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Scientific and Engineering Applications Using MATLAB - Emilson Pereira Leite 2011-08-01

The purpose of this book is to present 10 scientific and engineering works whose numerical and graphical analysis were all constructed using the power of MATLAB® tools. The first five chapters of this book show applications in seismology, meteorology and natural environment. Chapters 6 and 7 focus on modeling and simulation of Water Distribution Networks. Simulation was also applied to study wide area protection for interconnected power grids (Chapter 8) and performance of conical antennas (Chapter 9). The last chapter deals with depth positioning of underwater robot vehicles. Therefore, this book is a collection of interesting examples of where this computational package can be applied.

Wide-Range Antennas - Boris Levin
2019-02-21

Expanding the range of antenna frequency is the main objective of this book. Solutions proposed are based on the development of new theoretical methods for analyzing and synthesizing antennas. The book shows that concentrated capacitive loads connected along linear and V-antennas provide a high level of matching with a cable over a wide frequency range and improves directional characteristics of antennas, i.e. increases the communication distance. New theoretical methods are proposed for analysis and synthesis of antennas under consideration: 1) method of calculating directional characteristics of radiators with a given current distribution, and 2) method of electrostatic analogy for calculating mutual and total fields of complex multi-element radiating structures. These methods allow us to obtain optimal

directional characteristics for director-type antennas (arrays of Yagi-Uda) and log-periodic antennas with concentrated capacitances and show that use of capacitors makes it possible to extend the frequency range of the director antennas and to decrease dimensions of the log-periodic antennas. Multi-element (flat and three-dimensional) self-complementary antennas with different variants of connecting generator poles and cable wires to antenna elements are proposed, which improves the matching with a cable. Characteristics of flat structures are compared with characteristics of volume structures: conical, parabolic, and located on a pyramid edges. The book describes new versions of transparent antennas, antennas for cellular communication, multi-tier and multi-radiator antennas, and much more.

Electronic Circuit Analysis - United States.
Department of the Air Force 1963

Nuclear Science Abstracts - 1964

The Physics and Mathematics of Electromagnetic Wave Propagation in Cellular Wireless Communication - Tapan K. Sarkar 2018-05-31

An important resource that examines the physical aspects of wireless communications based on mathematical and physical evidence. The Physics and Mathematics of Electromagnetic Wave Propagation in Cellular Wireless Communication describes the electromagnetic principles for designing a cellular wireless system and includes the subtle electromagnetic principles that are often overlooked in designing such a system. This important text explores both the physics and

mathematical concepts used in deploying antennas for transmission and reception of electromagnetic signals and examines how to select the proper methodology from a wide range of scenarios. In this much-needed guide, the authors—noted experts in the field—explore the principle of electromagnetics as developed through the Maxwellian principles and describe the properties of an antenna in the frequency domain. The text also includes a review of the characterization of propagation path loss in a cellular wireless environment and examines ultrawideband antennas and the mechanisms of broadband transmission of both power and information. This important resource: Includes a discussion of the shortcomings of a MIMO system from both theoretical and practical aspects Demonstrates how to deploy base station antennas with better efficiency Validates the principle and the theoretical analysis of electromagnetic propagation in cellular wireless communication Contains results of experiments that are solidly grounded in mathematics and physics Written for engineers, researchers, and educators who are or plan to work in the field, The Physics and Mathematics of Electromagnetic Wave Propagation in Cellular Wireless Communication offers an essential resource for understanding the principles underpinning wireless communications.

VHF Booster and Community Antenna Legislation - United States. Congress. Senate. Communications Subcommittee of the Committee on Interstate and Foreign Commerce 1959

AF Manual - United States. Dept. of the Air Force 1962

Antenna Theory and Design - Warren L. Stutzman 2012-05-22
Stutzman's 3rd edition of *Antenna Theory and Design* provides a more pedagogical approach with a greater emphasis on computational methods. New features include additional modern material to make the text more exciting and relevant to practicing engineers; new chapters on systems, low-profile elements and base station antennas; organizational changes to improve understanding; more details to selected important topics such as microstrip antennas

and arrays; and expanded measurements topic.
Introduction to Ultra-Wideband Radar Systems - James D. Taylor 1994-12-16

This introductory reference covers the technology and concepts of ultra-wideband (UWB) radar systems. It provides up-to-date information for those who design, evaluate, analyze, or use UWB technology for any application. Since UWB technology is a developing field, the authors have stressed theory and hardware and have presented basic principles and concepts to help guide the design of UWB systems. *Introduction to Ultra-Wideband Radar Systems* is a comprehensive guide to the general features of UWB technology as well as a source for more detailed information.

Scientific and Technical Aerospace Reports - 1988

U.S. Government Research Reports - 1963

Methods, Formulas, and Tables for the Calculation of Antenna Capacity - Frederick Warren Grover 1928

Finite Element Analysis for Satellite Structures - Gasser F. Abdelal 2012-11-05

Designing satellite structures poses an ongoing challenge as the interaction between analysis, experimental testing, and manufacturing phases is underdeveloped. *Finite Element Analysis for Satellite Structures: Applications to Their Design, Manufacture and Testing* explains the theoretical and practical knowledge needed to perform design of satellite structures. By layering detailed practical discussions with fully developed examples, *Finite Element Analysis for Satellite Structures: Applications to Their Design, Manufacture and Testing* provides the missing link between theory and implementation. Computational examples cover all the major aspects of advanced analysis; including modal analysis, harmonic analysis, mechanical and thermal fatigue analysis using finite element method. Test cases are included to support explanations an a range of different manufacturing simulation techniques are described from riveting to shot peening to material cutting. Mechanical design of a satellites structures are covered in three steps: analysis step under design loads, experimental

testing to verify design, and manufacturing. Stress engineers, lecturers, researchers and students will find Finite Element Analysis for Satellite Structures: Applications to Their Design, Manufacture and Testing a key guide on with practical instruction on applying manufacturing simulations to improve their design and reduce project cost, how to prepare static and dynamic test specifications, and how to use finite element method to investigate in more details any component that may fail during testing.

Antennas and Wave Propagation - G. S. N. Raju 2006

Antennas and Wave Propagation is written for the first course on the same. The book begins with an introduction that discusses the fundamental concepts, notations, representation and principles that govern the field of antennas. A separate chapter on mathematical preliminaries is discussed followed by chapters on every aspect of antennas from Maxwell's equations to antenna array analysis, antenna array synthesis, antenna measurements and wave propagation.

Thesaurus of FAA Descriptors - United States. Federal Aviation Agency. Library Services Division. Information Retrieval Branch 1965

Handbook of Microstrip Antennas - J[ames] R[oderick] James 1989

The book reviews developments in the following fields: circular microstrip antennas; microstrip patch antennas; circular polarisation and bandwidth; microstrip dipoles; multilayer and parasitic configurations; wideband flat dipole and short-circuit microstrip patch elements and arrays; numerical analysis; multiport network approach; transmission-line model; rectangular microstrip antennas; low-cost printed antennas; printed phased-array antennas; circularly polarised antenna arrays; microstrip antenna feeds; substrate technology; computer-aided design of microstrip and triplate circuits; resonant microstrip antenna elements and arrays for aerospace applications; mobile and satellite systems; conical conformal microstrip tracking antenna; and microstrip field diagnostics.

Handbook of Research on 5G Networks and Advancements in Computing, Electronics, and

Electrical Engineering - Nwajana, Augustine O. 2021-06-25

The advent of the emerging fifth generation (5G) networks has changed the paradigm of how computing, electronics, and electrical (CEE) systems are interconnected. CEE devices and systems, with the help of the 5G technology, can now be seamlessly linked in a way that is rapidly turning the globe into a digital world. Smart cities and internet of things have come to stay but not without some challenges, which must be discussed. The Handbook of Research on 5G Networks and Advancements in Computing, Electronics, and Electrical Engineering focuses on current technological innovations as the world rapidly heads towards becoming a global smart city. It covers important topics such as power systems, electrical engineering, mobile communications, network, security, and more. This book examines vast types of technologies and their roles in society with a focus on how each works, the impacts it has, and the future for developing a global smart city. This book is ideal for both industrial and academic researchers, scientists, engineers, educators, practitioners, developers, policymakers, scholars, and students interested in 5G technology and the future of engineering, computing, and technology in human society.

Integral Equation Methods for Electromagnetic and Elastic Waves - Weng Chew 2008-07-08

Integral Equation Methods for Electromagnetic and Elastic Waves is an outgrowth of several years of work. There have been no recent books on integral equation methods. There are books written on integral equations, but either they have been around for a while, or they were written by mathematicians. Much of the knowledge in integral equation methods still resides in journal papers. With this book, important relevant knowledge for integral equations are consolidated in one place and researchers need only read the pertinent chapters in this book to gain important knowledge needed for integral equation research. Also, learning the fundamentals of linear elastic wave theory does not require a quantum leap for electromagnetic practitioners. Integral equation methods have been around for several decades, and their introduction to

electromagnetics has been due to the seminal works of Richmond and Harrington in the 1960s. There was a surge in the interest in this topic in the 1980s (notably the work of Wilton and his coworkers) due to increased computing power. The interest in this area was on the wane when it was demonstrated that differential equation methods, with their sparse matrices, can solve many problems more efficiently than integral equation methods. Recently, due to the advent of fast algorithms, there has been a revival in integral equation methods in electromagnetics. Much of our work in recent years has been in fast algorithms for integral equations, which prompted our interest in integral equation methods. While previously, only tens of thousands of unknowns could be solved by integral equation methods, now, tens of millions of unknowns can be solved with fast algorithms. This has prompted new enthusiasm in integral equation methods. Table of Contents:

Introduction to Computational Electromagnetics / Linear Vector Space, Reciprocity, and Energy Conservation / Introduction to Integral Equations / Integral Equations for Penetrable Objects / Low-Frequency Problems in Integral Equations / Dyadic Green's Function for Layered Media and Integral Equations / Fast Inhomogeneous Plane Wave Algorithm for Layered Media / Electromagnetic Wave versus Elastic Wave / Glossary of Acronyms

ANTENNAS AND WAVE PROPAGATION - YADAVA, R. L. 2022-03-24

This book, now in its Second Edition, is primarily intended for the undergraduate and postgraduate students of electronics and communication, electronics and electrical and telecommunication engineering. It provides a thorough understanding of the fundamentals and applications of the subject. The edition discusses the properties of several types of antennas such as dipoles, loop, Yagi-Uda, log-periodic, slot/DRA and microstrip antennas and also explains the phenomenon of wave propagation with emphasis on theory of operation and design procedures. It provides a comprehension of the principles of radiation and methods of excitation. The book also focuses on antenna measurements along with necessary requirements and different methods of measurement. Written in an easy-to-understand manner, the text includes several

illustrative examples. A large number of solved examples and exercise problems with varying difficulty levels are included to reinforce the theoretical understanding of concepts. The book also contains several objective-type questions in each chapter along with a Question Bank at the end of the book. The Appendices provide a rich source of information and expressions as well as design data. NEW TO THE SECOND EDITION Separate new chapters are devoted to: • Reflector Antennas • Slot and Dielectric Resonator Antennas • Modern Antennas • Effect of Ground on Antenna Performances

ELECTROMAGNETIC COMPATIBILITY - WITHOUT EQUATIONS - CHETAN KATHALAY 2019-04-18

This book deals with practical concepts of Electromagnetic Compatibility testing and design. Given the scorching pace at which electronic gadgets are evolving, deadlines associated with product design are shrinking rapidly. In such a scenario, the designer obviously has no time to read mathematical theory. Keeping this fact in mind, the book explains only the practical aspects of EMC design without resorting to equations or mathematical derivations whatsoever. It has been designed in such a way that the designer can immediately incorporate EMC measures without worrying about the mathematics behind it. The book starts with EMC fundamentals, speaks about EMC standards and then goes on to explain various EMC test methodologies in detail. In the subsequent chapters, various design measures like filtering, shielding, grounding & bonding, PCB design and cable routing are discussed thoroughly. These measures will enable manufacturers to design a compliant product at the design stage itself thereby saving time and money that would otherwise be required for costly retrofits once the design is frozen.

Publications of the National Bureau of Standards ... Catalog - United States. National Bureau of Standards 1987

Antentop 01 2013 - 2013-12-31

Antentop is Free E-Magazine devoted to antennas and amateur radio

[Antenna Engineering](#) - Boris Levin 2017-03-27

The book deals with theoretical and

experimental research of antennas. The presentation is based on the electromagnetic theory. It begins with the theory of thin antennas. Thin antennas represent one of the main types of radiators, thus the theory of thin antennas is the basis of the antennas analysis. Special attention is paid to the integral equation of Leontovich-Levin for a current along a straight thin-walled metal cylinder, which is equivalent to the equation of Hallen with a precise kernel. Together with the analysis of various types of antennas, the book deals with the problems of synthesis including the creation a wide-band radiator by means of determining of the types and the magnitudes of concentrated loads, which are connected along a linear radiator and create in a given frequency band high electrical performance. Problems of antenna engineering are discussed in the second half of the book, including the results of application of a compensation method for the protection of humans against irradiation and structural features of ship antennas.

NASA Tech Briefs - 1978

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.

Official Gazette of the United States Patent and Trademark Office - 1987

EMC Analysis Methods and Computational Models - Frederick M. Tesche 1996-12-26

Describes and illustrates various modeling techniques which are applicable to the area of EMC and includes material previously available only in international reports or other hard-to-obtain references. Electromagnetic topology, lumped-parameter circuit models, the radiation process, scalar diffraction theory for apertures, transmission line modeling, and models for shielding are among the topics discussed. The accompanying disk contains four programs

based on the models developed in the text and can be used to calculate diverse transmission line responses.

Anteni - Khristo Dimitrov Shinev 1963

VHF and UHF Antennas - R. A. Burberry 1992

This book describes a wide range of antenna designs and the fundamentals of their operation. Particular attention is paid to the effects of an antenna's ambient environment and the structure upon which it is mounted (permanent or mobile), and methods of predicting and measuring its performance.

Journal of Research of the National Bureau of Standards - United States. National Bureau of Standards 1980

CubeSat Antenna Design - Nacer Chahat
2020-12-15

Presents an overview of CubeSat antennas designed at the Jet Propulsion Laboratory (JPL). CubeSats—nanosatellites built to standard dimensions of 10cm x 10 cm x cm—are making space-based Earth science observation and interplanetary space science affordable, accessible, and rapidly deployable for institutions such as universities and smaller space agencies around the world. *CubeSat Antenna Design* is an up-to-date overview of CubeSat antennas designed at NASA's Jet Propulsion Laboratory (JPL), covering the systems engineering knowledge required to design these antennas from a radio frequency and mechanical perspective. This authoritative volume features contributions by leading experts in the field, providing insights on mission-critical design requirements for state-of-the-art CubeSat antennas and discussing their development, capabilities, and applications. The text begins with a brief introduction to CubeSats, followed by a detailed survey of low-gain, medium-gain, and high-gain antennas. Subsequent chapters cover topics including the telecommunication subsystem of Mars Cube One (MarCO), the enabling technology of Radar in a CubeSat (RainCube), the development of a one-meter mesh reflector for telecommunication at X- and Ka-band for deep space missions, and the design of multiple metasurface antennas. Written to help antenna engineers to enable new CubeSat NASA missions, this volume: Describes the

selection of high-gain CubeSat antennas to address specific mission requirements and constraints for instruments or telecommunication Helps readers learn how to develop antennas for future CubeSat missions Provides key information on the effect of space environment on antennas to inform design steps Covers patch and patch array antennas, deployable reflectarray antennas, deployable mesh reflector, inflatable antennas, and metasurface antennas CubeSat Antenna Design is an important resource for antenna/microwave engineers, aerospace systems engineers, and advanced graduate and postdoctoral students wanting to learn how to design and fabricate their own antennas to address clear mission requirements.

VHF Booster and Community Antenna Legislation - United States. Congress. Senate. Committee on Interstate and Foreign Commerce. Subcommittee on Communications 1959

Wireless Communication Systems - Ke-Lin Du 2010-04-15

This practically-oriented, all-inclusive guide covers all the major enabling techniques for current and next-generation cellular communications and wireless networking systems. Technologies covered include CDMA, OFDM, UWB, turbo and LDPC coding, smart antennas, wireless ad hoc and sensor networks, MIMO, and cognitive radios, providing readers with everything they need to master wireless systems design in a single volume. Uniquely, a detailed introduction to the properties, design, and selection of RF subsystems and antennas is provided, giving readers a clear overview of the whole wireless system. It is also the first textbook to include a complete introduction to speech coders and video coders used in wireless systems. Richly illustrated with over 400 figures, and with a unique emphasis on practical and state-of-the-art techniques in system design, rather than on the mathematical foundations, this book is ideal for graduate students and researchers in wireless communications, as well as for wireless and telecom engineers.

Antennas and the Associated Time Domain Range for the Measurement of Impulse Fields - Robert A. Lawton 1978

Antenna Theory - Constantine A. Balanis 2005-04-04

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.

STUDY AND INVESTIGATION OF A UHF-VHF ANTENNA - J.A.M. Lyon, G.G. Rassweiler, D.M. Grimes, 1965

COMPOSITE MATERIALS: Testing and design - 1972

Antenna Engineering Handbook, Fourth Edition - John Volakis 2007-06-07

The "bible of antenna engineering" fully updated to provide state-of-the-art coverage in antenna design and applications Edited by John L. Volakis, one of the world's leading authorities in antenna engineering, this trusted resource covers all the classic antenna types plus many new types and designs used in communications systems, satellites, radars, and emerging applications from WLAN to automotive systems to biomedical to smart antennas. You will also find expert discussion of topics critical to successful antenna design and engineering, such as measurement techniques and computational methods, a materials guide, wave propagation basics, microwave circuits, and matching techniques, as well as diversity and MIMO propagation models, frequency selective surfaces, and metamaterials. Packed with 1,500

illustrations, the 4th Edition of Antenna Engineering Handbook presents: Step-by-step guidance on most antennas (modern and classic) 59 chapters with 21 new chapters and 38 fully updated chapters from the previous edition Contributions from over 80 well-known antenna experts Full-color insert illustrating many commercial and military antennas Get Quick Access to All of Today's Cutting-Edge Antennas • Printed and Conformal Antennas • Wideband Patch Antennas • Wideband Arrays • Leaky-Wave Antennas • EBG Antennas • UWB Antennas and Arrays • Portable TV Antennas • Reconfigurable Antennas • Active Antennas • Millimeter Wave and TeraHertz Antennas • Fractal Antennas • Handset and Terminal Antennas • Biomedical Antennas • ECM and ESM antennas • Dielectric Resonator Antennas • Lens Antennas • Radiometer Antennas • Satellite Antennas • Reflector and Earth Station Antennas • and Dozens More!
NASA Tech Brief - United States. National Aeronautics and Space Administration.

Technology Utilization Division 1969

Ultra-Wideband Short-Pulse

Electromagnetics 8 - Carl E. Baum 2007-12-05
The purpose of the Ultra-Wideband Short-Pulse Electromagnetics Conference series is to focus on advanced technologies for the generation, radiation and detection of ultra-wideband short pulse signals, taking into account their propagation and scattering from and coupling to targets of interest. This Conference series reports on developments in supporting mathematical and numerical methods and presents current and potential future applications of the technology. Ultra-Wideband Short-Pulse Electromagnetics 8 is based on the American Electromagnetics 2006 conference held from June 3-7 in Albuquerque, New Mexico. Topical areas covered in this volume include pulse radiation and measurement, scattering theory, target detection and identification, antennas, signal processing, and communications.