

# Radar Absorbing Materials From Theory To Design And Characterization

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**The NASA Scientific and Technical Information System** - United States. National Aeronautics and Space Administration. Scientific and Technical Information Division 1970

*Microwave Absorbing Materials* Yuping Duan  
2016-10-14  
With the phenomenal development of

electromagnetic wave communication devices and stealth technology, electromagnetic wave absorbing materials have been attracting attention as antielectromagnetic interference slabs, stealth materials, self-concealing technology, and microwave darkrooms. This book starts with the fundamental theory of electromagnetic wave

absorption in loss medium space, followed by a discussion of different microwave absorbents, such as manganese dioxide, iron-based composite powder, conductive polyaniline, barium titanate powder, and manganese nitride. Then, structural absorbing materials are explored, including multilayer materials, new discrete absorbers, microwave absorption coatings, cement-based materials, and structural pyramid materials. Many of the graphics demonstrate not only the principles of physics and experimental results but also the methodology of computing. The book will be useful for graduate students of materials science and engineering, physics, chemistry, and electrical and electronic engineering; researchers in the fields of electromagnetic functional materials and nanoscience; and engineers in the fields of electromagnetic compatibility and stealth design.

New Pigments and Additives for Corrosion Protection by Organic Coatings - Flavio

Deflorian 2020-12-11

This eBook is a collection of articles from a Frontiers Research Topic. Frontiers Research Topics are very popular trademarks of the Frontiers Journals Series: they are collections of at least ten articles, all centered on a particular subject. With their unique mix of varied contributions from Original Research to Review Articles, Frontiers Research Topics unify the most influential researchers, the latest key findings and historical advances in a hot research area! Find out more on how to host your own Frontiers Research Topic or contribute to one as an author by contacting the Frontiers Editorial Office: [frontiersin.org/about/contact](https://frontiersin.org/about/contact). *Metamaterials and Plasmonics: Fundamental s, Modeling, Applications* Said Zouhdi 2008-12-16 Metamaterials and plasmonics are cross-disciplinary fields that are emerging into the mainstream of many scientific areas. Examples of scientific and technical fields which are

concerned are electrical engineering, micro- and nanotechnology, microwave engineering, optics, optoelectronics, and semiconductor technologies. In plasmonics, the interplay between propagating electromagnetic waves and free-electron oscillations in materials are exploited to create new components and applications. On the other hand, metamaterials refer to artificial composites in which small artificial elements, through their collective interaction, creates a desired and unexpected macroscopic response function that is not present in the constituent materials. This book charts the state of the art of these fields. In May 2008, world-leading experts in metamaterials and plasmonics gathered into a NATO Advanced Research Workshop in Marrakech, Morocco. The present book contains extended versions of 22 of the presentations held in the workshop, covering the general aspects of the field, as well as design and modelling

questions of plasmonics and metamaterials, fabrication issues, and applications like absorbers and antennas.

**Elastomer-Based Composite Materials** - Nikolay Dishovsky  
2018-05-15

Elastomer-Based Composite Materials: Mechanical, Dynamic, and Microwave Properties and Engineering Applications is focused on elastomer-based composite materials comprising different types of reinforcing fillers. The book provides an informative examination of the possibilities for broadening the engineering applications of elastomer composites through using various types of hybrid fillers, ferrites, and ceramics, and also examines their synthesis and characterization. It discusses new hybrid fillers that have been synthesized by different techniques, e.g. impregnation of different substrates (carbon black, conductive carbon black, activated carbons, etc.) with silica or magnetite. These new fillers have been thoroughly characterized by standard techniques and by up-to-date

methods, such as energy dispersive X-ray spectroscopy in scanning transmission electron microscopy (STEM-EDX), atomic absorption spectroscopy (AAS), and inductively coupled plasma-optical emission spectroscopy (ICP-OES). The effect of those fillers upon the curing properties, mechanical and dynamic parameters, electrical conductivity, and dielectric and microwave characteristics of elastomer-based composites is discussed in detail in this volume. The book also covers the influence of various types of ceramics (SiC, B<sub>4</sub>C, and TiB<sub>2</sub>) and barium and strontium hexaferrites upon the aforementioned properties of rubber composites in conjunction with a view toward solutions for environmental problems caused by waste tires. The book shows that pyrolysis-cum-water vapor is a suitable and environmentally friendly method for the conversion of the waste green tires into useful carbon-silica hybrid fillers. The properties of

elastomer-based composites comprising different types of nanostructures (fullerenes, carbon nanotubes, graphene nanoplatelets), modified activated carbons, and calcined kaolin are also discussed. Special attention is paid to composites with lower levels of zinc oxide. The volume provides an abundance of knowledge on the detailed characterization of these fillers and on the curing, mechanical, dynamic mechanical, and dielectric and microwave properties of the elastomeric composites. The book surveys the most recent research activities of the authors, which will make it a vital reference source for scientists in both the academic and industrial sectors, as well as for individuals who are interested in rubber materials. It will be very useful for students, especially PhD students, scientists, lecturers, and engineers working or doing research in the field of polymer materials science, elastomer-based composites and nanocomposites and their

engineering applications in the production of microwave absorbers and electromagnetic waves shielding materials, materials for electronics devices and telecommunications.

**International Conference on Intelligent Computing and Smart Communication 2019**

- Geetam Singh Tomar  
2020-01-07

This book gathers high-quality research papers presented at the First International Conference, ICSC 2019, organised by THDC Institute of Hydropower Engineering and Technology, Tehri, India, from 20 to 21 April 2019. The book is divided into two major sections - Intelligent Computing and Smart Communication. Some of the areas covered are Parallel and Distributed Systems, Web Services, Databases and Data Mining Applications, Feature Selection and Feature Extraction, High-Performance Data Mining Algorithms, Knowledge Discovery, Communication Protocols and Architectures, High-speed

Communication, High-Voltage Insulation Technologies, Fault Detection and Protection, Power System Analysis, Embedded Systems, Architectures, Electronics in Renewable Energy, CAD for VLSI, Green Electronics, Signal and Image Processing, Pattern Recognition and Analysis, Multi-Resolution Analysis and Wavelets, 3D and Stereo Imaging, and Neural Networks.

**Metamaterial Inspired Electromagnetic Applications** - Balamati Choudhury 2017-05-04

This book focuses on the role of soft-computing-based electromagnetic computational engines in design and optimization of a wide range of electromagnetic applications. In addition to the theoretical background of metamaterials and soft-computing techniques, the book discusses novel electromagnetic applications such as tensor analysis for invisibility cloaking, metamaterial structures for cloaking applications, broadband radar absorbers, and antennas. The book will

prove to be a valuable resource for academics and professionals, as well as military researchers working in the area of metamaterials.

### **Active Radar Cross Section Reduction** - Hema Singh

2015-03-02

This book discusses the active and passive radar cross section (RCS) estimation and techniques to examine the low observable aerospace platforms. It begins with the fundamentals of RCS, followed by the dielectric, magnetic and metamaterials parameters of the constituent materials and then explains various methods and the emerging trends followed in this area of study. The RCS estimation of phased array including the mutual coupling effect is also presented in detail in the book. The active RCS reduction is carefully touched upon through the performance of phased arrays, sidelobe cancellers and mitigation of multipath effect. Providing information on various adaptive algorithms like least mean square (LMS), recursive least square (RLS)

and weighted least square algorithms, the authors also mention the recent developments in the area of embedded antennas, conformal load bearing antenna, metamaterials and frequency selective surface (FSS) based RCS reduction.

### **Electromagnetic Fields and Waves** - Kim Ho Yeap

2019-05-15

In this book, a variety of topics related to electromagnetic fields and waves are extensively discussed. The topics encompass the physics of electromagnetic waves, their interactions with different kinds of media, and their applications and effects.

### **Optimization of Multilayered Radar Absorbing Structures (RAS) using Nature Inspired Algorithm** - Vineetha Joy

2021-07-19

Stealth technology is a crucial pre-requisite in the combat zone, where swiftness, surprise and initiative are the decisive elements for survivability. The supreme goal here is to reduce the visibility of military

vehicles by shaping, application of radar absorbing materials, passive cancellation, active cancellation etc. With respect to multilayered radar absorbing structures (RAS), this book presents an efficient algorithm based on particle swarm optimization (PSO), for the material selection as well as optimization of thickness of multilayered RAS models considering both normal as well as oblique incidence cases. It includes a thorough overview of the theoretical background required for the analysis of multilayered RAS as well as the step-by-step procedure for the implementation of PSO-based algorithm. The accuracy and computational efficiency of the indigenously developed code is also clearly established using relevant validations and case studies. FEATURES Provides step-by-step procedure for the implementation of particle swarm optimization (PSO) based algorithm in the context of multilayered radar absorbing structures (RAS) design Helps to understand the

EM design, analysis and optimization of multilayered RAS Describes the theoretical background required for the analysis of multilayered RAS Illustrates in detail the theoretical formulation supported by intuitive ray diagrams and comprehensive flowcharts to implement the algorithm with ease Includes elaborate validations and case studies This book will serve as a valuable resource for students, researchers, scientists, and engineers involved in the electromagnetic design and development of multi-layered radar absorbing structures.

### **Theory, Design, and Applications of Unmanned Aerial Vehicles** - A. R. Jha,

Ph.D. 2016-11-18

This book provides a complete overview of the theory, design, and applications of unmanned aerial vehicles. It covers the basics, including definitions, attributes, manned vs. unmanned, design considerations, life cycle costs, architecture, components, air vehicle, payload,

communications, data link, and ground control stations. Chapters cover types and civilian roles, sensors and characteristics, alternative power, communications and data links, conceptual design, human machine interface, sense and avoid systems, civil airspace issues and integration efforts, navigation, autonomous control, swarming, and future capabilities.

Broadband Metamaterials in Electromagnetics - Douglas H. Werner 2017-07-06

The rapid development of technology based on metamaterials coupled with the recent introduction of the transformation optics technique provides an unprecedented ability for device designers to manipulate and control the behavior of electromagnetic wave phenomena. Many of the early metamaterial designs, such as negative index materials and electromagnetic bandgap surfaces, were limited to operation only over a very narrow bandwidth. However, recent groundbreaking work

reported by several international research groups on the development of broadband metamaterials has opened up the doors to an exciting frontier in the creation of new devices for applications ranging from radio frequencies to visible wavelengths. This book contains a collection of eight chapters that cover recent cutting-edge contributions to the theoretical, numerical, and experimental aspects of broadband metamaterials.

**Radar Absorbing Materials - Mechanisms and Materials** - Kevin Gaylor 1989

*Differential Evolution in Electromagnetics* Anyong Qing 2010-05-28

Differential evolution has proven itself a very simple while very powerful stochastic global optimizer. It has been applied to solve problems in many scientific and engineering fields. This book focuses on applications of differential evolution in electromagnetics to showcase its achievement and capability

in solving synthesis and design problems in electromagnetics. Topics covered in this book include:

- A comprehensive up-to-date literature survey on differential evolution
- A systematic description of differential evolution
- A topical review on applications of differential evolution in electromagnetics
- Five new application examples

This book is ideal for electromagnetic researchers and people in differential evolution community. It is also a valuable reference book for researchers and students in the optimization or electrical and electronic engineering field. In addition, managers and engineers in relevant fields will find it a helpful introductory guide.

### **Radar Absorbing Materials -**

K.J. Vinoy 1996-09-14

Due to its extensive applications in stealth technology, much of the research effort in radar absorbing materials (RAM) has remained classified. As is the wont with classified topics, it has resulted in much awe and

unfounded speculation. The aim of this book is to demystify this topic. The book in hand is concise but complete in itself. The attention of the readers is first drawn towards the historical evolution of RAM to emphasize that the elementary principles of electromagnetics lead to the fundamental concepts of RAM. These also form the basis for further mathematical analysis and design of RAM. The performance plots for the various RAM designs, to the extent possible, are taken with respect to power reflection; this should facilitate comparison of their relative performances. In order to further induce the reader to take the first step towards RAM design, we have included the relevant computer codes in a companion diskette. This would enable the reader to try out elementary designs on his own. \*.EXE files should facilitate ready execution of codes on most DOS based computing platforms. The corresponding source codes with comments are also

included as \*.FOR files. The reader may wish to modify some of these codes for examining RAM design algorithms further. We welcome comments from the reader on these codes.

Genetic Algorithms in Electromagnetics - Randy L. Haupt 2007-04-27

A thorough and insightful introduction to using genetic algorithms to optimize electromagnetic systems Genetic Algorithms in Electromagnetics focuses on optimizing the objective function when a computer algorithm, analytical model, or experimental result describes the performance of an electromagnetic system. It offers expert guidance to optimizing electromagnetic systems using genetic algorithms (GA), which have proven to be tenacious in finding optimal results where traditional techniques fail. Genetic Algorithms in Electromagnetics begins with an introduction to optimization and several commonly used numerical optimization

routines, and goes on to feature: Introductions to GA in both binary and continuous variable forms, complete with examples of MATLAB(r) commands Two step-by-step examples of optimizing antenna arrays as well as a comprehensive overview of applications of GA to antenna array design problems Coverage of GA as an adaptive algorithm, including adaptive and smart arrays as well as adaptive reflectors and crossed dipoles Explanations of the optimization of several different wire antennas, starting with the famous "crooked monopole" How to optimize horn, reflector, and microstrip patch antennas, which require significantly more computing power than wire antennas Coverage of GA optimization of scattering, including scattering from frequency selective surfaces and electromagnetic band gap materials Ideas on operator and parameter selection for a GA Detailed explanations of particle swarm optimization and multiple objective

optimization An appendix of MATLAB code for experimentation

**Fundamentals of the Physical Theory of Diffraction** - Pyotr Ya. Ufimtsev 2014-04-24

The book is a complete, comprehensive description of the modern Physical Theory of Diffraction (PTD) based upon the concept of elementary edge waves. The theory is demonstrated with examples of the diffraction of acoustic and electromagnetic waves at perfectly reflecting objects. Readers develop the skills to apply PTD to solve various scattering problems. The derived analytic expressions clearly illustrate the physical structure of the scattered field. They additionally describe all of the reflected and diffracted rays and beams, as well as the fields in the vicinity of caustics and foci. Shadow radiation, a fundamental component of PTD, is introduced and proven to contain half the total scattered power. The equivalence relationships between acoustic and

electromagnetic diffracted waves are established and emphasized. Throughout the book, the author enables readers to master both the theory and its practical applications. Plotted numeric results supplement the theory and facilitate the visualization of individual contributions of distinct parts of the scattering objects to the total diffracted field Detailed comments help readers understand and implement all the critical steps of the analytic and numeric calculations Problem sets in each chapter give readers an opportunity to analyse and investigate the diffraction phenomena

**Radar Energy Warfare and the Challenges of Stealth Technology** - Bahman Zohuri 2020-03-18

This book provides a solid foundation for understanding radar energy warfare and stealth technology. The book covers the fundamentals of radar before moving on to more advanced topics, including electronic counter and electronic counter-counter

measures, radar absorbing materials, radar cross section, and the science of stealth technology. A final section provides an introduction to Luneberg lens reflectors. The book will provide scientists, engineers, and students with valuable guidance on the fundamentals needed to understand state-of-the-art radar energy warfare and stealth technology research and applications.

Technical Abstract Bulletin -

### **Photonics, Plasmonics and Information Optics** - Arpan Deyasi 2021-04-19

This edited volume covers technological developments and current research trends in the field of photonics, plasmonics and optics, focusing on photonic crystals, semiconductor optical devices, optical communications and optical sensors, with an emphasis on practical sectors. It broadly contains the latest research domains contributed by experts and researchers in their respective fields with a major focus on the basic

physics. Works in the area of electromagnetic bandgap structures (EBG) and metasurfaces are included for applications in different aspects of communications systems. Further, it covers research phenomena of microwave photonic devices to develop miniaturized high-frequency devices. **FEATURES** Reviews nonlinear optical phenomena related with materials and crystals and plasmonic effects on device fabrications Contains a detailed analysis on photonic crystals with their applications in making all-optical passive components Focusses on nonlinear optics, more precisely on crystals and materials, and computational aspects on evaluating their properties from Maxwell's equations Presents an extensive study on the physics of EBG structures for application in antenna and high-frequency communications Includes metamaterials and metasurfaces for applications in photonics as well as in

microwave engineering for high-frequency communication systems Photonics, Plasmonics and Information Optics: Research and Technological Advances is aimed at researchers, professionals and graduate students in optical communication, silicon photonics, photonic crystals, semiconductor optical devices, metamaterials and metasurfaces, and microwave photonics.

Smart Material Systems and MEMS - Vijay K. Varadan  
2006-11-02

Presenting unified coverage of the design and modeling of smart micro- and macrosystems, this book addresses fabrication issues and outlines the challenges faced by engineers working with smart sensors in a variety of applications. Part I deals with the fundamental concepts of a typical smart system and its constituent components. Preliminary fabrication and characterization concepts are introduced before design principles are discussed in detail. Part III presents a

comprehensive account of the modeling of smart systems, smart sensors and actuators. Part IV builds upon the fundamental concepts to analyze fabrication techniques for silicon-based MEMS in more detail. Practicing engineers will benefit from the detailed assessment of applications in communications technology, aerospace, biomedical and mechanical engineering. The book provides an essential reference or textbook for graduates following a course in smart sensors, actuators and systems.

Anechoic and Reverberation Chambers - Qian Xu  
2019-01-04

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.

**Nondestructive Evaluation of Layered Materials Using the E-pulse Technique -**  
Garrett J. Stenholm 2002

*Progress in Polymer Research for Biomedical, Energy and*

## *Specialty Applications*

Anandhan Srinivasan

2022-10-03

With the rapid advancements in polymer research, polymers are finding newer applications such as scaffolds for tissue engineering, wound healing, flexible displays, and energy devices. In the same spirit, this book covers the key features of recent advancements in polymeric materials and their specialty applications. Divided into two sections - Polymeric Biomaterials and Polymers from Sustainable Resources, and Polymers for Energy and Specialty Applications - this book covers biopolymers, polymer-based biomaterials, polymer-based nanohybrids, polymer nanocomposites, polymer-supported regenerative medicines, and advanced polymer device fabrication techniques. FEATURES Provides a comprehensive review of all different polymers for applications in tissue engineering, biomedical implants, energy storage or conversion, and so forth

Discusses advanced strategies in development of scaffolds for tissue engineering Elaborates various advanced fabrication techniques for polymeric devices Explores the nuances in polymer-based batteries and energy harvesting Reviews advanced polymeric membranes for fuel cells and polymers for printed electronics applications Throws light on some new polymers and polymer nanocomposites for optoelectronics, next generation tires, smart sensors and stealth technology applications This book is aimed at academic researchers, industry personnel, and graduate students in the interdisciplinary fields of polymer and materials technology, composite engineering, biomedical engineering, applied chemistry, chemical engineering, and advanced polymer manufacturing.

## **Scientific and Technical Aerospace Reports - 1995**

Lists citations with abstracts for aerospace related reports obtained from world wide

sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

### **Advances in Manufacturing Science and Engineering -**

Xiang Hua Liu 2013-06-27

Selected, peer reviewed papers from the 4th international Conference on Manufacturing Science and Engineering (ICMSE 2013), March 30-31, 2013, Dalian, China

### *Modern Ferrites, Volume 2*

Vincent G. Harris 2023-01-24

A robust exploration of the basic principles of ferrimagnetic and their applications In *Modern Ferrites: Volume 2*, renowned researcher and educator, Vincent G. Harris delivers a comprehensive overview of ferrimagnetic phenomena and discussions of select applications of modern ferrite materials in emerging technologies and applications. Volume 2 explores fundamental properties of ferrite systems, including their structure, chemistry, and magnetism, as well as practical applications,

such as permanent magnets; inductors, inverters, and filters; and their use in emerging applications as metamaterials, multiferroics, and biomedical technologies. In addition to the properties of ferrites, the included resources explore the processing, structure, and property relationships in ferrites as nanoparticles, thin and thick films, compacts, and crystals. The authors discuss how these relationships are key to realizing practical device applications laying the foundation for next generation communications, radar, sensing, and biomedical technologies. This volume includes: A comprehensive review of ferrite discoveries and impacts upon ancient cultures, their scientific evolution, and societal benefits; Discussion of the origins of magnetism in ferrimagnetic oxides including superexchange theory, GKA-rules, and recent developments in density functional theory; In-depth examination of ferrite power conversion and

conditioning components and their processing as low temperature co-fired ceramics; Ferrite-based electromagnetic interference suppression and electromagnetic absorption; Nonlinear microwave devices; multiferroic and emerging magnetoelectric devices; Biomedical applications of ferrite nanoparticles Perfect for RF engineers and magneticians working in the fields of RF electronics, radar, communications, and spintronics as well as other emerging technologies. Modern Ferrites will earn a place on the bookshelves of engineers and scientists interested in the ever-expanding technologies reliant upon ferrite materials and new processing methodologies. Modern Ferrites Volume 1: Basic Principles, Processing and Properties is also available (ISBN: 9781118971468). Solid State Science and Technology XXVI - Roslan Abd-Shukor 2012-04-12 Volume is indexed by Thomson Reuters CPCI-S (WoS). The major topics covered here are:

(i) biomaterials, polymers and composites (ii) ceramics, dielectrics, glasses and optical materials, (iii) metals and alloys, (iv) nanoscience and nanotechnology, (v) semiconductors, thin films and devices, (vi) superconductors and magnetic materials and (vii) theory, simulation, modeling and related areas. This work will be invaluable to researchers and scientists in the area of advanced materials and nanotechnology as it covers the latest developments in materials preparation, characterization, theory and applications.

*The Aeronautical Journal*  
2003

*Radar Absorbing Materials and Microwave Shielding Structures Design* Davide Micheli 2012-02

The book focuses on electromagnetic absorbing and shielding properties of multilayer materials. Nanomaterials are widely used and composite materials' dielectric characterization is deeply discussed. Very little

academic literature exists on how to model (design) an electromagnetic absorber using matrix formalism of microwave propagation through multilayer materials. This book therefore, provides an interesting approach to the absorber's design in which different branches of science are applied and where all of them are used to optimize the "quasi perfect absorber" nanotechnology, electromagnetic wave propagation theory, composite materials manufacturing, evolutionary computation. With respect to the present literature, the method presented in this book computes the absorbing capability of materials, taking into account for the reflection and transmission coefficients, considering also oblique incidence of the electromagnetic field. Theoretical modeling of absorbers is experimentally validated. At the end of the book the electromagnetic shielding performance of carbon-carbon material and of high weight percentage carbon

nanotubes based composite materials are thoroughly analyzed.

### **Low-Dimensional**

### **Nanoelectronic Devices -**

Angsuman Sarkar 2022-10-27

Providing cutting-edge research on nanoelectronics and photonic devices and its application in future integrated circuits, this state-of-the-art book tackles the challenges of the different detailed theoretical and analytical models of solving the problems of various nanodevices. The volume also explores from different angles the roles of material composition and choice of materials that now play the most critical role in determining outcomes of low-dimensional nanoelectronic devices. The applications of those findings are extremely beneficial for the computing and telecommunication industries. Beginning with a solid theoretical background for every chapter, this volume covers the hottest areas of present-day electronic engineering. The continuous miniaturization of devices,

components, and systems requires corresponding cutting-edge theoretical analysis supported by simulated findings before actual fabrication. That purpose is given maximum focus in this volume, which has interdisciplinary appeal, making it a comprehensive technological volume that deals with underlying aspects of physics, materials, structures in nano-regime, and the corresponding end-product in the form of devices.

Radar Absorbing Materials -

K.J. Vinoy 1996-08-31

Radar absorbing materials offers an electromagnetic (EM) perspective to the evolution of radar absorbing materials (RAM). The major aspects covered are the EM analysis, design, fabrication and characterization of RAM. This is followed by an exhaustive discussion on the application areas and current trends in RAM. All the major aspects of RAM technology are covered in this book. The analytical techniques are developed from first principles. [source : 4e de

couv.]

*Proceedings of International conference on Antenna Technologies- 2005*

The NASA Scope and Subject Category Guide - United

States. National Aeronautics and Space Administration. Scientific and Technical Information Office 2000

**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 2020-09-23

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.

**Multiscale Modelling of Advanced Materials** - Runa Kumari 2020-02-08

This volume covers the recent advances and research on the modeling and simulation of materials. The primary aim is to take the reader through the mathematical analysis to the theories of electricity and magnetism using multiscale modelling, covering a variety of

numerical methods such as finite difference time domain (FDTD), finite element method (FEM) and method of moments. The book also introduces the multiscale Green's function (GF) method for static and dynamic modelling and simulation results of modern advanced nanomaterials, particularly the two-dimensional (2D) materials. This book will be of interest to researchers and industry professionals working on advanced materials.

Applications of Bat Algorithm and its Variants - Nilanjan Dey 2020-06-09

This book highlights essential concepts in connection with the traditional bat algorithm and its recent variants, as well as its application to find optimal solutions for a variety of real-world engineering and medical problems. Today, swarm intelligence-based meta-heuristic algorithms are extensively being used to address a wide range of real-world optimization problems due to their adaptability and robustness. Developed in 2009,

the bat algorithm (BA) is one of the most successful swarm intelligence procedures, and has been used to tackle optimization tasks for more than a decade. The BA's mathematical model is quite straightforward and easy to understand and enhance, compared to other swarm approaches. Hence, it has attracted the attention of researchers who are working to find optimal solutions in a diverse range of domains, such as N-dimensional numerical optimization, constrained/unconstrained optimization and linear/nonlinear optimization problems. Along with the traditional BA, its enhanced versions are now also being used to solve optimization problems in science, engineering and medical applications around the globe. *Radar Cross Section* Eugene F. Knott 2004

The leading text and reference on radar cross section (RCS) theory and applications, this work presents a comparison of two radar signal strengths. One

is the strength of the radar beam sweeping over a target, the other is the strength of the reflected echo senses by the receiver. This book shows how the RCS "gauge" can be predicted for theoretical objects.

*Recent Advances in Materials, Mechanical and Civil Engineering*- P. Nageswara Rao 2018-02-15

This volume was collected by results of the International Conference on Recent Advances in Materials, Mechanical and Civil Engineering (ICRAMMCE-2017, 1-2nd June, 2017, Hyderabad, India) and presents readers with the results of recent researches and achievements in the fields of the structural materials, technologies of materials processing, building materials and technologies in the construction, applied mechanics and practice of design in the mechanical engineering. We hope that this collection will be useful for many specialists from area of mechanical engineering and

construction.