
Journal Of Electromagnetic Analysis And Applications

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Antenna Analysis and Design Using FEKO

Electromagnetic Simulation Software
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Basic Radar Analysis, Second Edition

Energy Conservation in Residential, Commercial,
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Heterogeneous Integration of Silicon and Printed
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Microwave and Communication Engineering
Advances on Tensor Analysis and their
Applications
Integral Equation Methods for Electromagnetics
Proceedings of the 2012 International Conference
on Detection and Classification of Underwater
Targets
VII Latin American Congress on Biomedical
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With Applications in Antenna, Microwave, and
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Complex Electromagnetic Problems and Numerical Simulation Approaches

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YOUNG NATHAN

Proceedings of the
Tenth International
Symposium on Applied
Electromagnetic and
Mechanics CRC Press
This new resource
covers the latest

developments in
computational
electromagnetic
methods, with
emphasis on cutting-
edge applications. This
book is designed to
extend existing
literature to the latest
development in
computational
electromagnetic

methods, which are of interest to readers in both academic and industrial areas. The topics include advanced techniques in MoM, FEM and FDTD, spectral domain method, GPU and Phi hardware acceleration, metamaterials, frequency and time domain integral equations, and statistics methods in bio-electromagnetics.

Compendium On Electromagnetic Analysis - From Electrostatics To Photonics: Fundamentals And Applications For Physicists And Engineers (In 5 Volumes) Artech

House

Wireless

communications have become invaluable in the modern world. The market is going

through a revolutionary transformation as new technologies and standards endeavor to keep up with demand for integrated and low-cost mobile and wireless devices. Due to their ubiquity, there is also a need for a simplification of the design of wireless systems and networks. The Handbook of Research on Advanced Trends in Microwave and Communication Engineering showcases the current trends and approaches in the design and analysis of reconfigurable microwave devices, antennas for wireless applications, and wireless communication technologies. Outlining both theoretical and experimental approaches, this publication brings to

light the unique design issues of this emerging research, making it an ideal reference source for engineers, researchers, graduate students, and IT professionals. *New Models and Perspectives* IET Bridges the gap between electromagnetics and circuits by addressing electromagnetic modeling (EM) using the Partial Element Equivalent Circuit (PEEC) method. This book provides intuitive solutions to electromagnetic problems by using the Partial Element Equivalent Circuit (PEEC) method. This book begins with an introduction to circuit analysis techniques, laws, and frequency and time domain analyses. The authors also treat Maxwell's

equations, capacitance computations, and inductance computations through the lens of the PEEC method. Next, readers learn to build PEEC models in various forms: equivalent circuit models, non-orthogonal PEEC models, skin-effect models, PEEC models for dielectrics, incident and radiate field models, and scattering PEEC models. The book concludes by considering issues like stability and passivity, and includes five appendices some with formulas for partial elements. Leads readers to the solution of a multitude of practical problems in the areas of signal and power integrity and electromagnetic interference. Contains fundamentals,

applications, and examples of the PEEC method Includes detailed mathematical derivations Circuit Oriented Electromagnetic Modeling Using the PEEC Techniques is a reference for students, researchers, and developers who work on the physical layer modeling of IC interconnects and Packaging, PCBs, and high speed links. *Advances in Computer and Computational Sciences* World Scientific An indispensable guide for engineers and data scientists in design, testing, operation, manufacturing, and maintenance A road map to the current challenges and available opportunities for the research and development of

Prognostics and Health Management (PHM), this important work covers all areas of electronics and explains how to: assess methods for damage estimation of components and systems due to field loading conditions assess the cost and benefits of prognostic implementations develop novel methods for in situ monitoring of products and systems in actual life-cycle conditions enable condition-based (predictive) maintenance increase system availability through an extension of maintenance cycles and/or timely repair actions; obtain knowledge of load history for future design, qualification, and root cause analysis reduce the occurrence

of no fault found (NFF) subtract life-cycle costs of equipment from reduction in inspection costs, downtime, and inventory Prognostics and Health Management of Electronics also explains how to understand statistical techniques and machine learning methods used for diagnostics and prognostics. Using this valuable resource, electrical engineers, data scientists, and design engineers will be able to fully grasp the synergy between IoT, machine learning, and risk assessment. Cambridge Scholars Publishing
This unique reference is the first to cover the theory of adjoint sensitivity analysis and uses the popular FDTD (finite-difference time-

domain) method to show how wideband sensitivities can be efficiently estimated for different types of materials and structures, and includes a variety of MATLAB® examples to help readers absorb the content more easily. Topics covered include a review of FDTD and an introduction to adjoint sensitivity analysis; second-order sensitivity analysis; time-domain responses; and applications to nonlinear and anisotropic materials. *Practical Electromagnetics* Artech House
This book will enable readers to handle various EMC problems, to develop their own EMC computational models in applications

in research and industry, and to better understand numerical methods developed and used by other researchers and engineers not only in EMC, but in other areas of engineering.

Antenna Analysis and Design Using FEKO Electromagnetic Simulation Software

Artech House Publishers

This book consists of the proceedings of the International Conference on Detection and Classification of Underwater Targets which took place in Brest, France, in October 2012. This collection of academic papers represents the current state of the art of research and development in the areas of sensor technology,

processing, modeling and automation for the purpose of detecting and classifying objects in the underwater environment, written by leading researchers in government, industry and academia.

These articles should be of interest not only to those working on underwater target detection, but also to researchers in the related fields of remote sensing, robotic perception and medical imaging.

From Biomedical Sciences to Wireless Communication

Springer

The communication field is evolving rapidly in order to keep up with society's demands. As such, it becomes imperative to research and report recent advancements in computational

intelligence as it applies to communication networks. The Handbook of Research on Recent Developments in Intelligent Communication Application is a pivotal reference source for the latest developments on emerging data communication applications. Featuring extensive coverage across a range of relevant perspectives and topics, such as satellite communication, cognitive radio networks, and wireless sensor networks, this book is ideally designed for engineers, professionals, practitioners, upper-level students, and academics seeking current information on

emerging communication networking trends. Basic Radar Analysis, Second Edition Academic Press Quantitative Magnetic Resonance Imaging is a 'go-to' reference for methods and applications of quantitative magnetic resonance imaging, with specific sections on Relaxometry, Perfusion, and Diffusion. Each section will start with an explanation of the basic techniques for mapping the tissue property in question, including a description of the challenges that arise when using these basic approaches. For properties which can be measured in multiple ways, each of these basic methods will be described in separate chapters.

Following the basics, a chapter in each section presents more advanced and recently proposed techniques for quantitative tissue property mapping, with a concluding chapter on clinical applications. The reader will learn: The basic physics behind tissue property mapping How to implement basic pulse sequences for the quantitative measurement of tissue properties The strengths and limitations to the basic and more rapid methods for mapping the magnetic relaxation properties T1, T2, and T2* The pros and cons for different approaches to mapping perfusion The methods of Diffusion-weighted imaging and how this approach can be used to generate

diffusion tensor maps and more complex representations of diffusion How flow, magneto-electric tissue property, fat fraction, exchange, elastography, and temperature mapping are performed How fast imaging approaches including parallel imaging, compressed sensing, and Magnetic Resonance Fingerprinting can be used to accelerate or improve tissue property mapping schemes How tissue property mapping is used clinically in different organs Structured to cater for MRI researchers and graduate students with a wide variety of backgrounds Explains basic methods for quantitatively measuring tissue

properties with MRI - including T1, T2, perfusion, diffusion, fat and iron fraction, elastography, flow, susceptibility - enabling the implementation of pulse sequences to perform measurements Shows the limitations of the techniques and explains the challenges to the clinical adoption of these traditional methods, presenting the latest research in rapid quantitative imaging which has the possibility to tackle these challenges Each section contains a chapter explaining the basics of novel ideas for quantitative mapping, such as compressed sensing and Magnetic Resonance Fingerprinting-based approaches
Energy Conservation

in Residential, Commercial, and Industrial Facilities

John Wiley & Sons Improve EM simulation efforts fast with this applications-focused resource. 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. Bridging the gap between abstract academic treatments and the real-world needs of engineers, this timely work introduces various surface integral equation formulations, approaches to discretizing the integral equations, and measures of solution accuracy. It gives you numerical methods for 2D radiation and scattering problems, emphasizing concrete solution error bounds with exactly given constants. Moreover, the book provides techniques for higher order basis functions and 3D problems, focusing on smooth scatterers and edge singularity effects. This informative reference

also explores problems involving resonant cavities and structures, and features a comprehensive treatment of resonant scatterers. The final chapter covers the convergence of the fast multipole method with iterative linear system solvers, complete with practical methods for improving the efficiency of iterative solutions.

Heterogeneous Integration of Silicon and Printed Electronics CRC Press
This publication covers topics in the area of applied electromagnetics and mechanics. Since starting in Japan in 1988, the ISEM has become a well-known international forum on applied electromagnetics. Seismic Resistant

Design and Technology
Advanced Modeling in
Computational
Electromagnetic
Compatibility
Commonplace use of
non-metallic materials
and composites in
vehicles and other
environments has led
to a need to compute
scattering and other
electromagnetic
phenomena in their
presence. This book
provides the first
comprehensive
treatment of a variety
of approximate
boundary conditions in
electromagnetics. The
genesis and properties
of impedance, resistive
sheet, conductive
sheet, generalised and
absorbing boundary
conditions are
discussed. Applications
to diffraction by
numerous canonical
geometries and
impedance structures

are presented.
Accuracy and
uniqueness issues are
addressed and high
frequency techniques
such as physical and
geometrical theory of
diffraction are
introduced. Many of
the results presented
are previously
unpublished.

Handbook of Research
on Recent
Developments in
Intelligent
Communication
Application John Wiley
& Sons

This volume presents
the proceedings of the
CLAIB 2016, held in
Bucaramanga,
Santander, Colombia,
26, 27 & 28 October
2016. The proceedings,
presented by the
Regional Council of
Biomedical Engineering
for Latin America
(CORAL), offer research
findings, experiences

and activities between institutions and universities to develop Bioengineering, Biomedical Engineering and related sciences. The conferences of the American Congress of Biomedical Engineering are sponsored by the International Federation for Medical and Biological Engineering (IFMBE), Society for Engineering in Biology and Medicine (EMBS) and the Pan American Health Organization (PAHO), among other organizations and international agencies to bring together scientists, academics and biomedical engineers in Latin America and other continents in an environment conducive to exchange and professional growth.

Circuit Oriented

Electromagnetic Modeling Using the PEEC Techniques
Springer

This annual report describes our progress during the period from May 1996 to April 1997. Two tasks are described in this report. The first task considers the hybridization of the finite-element method (FEM) and the shooting-and-bouncing-ray (SBR) method for scattering by large bodies with small, inhomogeneous protruding scatterers, and the hybridization of the method of moments (MoM) and SBR method for scattering from conformal slotted waveguide arrays on a large, complex platform. The second task studies a variety of finite-element and

boundary-integral (FE-BI) methods for three-dimensional electromagnetic analysis. Several journal articles and conference papers supported by the research are also listed in this report.

Advanced Computational Electromagnetic Methods Cambridge University Press
An authoritative and comprehensive guide to managing energy conservation in infrastructures Energy Conservation in Residential, Commercial, and Industrial Facilities offers an essential guide to the business models and engineering design frameworks for the implementation of energy conservation in infrastructures. The

presented models of both physical and technological systems can be applied to a wide range of structures such as homes, hotels, public facilities, industrial facilities, transportation, and water/energy supply systems. The authors—noted experts in the field—explore the key performance indicators that are used to evaluate energy conservation strategies and the energy supply scenarios as part of the design and operation of energy systems in infrastructures. The text is based on a systems approach that demonstrates the effective management of building energy knowledge and supports the simulation, evaluation,

and optimization of several building energy conservation scenarios. In addition, the authors explore new methods of developing energy semantic network (ESN) superstructures, energy conservation optimization techniques, and risk-based life cycle assessments. This important text: Defines the most effective ways to model the infrastructure of physical and technological systems Includes information on the most widely used techniques in the validation and calibration of building energy simulation Offers a discussion of the sources, quantification, and reduction of uncertainty Presents a number of efficient energy conservation

strategies in infrastructure systems, including HVAC, lighting, appliances, transportation, and industrial facilities Describes illustrative case studies to demonstrate the proposed energy conservation framework, practices, methods, engineering designs, control, and technologies Written for students studying energy conservation as well as engineers designing the next generation of buildings, Energy Conservation in Residential, Commercial, and Industrial Facilities offers a wide-ranging guide to the effective management of energy conservation in infrastructures. Handbook of Research on Advanced Trends in Microwave and

Communication

Engineering IGI Global

This highly-anticipated second edition of an Artech House classic covers several key radar analysis areas: the radar range equation, detection theory, ambiguity functions, waveforms, antennas, active arrays, receivers and signal processors, CFAR and chaff analysis. Readers will be able to predict the detection performance of a radar system using the radar range equation, its various parameters, matched filter theory, and Swerling target models. The performance of various signal processors, single pulse, pulsed Doppler, LFM, NLFM, and BPSK, are discussed, taking into account factors

including MTI processing, integration gain, weighting loss and straddling loss. The details of radar analysis are covered from a mathematical perspective, with in-depth breakdowns of radar performance in the presence of clutter. Readers will be able to determine the noise temperature of a multi-channel receiver as it is used in active arrays. With the addition of three new chapters on moving target detectors, inverse synthetic aperture radar (ISAR) and constant false alarm rate (CFAR) and new MATLAB codes, this expanded second edition will appeal to the novice as well as the experienced practitioner.

Advances on Tensor Analysis and their

Applications

Academic Press

Unlike any other source in the field, this valuable reference clearly examines key aspects of the finite element method (FEM) for electromagnetic analysis of low-frequency electrical devices. The authors examine phenomena such as nonlinearity, mechanical force, electrical circuit coupling, vibration, heat, and movement for applications in the electrical, mechanical, nuclear, aeronautics, and transportation industries.

Electromagnetic Modeling by Finite Element Methods offers a wide range of examples, including torque, vibration, and iron loss calculation; coupling of the FEM with mechanical

equations, circuits, converters, and thermal effects; material modeling; and proven methods for hysteresis implementation into FEM codes. Providing experimental results and comparisons from the authors' personal research, Electromagnetic Modeling by Finite Element Methods supplies techniques to implement FEM for solving Maxwell's equations, analyze electrical and magnetic losses, determine the behavior of electrical machines, evaluate force distribution on a magnetic medium, simulate movement in electrical machines and electromagnetic devices fed by external circuits or static converters, and analyze the vibrational

behavior of electrical machines.

Integral Equation

Methods for

Electromagnetics BoD

- Books on Demand

Magnetic oxides have highly interesting applications in the fields of permanent magnets, microwave devices, magnetic refrigeration, sensors, catalysis, and the health sector. This book focuses on the synthesis, characterization, and applications of various perovskites, garnets, manganites, carbon-based metal oxide nanocomposites, nanoferrites, and graphene-metal oxide nanocomposites.

Keywords: Magnetic Oxides, Permanent Magnets, Microwave Devices, Magnetic Refrigeration, Sensors, Catalysis, Perovskites,

Nanoferrites,

Manganites, Rare Earth

Iron Garnet, Graphene-

Metal Oxide

Nanocomposites,

Carbon Nanomaterials,

Mesoporous Materials,

Nanocatalysts,

Multifunctional Ferrites,

Magnetocaloric Effect,

Biosynthesis, Photo

Catalysis, Antibacterial

Activity, High Density

Recording Media.

Proceedings of the

2012 International

Conference on

Detection and

Classification of

Underwater Targets

John Wiley & Sons

This book presents a

comprehensive

treatment of

electromagnetic

analysis and design of

three critical devices

for an MRI system - the

magnet, gradient coils,

and radiofrequency

(RF) coils.

Electromagnetic

Analysis and Design in Magnetic Resonance Imaging is unique in its detailed examination of the analysis and design of the hardware for an MRI system. It takes an engineering perspective to serve the many scientists and engineers in this rapidly expanding field. Chapters present: an introduction to MRI basic concepts of electromagnetics, including Helmholtz and Maxwell coils, inductance calculation, and magnetic fields produced by special cylindrical and spherical surface currents principles for the analysis and design of gradient coils, including discrete wires and the target field method analysis of RF coils based on the equivalent lumped-circuit model as well as

an analysis based on the integral equation formulation survey of special purpose RF coils analytical and numerical methods for the analysis of electromagnetic fields in biological objects With the continued, active development of MRI instrumentation, Electromagnetic Analysis and Design in Magnetic Resonance Imaging presents an excellent, logically organized text - an indispensable resource for engineers, physicists, and graduate students working in the field of MRI.

[VII Latin American Congress on Biomedical Engineering CLAIB 2016, Bucaramanga, Santander, Colombia, October 26th -28th, 2016 IET](#)

This volume presents a detailed, rigorous treatment of the fundamental theory of electromagnetic pulse propagation in causally dispersive media that is applicable to dielectric, conducting, and semiconducting media. Asymptotic methods of approximation based upon saddle point methods are presented in detail.

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