering a wide range of topics on all aspects of microwave systems and applications. This book is divided into four parts. The first part is devoted to microwave components. The second part deals with microwave ICs and innovative techniques for on-chip antenna design. The third part presents antenna design cases for microwave systems. Finally, the last part covers different applications of microwave systems.

Practical Antenna Handbook-Joseph J. Carr 1998 Fully updated, this guide is one of the most practical introductions to the design construction, installation and troubleshooting of virtually all types of antennas. This is a book enhanced by a wealth of illustrations, including example and worked-out solutions of equations. The CD-ROM includes popular shareware for antenna modeling and Visual Basic programs for customized designs.

Radio Antennas and Propagation-William Gosling 1998-11-02 Radio Frequency Energy: Background; Electromagnetic sources; Simple antennas; More complex antennas; Antennas using conducting surfaces; Specialised antennas; Summary. Moving Quanta from Place to Place: Introduction to Various Propagation Environments; Describing the Earth's Atmosphere; The Troposphere; Reflection; Where We Live; Near Earth Propagation; Radio Propagation in a Complex Urban Environment; Sky-wave Propagation; Artificial Sky-wave Propagation; Summary; Index; Appendix: Feeders.

International Conference on Antennas and Propagation- 2003

Fundamentals of Wireless Communication-David Tse 2005-05-26 This textbook takes a unified view of the fundamentals of wireless communication and explains cutting-edge concepts in a simple and intuitive way. An abundant supply of exercises make it ideal for graduate courses in electrical and computer engineering and it will also be of great interest to practising engineers.

Sixth International Conference on Antennas and Propagation (ICAP 89), 4-7 April 1989, Venue, University of Warwick, Coventry, United Kingdom- 1989

Antenna and Wave Propagation-K.D. Prasad 1996

Microstrip Antennas-David M. Pozar 1995-05-15 "This anthology combines 15 years of microstrip antenna technology research into one significant volume and includes a special introductory tutorial by the co-editors. Covering theory, design and modeling techniques and methods, this source book is an excellent reference tool for engineers who want to become more familiar with microstrip antennas and microwave systems. Proven antenna designs, novel solutions to practical design problems and relevant papers describing the theory of operation and analysis of microstrip antennas are contained within this convenient reference."

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