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Time-Harmonic Electromagnetic Fields John Wiley & Sons

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.

Fundamentals of Materials Science and Engineering: An Integrated Approach, 5th Edition Artech House

Time-Harmonic Electromagnetic Fields A Classic Reissue in the IEEE Press Series on Electromagnetic Wave Theory Donald G. Dudley, Series Editor "When I begin a new research project, I clear my desk and put away all texts and reference books. Invariably, Harrington's book is the first book to find its way back to my desk. My copy is so worn that it is falling apart."--Dr. Kendall F. Casey, SRI "In the opinion of our faculty, there is no other book available that serves as well as Professor Harrington's does as an introduction to advanced electromagnetic theory and to classic solution methods in electromagnetics."--Professor Chalmers M. Butler, Clemson University First published in 1961, Roger Harrington's *Time-Harmonic Electromagnetic Fields* is one of the most significant works in electromagnetic theory and applications. Over the past forty years, it proved to be a key resource for students, professors, researchers, and engineers who require a comprehensive, in-depth treatment of the subject. Now, IEEE is reissuing the classic in response to requests from our many members, who found it an invaluable textbook and an enduring reference for practicing engineers. About the IEEE Press Series on Electromagnetic Wave Theory The IEEE Press Series on Electromagnetic Wave Theory offers outstanding coverage of the field. It consists of new titles of contemporary interest as well as reissues and revisions of recognized classics by established authors and researchers. The series emphasizes works of long-term archival significance in electromagnetic waves and applications. Designed specifically for graduate students, researchers, and practicing engineers, the series provides affordable volumes that explore and explain electromagnetic waves beyond the undergraduate level.

Modern Electrodynamics CRC Press

This book presents case studies to illustrate that careful modeling of the assembly characteristics and layout details is required to bring simulations and measurements into agreement. Engineers learn how to use a proper combination of isolation structures and circuit techniques to make analog/RF circuits more immune to substrate noise. Topics include substrate noise propagation, passive isolation structures, noise couple in active devices, measuring the coupling mechanisms in analog/RF circuits, prediction of the impact of substrate noise on analog/RF circuits, and noise coupling in analog/RF systems.

Antenna Theory IOS Press

This book is an electromagnetics classic. Originally published in 1941, it has been used by many generations of students, teachers, and researchers ever since. Since it is classic electromagnetics, every chapter continues to be referenced to this day. This classic reissue contains the entire, original edition first published in 1941. Additionally, two new forewords by Dr. Paul E. Gray (former MIT President and colleague of Dr. Stratton) and another by Dr. Donald G. Dudley, Editor of the IEEE Press Series on E/M Waves on the significance of the book's contribution to the field of Electromagnetics.

John Wiley & Sons

Engineers do not have the time to wade through rigorously theoretical books when trying to solve a problem. Beginners lack the expertise required to understand highly specialized treatments of individual topics. This is especially problematic for a field as broad as electromagnetics, which propagates into many diverse engineering fields. The time h

Antenna Theory Wiley Global Education

Presenting topics that have not previously been contained in a single volume, this book offers an up-to-date review of computational methods in electromagnetism, with a focus on recent results in the numerical simulation of real-life electromagnetic problems and on theoretical results that are useful in devising and analyzing approximation algorithms. Based on four courses delivered in Cetraro in June 2014, the material covered includes the spatial discretization of Maxwell's equations in a bounded domain, the numerical approximation of the eddy current model in harmonic regime, the time domain integral equation method (with an emphasis on the electric-field integral equation) and an overview of qualitative methods for inverse electromagnetic scattering problems. Assuming some knowledge of the variational formulation of PDEs and of finite element/boundary element methods, the book is suitable for PhD students and researchers interested in numerical approximation of partial differential equations and scientific computing.

Solutions and Applications of Scattering, Propagation, Radiation and Emission of Electromagnetic Waves John Wiley & Sons

Pozar's new edition of *Microwave Engineering* includes more material on active circuits, noise, nonlinear effects, and wireless systems. Chapters on noise and nonlinear distortion, and active devices have been added along with the coverage of noise and more material on intermodulation distortion and related nonlinear effects. On active devices, there's more updated material on bipolar junction and field effect transistors. New and updated material on wireless communications systems, including link budget, link margin, digital modulation methods, and bit error rates is also part of the new edition. Other new material includes a section on transients on transmission lines, the theory of power waves, a discussion of higher order modes and frequency effects for microstrip line, and a discussion of how to determine unloaded.

Laser Engineering CRC Press

Electromagnetic Scattering is a collection of studies that aims to discuss methods, state of the art, applications, and future research in electromagnetic scattering. The book covers topics related to the subject, which includes low-frequency electromagnetic scattering; the uniform asymptotic theory of electromagnetic edge diffraction; analyses of problems involving high frequency diffraction and imperfect half planes; and multiple scattering of waves by periodic and random distribution. Also covered in this book are topics such as theories of scattering from wire grid and mesh structures; the electromagnetic inverse problem; computational methods for transmission of waves; and developments in the use of complex singularities in the electromagnetic theory. Engineers and physicists who are interested in the study, developments, and applications of electromagnetic scattering will find the text informative and helpful.

Wireless Communications BoD – Books on Demand

Describes most popular computational methods used to solve problems in electromagnetics Matlab code is included throughout, so that the reader can implement the various techniques discussed Exercises included **Wave Propagation in Materials for Modern Applications BoD – Books on Demand**

This book addresses a broad range of topics on antennas for space applications. First, it introduces the fundamental methodologies of space antenna design, modelling and analysis as well as the state-of-the-art and anticipated future technological developments. Each of the topics discussed are specialized and contextualized to the space sector. Furthermore, case studies are also provided to demonstrate the design and implementation of antennas in actual applications. Second, the authors present a detailed review of antenna designs for some popular applications such as satellite communications, space-borne synthetic aperture radar (SAR), Global Navigation Satellite Systems (GNSS) receivers, science instruments, radio astronomy, small satellites, and deep-space applications. Finally it presents the reader with a comprehensive path from space antenna development basics to specific individual applications. Key Features: Presents a detailed review of antenna designs for applications such as satellite communications, space-borne SAR, GNSS receivers, science instruments, small satellites, radio astronomy, deep-space applications Addresses the space antenna development from different angles, including electromagnetic, thermal and mechanical design

strategies required for space qualification Includes numerous case studies to demonstrate how to design and implement antennas in practical scenarios Offers both an introduction for students in the field and an in-depth reference for antenna engineers who develop space antennas This book serves as an excellent reference for researchers, professionals and graduate students in the fields of antennas and propagation, electromagnetics, RF/microwave/millimetrewave systems, satellite communications, radars, satellite remote sensing, satellite navigation and spacecraft system engineering. It also aids engineers technical managers and professionals working on antenna and RF designs. Marketing and business people in satellites, wireless, and electronics area who want to acquire a basic understanding of the technology will also find this book of interest.

Electromagnetic Nondestructive Evaluation (XVII) John Wiley & Sons

Updated with color and gray scale illustrations, a companion website housing supplementary material, and new sections covering recent developments in antenna analysis and design This book introduces the fundamental principles of antenna theory and explains how to apply them to the analysis, design, and measurements of antennas. Due to the variety of methods of analysis and design, and the different antenna structures available, the applications covered in this book are made to some of the most basic and practical antenna configurations. Among these antenna configurations are linear dipoles; loops; arrays; broadband antennas; aperture antennas; horns; microstrip antennas; and reflector antennas. The text contains sufficient mathematical detail to enable undergraduate and beginning graduate students in electrical engineering and physics to follow the flow of analysis and design. Readers should have a basic knowledge of undergraduate electromagnetic theory, including Maxwell's equations and the wave equation, introductory physics, and differential and integral calculus. Presents new sections on flexible and conformal bowtie, Vivaldi antenna, antenna miniaturization, antennas for mobile communications, dielectric resonator antennas, and scale modeling Provides color and gray scale figures and illustrations to better depict antenna radiation characteristics Includes access to a companion website housing MATLAB programs, Java-based applets and animations, Power Point notes, Java-based interactive questionnaires and a solutions manual for instructors Introduces over 100 additional end-of-chapter problems **Antenna Theory: Analysis and Design, Fourth Edition** is designed to meet the needs of senior undergraduate and beginning graduate level students in electrical engineering and physics, as well as practicing engineers and antenna designers. Constantine A. Balanis received his BSEE degree from the Virginia Tech in 1964, his MEE degree from the University of Virginia in 1966, his PhD in Electrical Engineering from The Ohio State University in 1969, and an Honorary Doctorate from the Aristotle University of Thessaloniki in 2004. From 1964 to 1970, he was with the NASA Langley Research Center in Hampton, VA, and from 1970 to 1983, he was with the Department of Electrical Engineering of West Virginia University. In 1983 he joined Arizona State University and is now Regents' Professor of Electrical Engineering. Dr. Balanis is also a life fellow of the IEEE.

Electromagnetics, Microwave Circuit and Antenna Design for Communications Engineering John Wiley & Sons

Advanced Electromagnetic Computation with MATLAB® discusses commercial electromagnetic software, widely used in the industry. Algorithms of Finite Differences, Moment method, Finite Element method and Finite Difference Time Domain method are illustrated. Hand-computed simple examples and MATLAB-coded examples are used to explain the concepts behind the algorithms. Case studies of practical examples from transmission lines, waveguides, and electrostatic problems are given so students are able to develop the code and solve the problems. Two new chapters including advanced methods based on perturbation techniques and three dimensional finite element examples from radiation scattering are included.

Electromagnetics and Antenna Technology Springer Science & Business Media

Wireless technology is a truly revolutionary paradigm shift, enabling multimedia communications between people and devices from any location. It also underpins exciting applications such as sensor networks, smart homes, telemedicine, and automated highways. This book provides a comprehensive introduction to the underlying theory, design techniques and analytical tools of wireless communications, focusing primarily on the core principles of wireless system design. The book begins with an overview of wireless systems and standards. The characteristics of the wireless channel are then described, including their fundamental capacity limits. Various modulation, coding, and signal processing schemes are then discussed in detail, including state-of-the-art adaptive modulation, multicarrier, spread spectrum, and multiple antenna techniques. The concluding chapters deal with multiuser communications, cellular system design, and ad-hoc network design. Design insights and tradeoffs are emphasized throughout the book. It contains many worked examples, over 200 figures,

almost 300 homework exercises, over 700 references, and is an ideal textbook for students.

Power Integrity for Electrical and Computer Engineers John Wiley & Sons

Readily available commercial software enables engineers and students to perform routine calculations and design without necessarily having a sufficient conceptual understanding of the anticipated solution. The software is so user-friendly that it usually produces a beautiful colored visualization of that solution, often camouflaging the fact that t

The Nystrom Method in Electromagnetics Artech House

This unique volume is the first book on integral equation-based methods that combines quantitative formulas for predicting numerical simulation accuracy together with rigorous error estimates and results for dozens of actual electromagnetics and wave propagation problems. You get the latest insights on accuracy-improving methods like regularization and error-increasing effects such as edge singularities and resonance, along with full details on how to determine mesh density, choice of basis functions, and other parameters needed to optimize any numerical simulation.

Modern Antenna Handbook Bentham Science Publishers

Advanced Engineering Electromagnetics John Wiley & Sons

Electromagnetic Theory Artech House

Balanis' second edition of Advanced Engineering Electromagnetics – a global best-seller for over 20 years – covers the advanced knowledge engineers involved in electromagnetic need to know, particularly as the topic relates to the fast-moving, continually evolving, and rapidly expanding field of wireless communications. The immense interest in wireless communications and the expected increase in wireless communications systems projects (antenna, microwave and wireless communication) points to an increase in the number of engineers needed to specialize in this field. In addition, the Instructor Book Companion Site contains a rich collection of multimedia resources for use with this text. Resources include: Ready-made lecture notes in Power Point format for all the chapters. Forty-nine MATLAB® programs to compute, plot and animate some of the wave phenomena Nearly 600 end-of-chapter problems, that's an average of 40 problems per chapter (200 new problems; 50% more than in the first edition) A thoroughly updated Solutions Manual 2500 slides for Instructors are included.

Computational Electromagnetics John Wiley & Sons

This text, directed to the microwave engineers and Master and PhD students, is on the use of electromagnetics to the development and design of advanced integrated components distinguished by their extended field of applications. The results of hundreds of authors scattered in numerous journals and conference proceedings are carefully reviewed and classed. Several chapters are to refresh the knowledge of readers in advanced electromagnetics. New techniques are represented by compact electromagnetic – quantum equations which can be used in modeling of microwave-quantum integrated circuits of future In addition, a topological method to the boundary value problem analysis is considered with the results and examples. One extended chapter is for the development and design of integrated components for extended bandwidth applications, and the technology and electromagnetic issues of silicon integrated transmission lines, transitions, filters, power dividers, directional couplers, etc are considered. Novel prospective interconnects based on different physical effects are reviewed as well. The ideas of topology is applicable to the electromagnetic signaling and computing, when the vector field maps can carry discrete information, and this area and the results in topological signaling obtained by different authors are analyzed, including the recently designed predicate logic processor operating spatially represented signal units. The book is rich of practical examples, illustrations, and references and useful for the specialists working at the edge of contemporary technology and electromagnetics.

Cetraro, Italy 2014 Cambridge University Press

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.

Computational Electromagnetism Springer Science & Business Media

The demand for new and effective methods for the evaluation, maintenance and live-time testing of objects in fields as diverse as engineering, medicine and art, continues to grow. Electromagnetic non-destructive evaluation is a process by which an object can be assessed without permanent alteration by means of inducing electric currents or magnetic fields within the object and observing the electromagnetic response. This book presents selected papers from the 18th International Workshop on Electromagnetic Non-destructive Evaluation (ENDE), which was held in Bratislava, Slovak Republic, on June 25-28, 2013. The aim of the workshop was to provide an international forum for the discussion of the state-of-the-art and perspectives in the field from the view of science, technology and engineering. The book is divided into five main sections: advanced sensors; analytical and numerical modeling and biomedical applications; innovative industrial applications; new developments; and, solutions of inverse problems. Containing 40 peer-reviewed papers, it

will be of interest to all those whose work involves electromagnetic non-destructive evaluation, whatever their discipline.