

Modern Lens Antennas For Communications Engineering Full

Antenna and Array Technologies for Future Wireless Ecosystems
 Non-Imaging Microwave and Millimetre-Wave Sensors for Concealed Object Detection
 Orthogonal Methods for Array Synthesis
 Wireless Sensor Systems for Extreme Environments
 Antennas
 Handbook of Research on Next Generation Mobile Communication Systems
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 Antenna Engineering Handbook
 Modern Printed-Circuit Antennas
 Time-Domain Electromagnetic Reciprocity in Antenna Modeling
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 Terahertz Planar Antennas for Next Generation Communication
 Fundamentals of Aperture Antennas and Arrays
 Modern Dictionary of Electronics
 Next Generation Wireless Terahertz Communication Networks
 Handbook of Antennas in Wireless Communications
 Advanced Radio Frequency Antennas for Modern Communication and Medical Systems
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 Wideband, Multiband, and Smart Reconfigurable Antennas for Modern Wireless Communications
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 Substrate-Integrated Millimeter-Wave Antennas for Next-Generation Communication and Radar Systems
 Modern Antenna Systems
 Millimeter Wave Wireless Communications
 Millimeter Wave Technology in Wireless PAN, LAN, and MAN
 Scientific and Technical Aerospace Reports
 Low-cost Smart Antennas
 Antenna Theory and Design
 From ER to E.T.

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Antenna and Array Technologies for Future Wireless Ecosystems McGraw Hill Professional

This book describes various methods to enhance the directivity of planar antennas, enabling the next generation of high frequency, wireless communication. The authors discuss various applications to the terahertz regime of the electromagnetic spectrum, with an emphasis on gain enhancement mechanisms. The numerical models of these antennas are presented and the analytical results are supported, using commercial simulators. The multilayer substrate microstrip transmission line at terahertz frequency is also explored and a method to obtain the various parameters of this interconnect at high frequency is described. This book will be a valuable resource for anyone needing to explore the terahertz band gap for future wireless communication, in an effort to solve the bandwidth (spectrum scarcity) problem.

Non-Imaging Microwave and Millimetre-Wave Sensors for Concealed Object Detection Elsevier

The book proposes new technologies and discusses innovative solutions to various problems in the field of communication, circuits, and systems, as reflected in high-quality papers presented at International Conference on Communication, Circuits, and Systems (IC3S 2020) held at KIIT, Bhubaneswar, India from 16 - 18 October 2020. It brings together new works from academicians, scientists, industry professionals, scholars, and students together to exchange research outcomes and open up new horizons in the areas of signal processing, communications, and devices.

Orthogonal Methods for Array Synthesis Artech House

Here's the first complete reference available on all of the modern reflector antenna analysis and design techniques. This book demystifies modern reflector antenna analysis by proceeding from the early numerical integration approaches to today's powerful techniques, such as the Jacobi-Bessel and Fourier-Bessel Methods.

Wireless Sensor Systems for Extreme Environments Springer Science & Business Media

Provides unique coverage of wireless sensor system applications in space, underwater, underground, and extreme industrial environments in one volume This book covers the challenging aspects of wireless sensor systems and the problems and conditions encountered when applying them in outer space, under the water, below the ground, and in extreme industrial environments. It explores the unique aspects of designs and solutions that address those problems and challenges, and illuminates the connections, similarities, and differences between the challenges and solutions in those various environments. The creation of Wireless Sensor Systems for Extreme Environments is a response to the spread of wireless sensor technology into fields of health, safety, manufacturing, space, environmental, smart cities, advanced robotics, surveillance, and agriculture. It is the first of its kind to present, in a single reference, the unique aspects of wireless sensor system design, development, and deployment in such extreme environments—and to explore the similarities and possible synergies between them. The application of wireless sensor systems in these varied environments has been lagging dramatically behind their application in more conventional environments, making this an especially relevant book for investigators and practitioners in all of these areas. Wireless Sensor Systems for Extreme Environments is presented in five parts that cover: Wireless

Sensor Systems for Extreme Environments—Generic Solutions Space WSS Solutions and Applications Underwater and Submerged WSS Solutions Underground and Confined Environments WSS Solutions Industrial and Other WSS Solutions This book is a welcome guide for researchers, post-graduate students, engineers and scientists who design and build operational and environmental control systems, emergency response systems, and situational awareness systems for unconventional environments.

Antennas John Wiley & Sons

Describes applications of time-domain EM reciprocity and the Cagniard-deHoop technique to achieve solutions to fundamental antenna radiation and scattering problems This book offers an account of applications of the time-domain electromagnetic (TD EM) reciprocity theorem for solving selected problems of antenna theory. It focuses on the development of both TD numerical schemes and analytical methodologies suitable for analyzing TD EM wave fields associated with fundamental antenna topologies. Time-Domain Electromagnetic Reciprocity in Antenna Modeling begins by applying the reciprocity theorem to formulate a fundamentally new TD integral equation technique – the Cagniard-deHoop method of moments (CdH-MoM) – regarding the pulsed EM scattering and radiation from a thin-wire antenna. Subsequent chapters explore the use of TD EM reciprocity to evaluate the impact of a scatterer and a lumped load on the performance of wire antennas and propose a straightforward methodology for incorporating ohmic loss in the introduced solution methodology. Other topics covered in the book include the pulsed EM field coupling to transmission lines, formulation of the CdH-MoM concerning planar antennas, and more. In addition, the book is supplemented with simple MATLAB code implementations, so that readers can test EM reciprocity by conducting (numerical) experiments. In addition, this text: Applies the thin-sheet boundary conditions to incorporate dielectric, conductive and plasmonic properties of planar antennas Provides illustrative numerical examples that validates the described methodologies Presents analyzed problems at a fundamental level so that readers can fully grasp the underlying principles of solution methodologies Includes appendices to supplement material in the book Time-Domain Electromagnetic Reciprocity in Antenna Modeling is an excellent book for researchers and professors in EM modeling and for applied researchers in the industry.

Handbook of Research on Next Generation Mobile Communication Systems Modern Lens Antennas for Communications Engineering

The Definitive, Comprehensive Guide to Cutting-Edge Millimeter Wave Wireless Design “This is a great book on mmWave systems that covers many aspects of the technology targeted for beginners all the way to the advanced users. The authors are some of the most credible scholars I know of who are well respected by the industry. I highly recommend studying this book in detail.” —Ali Sadri, Ph.D., Sr. Director, Intel Corporation, MCG mmWave Standards and Advanced Technologies Millimeter wave (mmWave) is today's breakthrough frontier for emerging wireless mobile cellular networks, wireless local area networks, personal area networks, and vehicular communications. In the near future, mmWave products, systems, theories, and devices will come together to deliver mobile data rates thousands of times faster than today's existing cellular and WiFi networks. In Millimeter Wave Wireless Communications, four of the field's pioneers draw on their immense experience as researchers, entrepreneurs, inventors, and consultants, empowering engineers at all levels to succeed with mmWave. They deliver exceptionally clear and useful guidance for newcomers, as well as the first complete desk reference for design experts. The authors explain mmWave signal propagation, mmWave circuit design, antenna designs, communication theory, and current standards (including IEEE 802.15.3c, Wireless HD, and ECMA/WiMedia). They cover comprehensive mmWave wireless design issues, for 60 GHz and other mmWave bands, from channel to antenna to receiver, introducing emerging design techniques that will be invaluable for research engineers in both industry and academia. Topics include Fundamentals: communication theory, channel propagation, circuits, antennas, architectures, capabilities, and applications Digital communication: baseband signal/channel models, modulation, equalization, error control coding, multiple input multiple output (MIMO) principles, and hardware architectures Radio wave propagation characteristics: indoor and outdoor applications Antennas/antenna arrays, including on-chip and in-package antennas, fabrication, and packaging Analog circuit design: mmWave transistors, fabrication, and transceiver design approaches Baseband circuit design: multi-gigabit-per-second, high-fidelity DAC and ADC converters Physical layer: algorithmic choices, design considerations, and impairment solutions; and how to overcome clipping, quantization, and nonlinearity Higher-layer design: beam adaptation protocols, relaying, multimedia transmission, and multiband considerations 60 GHz standardization: IEEE 802.15.3c for WPAN, Wireless HD, ECMA-387, IEEE 802.11ad, Wireless Gigabit Alliance (WiGig)

U.S. Government Research Reports John Wiley & Sons

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 Marsmissions 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

Proceedings of International Conference on Communication, Circuits, and Systems John Wiley & Sons

A comprehensive survey of boundary conditions as applied in antenna and microwave engineering, material physics, optics, and general electromagnetics research. Boundary conditions are essential for determining electromagnetic problems. Working with engineering problems, they provide analytic assistance in mathematical handling of electromagnetic structures, and offer synthetic help for designing new electromagnetic structures. Boundary Conditions in Electromagnetics describes the most-general boundary conditions restricted by linearity and locality, and analyzes basic plane-wave reflection and matching problems associated to a planar boundary in a simple-isotropic medium. This comprehensive text first introduces known special cases of particular familiar forms of boundary conditions — perfect electromagnetic conductor, impedance, and DB boundaries — and then examines various general forms of boundary conditions. Subsequent chapters discuss sesquilinear boundary conditions and practical computations on wave scattering by objects defined by various boundary conditions. The practical applications of less-common boundary conditions, such as for metamaterial and metasurface engineering, are referred to throughout the text. This book: Describes the mathematical analysis of fields associated to given boundary conditions Provides examples of how boundary conditions affect the scattering properties of a particle Contains ample in-chapter exercises and solutions, complete references, and a detailed index Includes appendices containing electromagnetic formulas, Gibbsian 3D dyadics, and four-dimensional formalism Boundary Conditions in Electromagnetics is an authoritative text for electrical engineers and physicists working in electromagnetics research, graduate or post-graduate students studying electromagnetics, and advanced readers interested in electromagnetic theory.

Military Pay Increase John Wiley & Sons

ANTENNA AND ARRAY TECHNOLOGIES FOR FUTURE WIRELESS ECOSYSTEMS Discover a timely and accessible resource on the latest antenna research driving new developments in the field In Antenna and Array Technologies for Future Wireless Ecosystems, distinguished academics and authors Drs. Y. Jay Guo and Richard W. Ziolkowski deliver a cutting-edge resource for researchers, academics, students, and engineers who need the latest research findings on the newest challenges facing antenna designers who will be creating the technology that drives future 6G and beyond wireless systems and networks. This timely and impactful book offers the fundamental knowledge that will facilitate new research activities in the antennas and applied electromagnetics communities, and conveys innovative and practical solutions to many wireless industry problems. Its international cohort of leading authors delivers their findings on a variety of advanced topics in antenna and array research, including metasurface antennas; electrically small directive antennas; RF, millimeter-wave and THz antennas and arrays; atom-based sensors, and arrays of quantum emitters. The book also includes resources that cover the important topics: A thorough introduction to various intelligent and low-cost beam scanning, beamforming and beam-reconfigurable array technologies to support dynamic networking of future systems An exploration of advanced techniques for analyzing large arrays, as well as an examination of advanced antenna-in-package technologies for future mm-wave systems Discussions of the latest research on electrically small and extremely large hybrid antenna arrays, and photonic beamforming networks to address spectrum scarcity in future systems Low form-factor, low energy-consumption, and wireless power transfer antennas for the Internet of Things (IoT) This book is the companion of the Wiley book by the same authors, Advanced Antenna Array Engineering for 6G and Beyond Wireless Communications. Perfect for antenna engineers in academia and industry, Antenna and Array Technologies for Future Wireless Ecosystems will also be an essential resource in the libraries of senior undergraduate and graduate students studying antenna engineering applied electromagnetics and seeking a one-stop reference for state-of-the-art global antenna and antenna array research activities.

Boundary Conditions in Electromagnetics John Wiley & Sons

The rapid growth of the data traffic demands new ways to achieve high-speed wireless links. The backbone networks, data centers, mission-critical applications, as well as end-users sitting in office or home, all require ultra-high throughput and ultra-low latency wireless links. Sophisticated technological advancement and huge bandwidth are required to reduce the latency. Terahertz band, in this regard, has a huge potential to provide these high-capacity links where a user can download the file in a few seconds. To realize the high-capacity wireless links for future applications, in this book, different aspects of the Terahertz band wireless communication network are presented. This book highlights the Terahertz channel characteristics and modeling, antenna design and beamforming, device characterization, applications, and protocols. It also provides state-of-the-art knowledge on different communication aspects of Terahertz communication and techniques to realize the true potential of the Terahertz band for wireless communication.

Antenna Engineering Handbook CRC Press

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.

Modern Printed-Circuit Antennas Artech House

This book covers the study of electromagnetic wave theory and describes how electromagnetic technologies affect our daily lives. From ER to ET: How Electromagnetic Technologies Are Changing Our Lives explores electromagnetic wave theory including its founders, scientific underpinnings, ethical issues, and applications through history. Utilizing a format of short essays, this book explains in a balanced, and direct style how electromagnetic technologies are changing the world we live in and the future they may create for us. Quizzes at the end of each chapter provide the reader with a deeper understanding of the material. This book is a valuable resource for microwave engineers of varying levels of experience, and for instructors to motivate their students and add depth to their assignments. In addition, this book: Presents topics that investigate all aspects of electromagnetic technology throughout history Explores societal and global issues that relate to the field of electrical engineering (emphasized in current ABET accreditation criteria) Includes quizzes relevant to every essay and answers which explain technical perspectives Rajeev Bansal, PhD, is a professor of Electrical and Computer Engineering at the University of Connecticut. He is a member of IEEE and the Connecticut Academy of Science and Engineering. He is a Fellow of the Electromagnetics Academy. His editing credits include Fundamentals of Engineering Electromagnetics and Engineering Electromagnetics: Applications. Dr. Bansal contributes regular columns to IEEE Antennas and Propagation Magazine and IEEE Microwave Magazine.

Time-Domain Electromagnetic Reciprocity in Antenna Modeling CRC Press

In response to the ever-increasing global threat of terrorist attacks, the personal screening industry has been growing at a rapid rate. Many methods have been developed for detecting concealed weapons and explosives on the human body. In this important new book, the authors discuss their experiences over the last decade designing and testing microwave and millimetre wave detection and screening systems. It includes examples of actual devices that they have built and tested, along with test results that were obtained in realistic scenarios. The book focuses on the development of non-imaging detection systems, which are similar to radar. These systems do not form a conventional image of the scene and the person(s) being screened. Instead, the sensors detect and analyze the effect that the body, and any concealed objects, has on a transmitted waveform. These systems allow remote detection of both metallic and dielectric devices concealed on the human body in both indoor and outdoor environments. The book discusses a number of sensor types, including active millimetre wave sensors using the direct detection and the heterodyne approach, active microwave sensors for CNR-based object detection, passive millimetre wave sensors, and the role of shielding effects in operating non-imaging MM-wave sensors. The goal of this book is to systemize the test results obtained by the authors, helping specialists to develop improved screening systems in the future. Another goal is to show how the use of non-imaging systems can reduce the cost of the screening process.

Advanced Computational Electromagnetic Methods John Wiley & Sons

Included in this revised classic are terminologies from the worlds of consumer electronics, optics, microelectronics, communications, medical electronics, and packaging and production. 150 line drawings.

John Wiley & Sons

A guide to the theory and recent development in the medical use of antenna technology. *Antenna and Sensor Technologies in Modern Medical Applications* offers a comprehensive review of the theoretical background, design, and the latest developments in the application of antenna technology. Written by two experts in the field, the book presents the most recent research in the burgeoning field of wireless medical telemetry and sensing that covers both wearable and implantable antenna and sensor technologies. The authors review the integrated devices that include various types of sensors wired within a wearable garment that can be paired with external devices. The text covers important developments in sensor-integrated clothing that are synonymous with athletic apparel with built-in electronics. Information on implantable devices is also covered. The book explores technologies that utilize both inductive coupling and far field propagation. These include minimally invasive microwave ablation antennas, wireless targeted drug delivery, and much more. This important book: Covers recent developments in wireless medical telemetry Reviews the theory and design of in vitro/in vivo testing Explores emerging technologies in 2D and 3D printing of antenna/sensor fabrication Includes a chapter with an annotated list of the most comprehensive and important references in the field Written for students of engineering and antenna and sensor engineers, *Antenna and Sensor Technologies in Modern Medical Applications* is an essential guide to understanding human body interaction with antennas and sensors.

Terahertz Planar Antennas for Next Generation Communication CRC Press

Anyone who has ever shopped for a new smart phone, laptop, or other tech gadget knows that staying connected is crucial. There is a lot of discussion over which service provider offers the best coverage—enabling devices to work anywhere and at any time—with 4G and LTE becoming a pervasive part of our everyday language. The *Handbook of Research on Next Generation Mobile Communication Systems* offers solutions for optimal connection of mobile devices. From satellite signals to cloud technologies, this handbook focuses on the ways communication is being revolutionized, providing a crucial reference source for consumers, researchers, and business professionals who want to be on the frontline of the next big development in wireless technologies. This publication features a wide variety of research-based articles that discuss the future of topics such as bandwidth, energy-efficient power, device-to-device communication, network security and privacy, predictions for 5G communication systems, spectrum sharing and connectivity, and many other relevant issues that will influence our everyday use of technology.

Fundamentals of Aperture Antennas and Arrays BoD - Books on Demand

Modern Lens Antennas for Communications Engineering John Wiley & Sons

Modern Dictionary of Electronics John Wiley & Sons

Microsystems technologies have found their way into an impressive variety of applications, from mobile phones, computers, and displays to smart grids, electric cars, and space shuttles. This multidisciplinary field of research extends the current capabilities of standard integrated circuits in terms of materials and designs and complements them by creating innovative components and smaller systems that require lower power consumption and display better performance. *Novel Advances in Microsystems Technologies and their Applications* delves into the state of the art and the applications of microsystems and microelectronics-related technologies. Featuring contributions by academic and industrial researchers from around the world, this book: Examines organic and flexible electronics, from polymer solar cell to flexible interconnects for the co-integration of micro-electromechanical

systems (MEMS) with complementary metal oxide semiconductors (CMOS) Discusses imaging and display technologies, including MEMS technology in reflective displays, the fabrication of thin-film transistors on glass substrates, and new techniques to display and quickly transmit high-quality images Explores sensor technologies for sensing electrical currents and temperature, monitoring structural health and critical industrial processes, and more Covers biomedical microsystems, including biosensors, point-of-care devices, neural stimulation and recording, and ultra-low-power biomedical systems Written for researchers, engineers, and graduate students in electrical and biomedical engineering, this book reviews groundbreaking technology, trends, and applications in microelectronics. Its coverage of the latest research serves as a source of inspiration for anyone interested in further developing microsystems technologies and creating new applications.

Next Generation Wireless Terahertz Communication Networks Springer Nature

Substrate-Integrated Millimeter-Wave Antennas for Next-Generation Communication and Radar Systems The first and only comprehensive text on substrate-integrated mmW antenna technology, state-of-the-art antenna design, and emerging wireless applications *Substrate-Integrated Millimeter-Wave Antennas for Next-Generation Communication and Radar Systems* elaborates the most important topics related to revolutionary millimeter-wave (mmW) technology. Following a clear description of fundamental concepts including substrate-integrated waveguides and loss analysis, the text treats key design methods, prototyping techniques, and experimental setup and testing. The authors also highlight applications of mmW antennas in 5G wireless communication and next-generation radar systems. Readers are prepared to put techniques into practice through practical discussions of how to set up testing for impedance matching, radiation patterns, gain from 24GHz up to 325 GHz, and more. This book will bring readers state-of-the-art designs and recent progress in substrate-integrated mmW antennas for emerging wireless applications. *Substrate-Integrated Millimeter-Wave Antennas for Next-Generation Communication and Radar Systems* is the first comprehensive text on the topic, allowing readers to quickly master mmW technology. This book: Introduces basic concepts such as metamaterials Huygens's surface, zero-index structures, and pattern synthesis Describes prototyping in the form of fabrication based on printed-circuit-board, low-temperature-co-fired-ceramic and micromachining Explores applications for next-generation radar and imaging systems such as 24-GHz and 77-GHz vehicular radar systems Elaborates design methods including waveguide-based feeding network, three-dimensional feeding structure, dielectric loaded aperture antenna element, and low-sidelobe synthesis The mmW is one of today's most important emerging technologies. This book provides graduate students, researchers, and engineers with the knowledge they need to deploy mmW systems and develop new antenna designs with low cost, low loss, and low complexity.

Handbook of Antennas in Wireless Communications IGI Global

The aim of this book is to present the modern design principles and analysis of lens antennas. It gives graduates and RF/Microwave professionals the design insights in order to make full use of lens antennas. Why do we want to write a book in lens antennas? Because this topic has not been thoroughly publicized, its importance is underestimated. As antennas play a key role in communication systems, recent development in wireless communications would indeed benefit from the characteristics of lens antennas: low profile, and low cost etc. The major advantages of lens antennas are narrow beamwidth, high gain, low sidelobes and low noise temperature. Their structures can be more compact and weigh less than horn antennas and parabolic antennas. Lens antennas with their quasi-optical characteristics, also have low loss, particularly at near millimeter and submillimeter wavelengths where they have particular advantages. This book systematically conducts advanced and up-to-date treatment of lens antennas.