
Harrington R F 1961 Electromagnetic

Rectangular Dielectric Resonator Antennas
Collected Reprints of the Wave Propagation Laboratory
Glass Micro- and Nanospheres
Simulation-driven Design Optimization And Modeling For Microwave Engineering
Noninvasive Physiological Measurement
EMC Analysis Methods and Computational Models
Computational Electromagnetic-Aerodynamics
Spherical Near-field Antenna Measurements
Geophysical Electromagnetic Theory and Methods
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Computational Electromagnetics and Its Applications
The Handbook of Antenna Design
Auditory Effects of Microwave Radiation
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Radiation from Slot-fed Dielectric Slabs
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The Electrical Engineering Handbook
Anechoic and Reverberation Chambers
Finite Elements for Electrical Engineers
Conformal Array Antenna Theory and Design
Advanced Studies in the Mathematical Theory of Scattering, Volume 3
Journal of Research, National Bureau of Standards
Foundations of Geophysical Electromagnetic Theory and Methods
Inverse Theory and Applications in Geophysics
Computer Techniques for Electromagnetics
Essentials of Computational Electromagnetics

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Rectangular Dielectric Resonator Antennas

John Wiley & Sons

The report contains analyses of the radiation characteristics of grounded dielectric slabs fed by slots in the groundplane. Two configurations are examined, one in which a semi-infinite slab covers the slot, a second in which a finite slab does not extend over the slot. The slots are parallel to the slab edges so

that only TM mode propagation is considered. Integral equations are derived for the fields at the ends of the slabs and approximate solutions are obtained. Numerical results in the form of radiation patterns are given for the case of the semi-infinite slab. It is found that the feed pattern is very close to the space-wave that would exist if the slab were infinite, but differs from it in the region near the horizon. The results can be applied to studies of electronic scanning of finite arrays of slots in the presence of surface wave structures. Recommendations for

further study are included. (Author).

Collected Reprints of the Wave

Propagation Laboratory John Wiley & Sons

This book examines the human auditory effects of exposure to directed beams of high-power microwave pulses, which research results have shown can cause a cascade of health events when aimed at a human subject or the subject's head. The book details multidisciplinary investigations using physical theories and models, physiological events and phenomena, and computer analysis and simulation. Coverage includes brain

anatomy and physiology, dosimetry of microwave power deposition, microwave auditory effect, interaction mechanisms, shock/pressure wave induction, Havana syndrome, and application in microwave thermoacoustic tomography (MTT). The book will be welcomed by scientists, academics, health professionals, government officials, and practicing biomedical engineers as an important contribution to the continuing study of the effects of microwave pulse absorption on humans.

Glass Micro- and Nanospheres IET

Mutual Coupling Between Antennas A guide to mutual coupling between various types of antennas in arrays such as wires, apertures and microstrip patches or antennas co-sited on platforms *Mutual Coupling Between Antennas* explores the theoretical underpinnings of mutual coupling, offers an up-to-date description of the physical effects of mutual coupling for a variety of antennas, and contains techniques for analysing and assessing its effects. The book puts the topic in historical context, presents an integral equation approach, includes the current techniques, measurement methods, and

discusses the most recent advances in the field. With contributions from noted experts on the topic, the book reviews practical aspects of mutual coupling and examines applications that clearly demonstrate where the performance is impacted both positively and negatively. *Mutual Coupling Between Antennas* contains information on how mutual coupling can be analysed with a wide range of methods from direct computer software using discrete methods, to integral equations and Greens function methods as well as approximate asymptotic methods. This important text: Provides a theoretical background for understanding mutual coupling between various types of antennas Describes the interaction that occurs between antennas, both planned and unplanned Explores a key aspect of arrays in any wireless, radar or sensing system operating at radio frequencies Offers a groundbreaking book on antenna mutual coupling Written for antenna engineers, technical specialists, researchers and students, *Mutual Coupling Between Antennas* is the first book to examine mutual coupling between various types of antennas including wires, horns,

microstrip patches, MIMO antennas, co-sited antennas and arrays in planar or conformal configurations.

Simulation-driven Design Optimization And Modeling For Microwave Engineering John Wiley & Sons

Beltrami fields exist commonly in all areas of wave theory. In particular, Beltrami fields are necessary to analyze electromagnetic wave propagation in isotropic chiral materials, numerous examples of which are found in organic chemistry. Artificial chiral composites are evaluated for electromagnetic engineering purposes as well. In this book a comprehensive analysis of electromagnetic fields in chiral materials has been made.

Noninvasive Physiological Measurement Elsevier

This book presents a collection of independent mathematical studies, describing the analytical reduction of complex generic problems in the theory of scattering and propagation of electromagnetic waves in the presence of imperfectly conducting objects. Their subjects include: a global method for scattering by a multimode plane;

diffraction by an impedance curved wedge; scattering by impedance polygons; advanced properties of spectral functions in frequency and time domains; bianisotropic media and related coupling expressions; and exact and asymptotic reductions of surface radiation integrals. The methods developed here can be qualified as analytical when they lead to exact explicit expressions, or semi-analytical when they drastically reduce the mathematical complexity of studied problems. Therefore, they can be used in mathematical physics and engineering to analyse and model, but also in applied mathematics to calculate the scattered fields in electromagnetism for a low computational cost.

EMC Analysis Methods and Computational Models Elsevier

A comprehensive review of the recent advances in anechoic chamber and reverberation chamber designs and measurements. Anechoic and Reverberation Chambers is a guide to the latest systematic solutions for designing anechoic chambers that rely on state-of-the-art computational electromagnetic algorithms. This essential resource

contains a theoretical and practical understanding for electromagnetic compatibility and antenna testing. The solutions outlined optimise chamber performance in the structure, absorber layout and antenna positions whilst minimising the overall cost. The anechoic chamber designs are verified by measurement results from Microwave Vision Group that validate the accuracy of the solution. Anechoic and Reverberation Chambers fills this gap in the literature by providing a comprehensive reference to electromagnetic measurements, applications and over-the-air tests inside chambers. The expert contributors offer a summary of the latest developments in anechoic and reverberation chambers to help scientists and engineers apply the most recent technologies in the field. In addition, the book contains a comparison between reverberation and anechoic chambers and identifies their strengths and weaknesses. This important resource:

- Provides a systematic solution for anechoic chamber design by using state-of-the-art computational electromagnetic algorithms
- Examines both types of chamber in use: comparing and

contrasting the advantages and disadvantages of each

- Reviews typical over-the-air measurements and new applications in reverberation chambers
- Offers a timely and complete reference written by authors working at the cutting edge of the technology
- Contains helpful illustrations, photographs, practical examples and comparison between measurements and simulations

Written for both academics and industrial engineers and designers, Anechoic and Reverberation Chambers explores the most recent advances in anechoic chamber and reverberation chamber designs and measurements.

Computational Electromagnetic-Aerodynamics Elsevier

This text discusses electromagnetics from the view of operator theory, in a manner more commonly seen in textbooks of quantum mechanics. It includes a self-contained introduction to operator theory, presenting definitions and theorems, plus proofs of the theorems when these are simple or enlightening.

Spherical Near-field Antenna Measurements John Wiley & Sons

Part of the IFT (Institute of Food

Technologists) series, this book discusses multiphysics modeling and its application in the development, optimization, and scale-up of emerging food processing technologies. The book covers recent research outcomes to demonstrate process efficiency and the impact on scalability, safety, and quality, and technologies including High Pressure Processing, High Pressure Thermal Sterilization, Radiofrequency, Ultrasound, Ultraviolet, and Pulsed Electric Fields Processing. Ideal for food and process engineers, food technologists, equipment designers, microbiologists, and research and development personnel, this book covers the importance and the methods for applying multiphysics modeling for the design, development, and application of these technologies.

Geophysical Electromagnetic Theory and Methods IET

Geophysical Inverse Theory and Applications, Second Edition, brings together fundamental results developed by the Russian mathematical school in regularization theory and combines them with the related research in geophysical inversion carried out in the West. It

presents a detailed exposition of the methods of regularized solution of inverse problems based on the ideas of Tikhonov regularization, and shows the different forms of their applications in both linear and nonlinear methods of geophysical inversion. It's the first book of its kind to treat many kinds of inversion and imaging techniques in a unified mathematical manner. The book is divided in five parts covering the foundations of the inversion theory and its applications to the solution of different geophysical inverse problems, including potential field, electromagnetic, and seismic methods. Unique in its focus on providing a link between the methods used in gravity, electromagnetic, and seismic imaging and inversion, it represents an exhaustive treatise on inversion theory. Written by one of the world's foremost experts, this work is widely recognized as the ultimate researcher's reference on geophysical inverse theory and its practical scientific applications. - Presents state-of-the-art geophysical inverse theory developed in modern mathematical terminology—the first to treat many kinds of inversion and imaging techniques in a unified

mathematical way - Provides a critical link between the methods used in gravity, electromagnetic, and seismic imaging and inversion, and represents an exhaustive treatise on geophysical inversion theory - Features more than 300 illustrations, figures, charts and graphs to underscore key concepts - Reflects the latest developments in inversion theory and applications and captures the most significant changes in the field over the past decade

Journal of Research John Wiley & Sons

This self-contained book gives fundamental knowledge about scattering and diffraction of electromagnetic waves and fills the gap between general electromagnetic theory courses and collections of engineering formulas. The book is a tutorial for advanced students learning the mathematics and physics of electromagnetic scattering and curious to know how engineering concepts and techniques relate to the foundations of electromagnetics

Computational Electromagnetics and Its Applications Elsevier

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.

The Handbook of Antenna Design

Elsevier

Essentials of Computational Electromagnetics provides an in-depth introduction of the three main full-wave numerical methods in computational electromagnetics (CEM); namely, the method of moment (MoM), the finite element method (FEM), and the finite-difference time-domain (FDTD) method. Numerous monographs can be found addressing one of the above three methods. However, few give a broad general overview of essentials embodied in these methods, or were published too

early to include recent advances. Furthermore, many existing monographs only present the final numerical results without specifying practical issues, such as how to convert discretized formulations into computer programs, and the numerical characteristics of the computer programs. In this book, the authors elaborate the above three methods in CEM using practical case studies, explaining their own research experiences along with a review of current literature. A full analysis is provided for typical cases, including characteristics of numerical methods, helping beginners to develop a quick and deep understanding of the essentials of CEM. Outlines practical issues, such as how to convert discretized formulations into computer programs Gives typical computer programs and their numerical characteristics along with line by line explanations of programs Uses practical examples from the authors' own work as well as in the current literature Includes exercise problems to give readers a better understanding of the material Introduces the available commercial software and their limitations This book is intended for graduate-level students in

antennas and propagation, microwaves, microelectronics, and electromagnetics. This text can also be used by researchers in electrical and electronic engineering, and software developers interested in writing their own code or understanding the detailed workings of code. Companion website for the book:

www.wiley.com/go/sheng/cem

Auditory Effects of Microwave Radiation

John Wiley & Sons

This book comprehensively describes a variety of methods for the approximate simulation of material surfaces.

Time-Harmonic Electromagnetic Fields CRC Press

Computer-aided full-wave electromagnetic (EM) analysis has been used in microwave engineering for the past decade. Initially, its main application area was design verification. Today, EM-simulation-driven optimization and design closure become increasingly important due to the complexity of microwave structures and increasing demands for accuracy. In many situations, theoretical models of microwave structures can only be used to yield the initial designs that need to be further fine-tuned to meet given

performance requirements. In addition, EM-based design is a must for a growing number of microwave devices such as ultra-wideband (UWB) antennas, dielectric resonator antennas and substrate-integrated circuits. For circuits like these, no design-ready theoretical models are available, so design improvement can only be obtained through geometry adjustments based on repetitive, time-consuming simulations. On the other hand, various interactions between microwave devices and their environment, such as feeding structures and housing, must be taken into account, and this is only possible through full-wave EM analysis. Electromagnetic simulations can be highly accurate, but they tend to be computationally expensive. Therefore, practical design optimization methods have to be computationally efficient, so that the number of CPU-intensive high-fidelity EM simulations is reduced as much as possible during the design process. For the same reasons, techniques for creating fast yet accurate models of microwave structures become crucially important. In this edited book, the authors strive to review the state-of-the-art simulation-

driven microwave design optimization and modeling. A group of international experts specialized in various aspects of microwave computer-aided design summarize and review a wide range of the latest developments and real-world applications. Topics include conventional and surrogate-based design optimization techniques, methods exploiting adjoint sensitivity, simulation-based tuning, space mapping, and several modeling methodologies, such as artificial neural networks and kriging. Applications and case studies include microwave filters, antennas, substrate integrated structures and various active components and circuits. The book also contains a few introductory chapters highlighting the fundamentals of optimization and modeling, gradient-based and derivative-free algorithms, metaheuristics, and surrogate-based optimization techniques, as well as finite difference and finite element methods./a

Foundations of Antenna Radiation Theory
IET

Like the earlier editions, this text begins by deriving finite elements for the simplest familiar potential fields, then advances to

formulate finite elements for a wide range of applied electromagnetics problems. A wide selection of demonstration programs allows the reader to follow the practical use of the methods.

Fundamentals of Aperture Antennas and Arrays Springer Nature

The Electrical Engineer's Handbook is an invaluable reference source for all practicing electrical engineers and students. Encompassing 79 chapters, this book is intended to enlighten and refresh knowledge of the practicing engineer or to help educate engineering students. This text will most likely be the engineer's first choice in looking for a solution; extensive, complete references to other sources are provided throughout. No other book has the breadth and depth of coverage available here. This is a must-have for all practitioners and students! The Electrical Engineer's Handbook provides the most up-to-date information in: Circuits and Networks, Electric Power Systems, Electronics, Computer-Aided Design and Optimization, VLSI Systems, Signal Processing, Digital Systems and Computer Engineering, Digital Communication and Communication Networks,

Electromagnetics and Control and Systems. About the Editor-in-Chief...Wai-Kai Chen is Professor and Head Emeritus of the Department of Electrical Engineering and Computer Science at the University of Illinois at Chicago. He has extensive experience in education and industry and is very active professionally in the fields of circuits and systems. He was Editor-in-Chief of the IEEE Transactions on Circuits and Systems, Series I and II, President of the IEEE Circuits and Systems Society and is the Founding Editor and Editor-in-Chief of the Journal of Circuits, Systems and Computers. He is the recipient of the Golden Jubilee Medal, the Education Award, and the Meritorious Service Award from the IEEE Circuits and Systems Society, and the Third Millennium Medal from the IEEE. Professor Chen is a fellow of the IEEE and the American Association for the Advancement of Science.* 77 chapters encompass the entire field of electrical engineering.* THOUSANDS of valuable figures, tables, formulas, and definitions.* Extensive bibliographic references.
Foundations of Applied Electrodynamics
John Wiley & Sons

This book is intended as an advanced text for courses in antennas, with a focus on the mature but vital background field of aperture antennas. The book is aimed at final year, MSc, PhD and Post-Doctoral students, as well as readers who are moving from academia into industry, beginning careers as wireless engineers, system designers, in R&D, or for practising engineers. It assumes the reader has undertaken an earlier course of study on Maxwell's equations, fields and waves. Some of these topics are summarised in the early few chapters in order to provide continuity and background for the remaining chapters. The aperture antennas covered include the main types of horns, reflectors and arrays as well as microstrip patches, reflectarrays and lenses. To provide more than a superficial treatment of arrays, the topic of mutual coupling is covered in greater detail than most similar books in the area. Also included is an introduction to arrays on non-planar surfaces, which is of importance for applications that involve curved surfaces such as in aerodynamics or for making aperture antennas unobtrusive. A chapter is included on

some modern aperture antennas to illustrate design techniques beyond the most common types of aperture antennas described in the early chapters. This is to show where advances have recently been made and where they could be improved in the future. Also included are selected topics of a practical nature for aperture antennas, namely fabrication and measurement.

Microwave Imaging John Wiley & Sons
This book explains the principles and techniques of microwave physiological sensing and introduces fundamental results of the noninvasive sensing of physiological signatures, vital signs, as well as life detection. Specifically, noninvasive microwave techniques for contact, contactless, and remote sensing of circulatory and respiratory movements and physiological volume changes are discussed. *Noninvasive Physiological Measurement: Wireless Microwave Sensing*, is written by a pioneering researcher in microwave noninvasive physiological sensing and leading global

expert in microwaves in biology and medicine. The book reviews current advances in noninvasive cardiopulmonary sensing technology and measurement. It includes measurements of the vital signs and physiological signatures from laboratory and clinical testing. The book discusses the applicable domains and scenarios in which there is an interaction of radio frequency (RF) and microwaves with biological matter in gas, fluid, or solid form, both from inside and outside of the human or animal body. The book also provides examples for healthcare monitoring and diagnostic applications through wearables, devices, or remote contactless sensors for physiological signals and signature, vital signs, and body motion sensing. This book is an essential guide to understanding the human body's interaction with microwaves and noninvasive physiological sensing and monitoring. This book is intended for researchers and professionals in biomedical, electrical, and computer engineering with an interest in antenna, sensors, microwaves, signal processing,

and medical applications. It will also be of interest to healthcare professionals, technologists, and practitioners interested in noninvasive physiological sensing and patient monitoring.

Bend Radiation from Single-mode and Multimode Optical Fibers Elsevier

This is the first comprehensive treatment of conformal antenna arrays from an engineering perspective. While providing a thorough foundation in theory, the authors of this publication provide a wealth of hands-on instruction for practical analysis and design of conformal antenna arrays. Thus, you get the knowledge you need, alongside the practical know-how to design antennas that are integrated into such structures aircrafts or skyscrapers.

Approximate Boundary Conditions in Electromagnetics Wiley-IEEE Press

This book presents the fundamental background theory and analytical techniques of antenna design. It deals with a very wide range of antenna types, operating from very low frequencies to millimetre waves.

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- [The Housemaid](#)
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- [Reminders Of Him: A Novel By Colleen Hoover](#)
- [Saved: A War Reporter's Mission To Make It Home](#)
- [Twisted Games \(twisted, 2\) By Ana Huang](#)