

Design And Optimization Of Passive Uhf Rfid Systems 1st Edition

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JOHNSON JACOB

Optimization of Multilayered Radar Absorbing Structures (RAS) using Nature Inspired Algorithm MDPI

This open access book is a compilation of selected papers from 2020 DigitalFUTURES—The 2nd International Conference on Computational Design and Robotic Fabrication (CDRF 2020). The book focuses on novel techniques for computational design and robotic fabrication. The contents make valuable contributions to academic researchers, designers, and engineers in the industry. As well, readers will encounter new ideas about understanding intelligence in architecture.

The Design of Modern Microwave Oscillators for Wireless Applications Routledge
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.

Building Information Modeling John Wiley & Sons

A typical engineering task during the development of any system is, among others, to improve its performance in terms of cost and response. Improvements can be achieved either by simply using design rules based on the experience or in an automated way by using optimization methods that lead to optimum designs. Design Optimization of Active and Passive Structural Control Systems includes Earthquake Engineering and Tuned Mass Damper research topics into a volume taking advantage of the connecting link between them, which is optimization. This is a publication addressing the design optimization of active and passive control systems. This title is perfect for engineers, professionals, professors, and students alike, providing cutting edge research and applications.

The INSURTECH Book John Wiley & Sons

This book results from a Special Issue related to the latest progress in the thermodynamics of machines systems and processes since the premonitory work of Carnot. Carnot invented his famous cycle and generalized the efficiency concept for thermo-mechanical engines. Since that time, research progressed from the equilibrium approach to the irreversible situation that represents the general case. This book illustrates the present state-of-the-art advances after one or two centuries of consideration regarding applications and fundamental aspects. The research is moving fast in the direction of economic and environmental aspects. This will probably continue during the coming years. This book mainly highlights the recent focus on the maximum power of

engines, as well as the corresponding first law efficiency upper bounds.

High-Efficiency Load Modulation Power Amplifiers for Wireless Communications Routledge
Delivering the best possible solution for phase noise and output power efficiency in oscillators This complete and thorough analysis of microwave oscillators investigates all aspects of design, with particular emphasis on operating conditions, choice of resonators and transistors, phase noise, and output power. It covers both bipolar transistors and FETs. Following the authors' guidance, readers learn how to design microwave oscillators and VCOs that can be tuned over a very wide frequency range, yet have good phase noise, are low cost, and are small in size. All the essential topics in oscillator design and development are covered, including: * Device and resonator technology * Study of noise sources * Analysis methods * Design, calculation, and optimization methodologies * Practical design of single and coupled oscillators While most of the current literature in the field concentrates on classic design strategies based on measurements, simulation, and optimization of output power and phase noise, this text offers a unique approach that focuses on the complete understanding of the design process. The material demonstrates important design rules starting with the selection of best oscillator topology, choice of transistors, and complete phase noise analysis that leads to optimum performance of all relevant oscillator features. Also included are CMOS oscillators, which recently have become important in cellular applications. For readers interested in specialized applications and topics, a full chapter provides all the necessary references. The contents of the text fall into two major categories: * Chapters 1 through 9 deal with a very detailed and expanded single resonator oscillator, including a thorough treatment of both nonlinear analysis and phase noise * Chapters 10 and 11 use the knowledge obtained and apply it to multiple coupled oscillators (synchronized oscillators) This text is partially based on research sponsored by the Defense Advanced Research Projects Agency (DARPA) and the United States Army and conducted by Synergy Microwave Corporation. With the wealth of information provided for the analysis and practical design of single and synchronized low-noise microwave oscillators, it is recommended reading for all RF microwave engineers. In addition, the text's comprehensive, step-by-step approach makes it an excellent graduate-level textbook. **2024 the 8th International Conference on Energy and Environmental Science (ICEES 2024)** Springer

Nature-Inspired Optimization Algorithms provides a systematic introduction to all major nature-inspired algorithms for optimization. The book's unified approach, balancing algorithm introduction, theoretical background and practical implementation, complements extensive literature with well-chosen case studies to illustrate how these algorithms work. Topics include particle swarm optimization, ant and bee algorithms, simulated annealing, cuckoo search, firefly algorithm, bat algorithm, flower algorithm, harmony search, algorithm analysis, constraint handling, hybrid methods, parameter tuning and control, as well as multi-objective optimization. This book can serve as an introductory book for graduates, doctoral students and lecturers in computer science, engineering and natural sciences. It can also serve as a source of inspiration for new applications. Researchers and engineers as well as experienced experts will also find it a handy reference. - Discusses and summarizes the latest developments in nature-inspired algorithms with comprehensive, timely literature - Provides a theoretical understanding as well as practical implementation hints - Provides a step-by-step introduction to each algorithm

Advanced Multifunctional Lightweight Aerostructures Springer Nature

This book presents an interesting sample of the latest advances in optimization techniques applied to electrical power engineering. It covers a variety of topics from various fields, ranging from classical optimization such as Linear and Nonlinear Programming and Integer and Mixed-Integer Programming to the most modern methods based on bio-inspired metaheuristics. The featured papers invite readers to delve further into emerging optimization techniques and their real application to case studies such as conventional and renewable energy generation, distributed generation, transport and distribution of electrical energy, electrical machines and power

electronics, network optimization, intelligent systems, advances in electric mobility, etc.

Building Performance Simulation for Design and Operation Springer Nature

Maintaining a stable level of power quality in the distribution network is a growing challenge due to increased use of power electronics converters in domestic, commercial and industrial sectors. Power quality deterioration is manifested in increased losses; poor utilization of distribution systems; mal-operation of sensitive equipment and disturbances to nearby consumers, protective devices, and communication systems. However, as the energy-saving benefits will result in increased AC power processed through power electronics converters, there is a compelling need for improved understanding of mitigation techniques for power quality problems. This timely book comprehensively identifies, classifies, analyses and quantifies all associated power quality problems, including the direct integration of renewable energy sources in the distribution system, and systematically delivers mitigation techniques to overcome these problems. Key features: • Emphasis on in-depth learning of the latest topics in power quality extensively illustrated with waveforms and phasor diagrams. • Essential theory supported by solved numerical examples, review questions, and unsolved numerical problems to reinforce understanding. • Companion website contains solutions to unsolved numerical problems, providing hands-on experience. Senior undergraduate and graduate electrical engineering students and instructors will find this an invaluable resource for education in the field of power quality. It will also support continuing professional development for practicing engineers in distribution and transmission system operators.

Modeling, Design, and Optimization of Net-Zero Energy Buildings Academic Press

This is a design guide for architects, engineers, and contractors concerning the principles and specific applications of building information modeling (BIM). BIM has the potential to revolutionize the building industry, and yet not all architects and construction professionals fully understand what the benefits of BIM are or even the fundamental concepts behind it. As part of the Pocket Architecture Series it includes two parts: fundamentals and applications, which provide a comprehensive overview of all the necessary and essential issues. It also includes case studies from a range of project sizes that illustrate the key concepts clearly and use a wide range of visual aids. Building Information Modeling addresses the key role that BIM is playing in shaping the software tools and office processes in the architecture, engineering, and construction professions. Primarily aimed at professionals, it is also useful for faculty who wish to incorporate this information into their courses on digital design, BIM, and professional practice. As a compact summary of key ideas it is ideal for anyone implementing BIM.

CMOS-Compatible Key Engineering Devices for High-Speed Silicon-Based Optical Interconnections IGI Global

This volume presents developments and advances in modelling passive and active control systems governed by partial differential equations. It emphasizes shape analysis, optimal shape design, controllability, nonlinear boundary control, and stabilization. The authors include essential data on exact boundary controllability of thermoelastic plates with variable transmission coefficients.

Energy Modeling in Architectural Design CRC Press

"This book addresses the design optimization of active and passive control systems including earthquake engineering and tuned mass damper research topics and their link"--

Optical Communications Birkhäuser

The definitive compendium for the Insurance Digital Revolution From slow beginnings in 2014, InsurTech has captured US\$7 billion in investment since 2010 — a 10% annual compound growth rate is predicted until at least 2020. Three in four insurance companies believe some part of their business is at risk of disruption and understanding the trends, drivers and emerging technologies behind Insurance's Digital Revolution is a business-critical priority for all growth-minded firms. The InsurTech Book offers essential updates, critical thinking and actionable insight — globally — from start-ups, incumbents, investors, tech companies, advisors and other partners in this evolving

ecosystem, in one volume. For some, Insurance is either facing an existential threat; for others, it is a sector on the brink of transforming itself. Either way, business models, value chains, customer understanding and engagement, organisational structures and even what Insurance is for, is never going to be the same. Be informed, be part of it. Learn from diverse experiences, mindsets and applications of technologies Discover new ways of defining and grasping growth opportunities Get the inside track from innovators, disruptors and incumbents Be updated on the evolution of InsurTech, why it is happening and how it will evolve Explore visions of the future of Insurance to help shape yours The InsurTech Book is your indispensable guide to a sector in transformation. **Building Information Modelling (BIM) in Design, Construction and Operations III** MDPI
The aim of this text is to provide physical insight & thorough understanding of the complex-frequency domain & its application of circuits.

Details for Passive Houses: Renovation Springer

Originating from the 2019 International Conference on Building Information Modelling this book presents latest findings in the field. This volume presents research from a panel of experts from industry, practice and academia touching on key topics, the development of innovative solutions, and the identification future trends.

Automated Design of Analog and High-frequency Circuits CRC Press

Various structures, such as buildings, bridges, and paved roads play an important role in our lives. However, these construction projects require large expenditures. Designing infrastructure cost-efficiently while satisfying all necessary design constraints is one of the most important and difficult tasks for a structural engineer. Traditionally, mathematical gradient-based optimization techniques have been applied to these designs. However, these gradient-based methods are not suitable for discrete design variables such as factory-made cross sectional area of structural members. Recently, researchers have turned their interest to phenomenon-mimicking optimization techniques because these techniques have proved able to efficiently handle discrete design variables. One of these techniques is harmony search, an algorithm developed from musical improvisation that has been applied to various structural design problems and has demonstrated cost-savings. This book gathers all the latest developments relating to the application of the harmony search algorithm in the structural design field in order for readers to efficiently

understand the full spectrum of the algorithm's potential and to easily apply the algorithm to their own structural problems. This book contains six chapters with the following subjects: standard harmony search algorithm and its applications by Lee; standard harmony search algorithm for steel frame design by Degertekin; adaptive harmony search algorithm and its applications by Saka and Hasançebi; harmony particle swarm algorithm and its applications by Li and Liu; hybrid algorithm of harmony search, particle swarm & ant colony for structural design by Kaveh and Talatahari; and parameter calibration of viscoelastic and damage functions by Mun and Geem.

Design and Performance Optimization of Renewable Energy Systems John Wiley & Sons
Selected, peer reviewed papers from the 2013 2nd International Conference on Machine Design and Manufacturing Engineering (ICMDME 2013), May 1-2, 2013, Jeju Island, South Korea
Power Quality John Wiley & Sons

A resurgence of interest in network synthesis in the last decade, motivated in part by the introduction of the inerter, has led to the need for a better understanding of the most economical way to realize a given passive impedance. This monograph outlines the main contributions to the field of passive network synthesis and presents new research into the enumerative approach and the classification of networks of restricted complexity. *Passive Network Synthesis: An Approach to Classification* serves as both an ideal introduction to the topic and a definitive treatment of the Ladenheim catalogue. In particular, the authors provide a new analysis and classification of the Ladenheim catalogue, building on recent work, to obtain an improved understanding of the structure and realization power of the class within the biquadratic positive-real functions. This book is intended for researchers in systems and control, real algebraic geometry, electrical and mechanical networks, and dynamics and vibration.

Optimization Methods Applied to Power Systems CRC Press

Computational intelligence techniques are becoming more and more important for automated problem solving nowadays. Due to the growing complexity of industrial applications and the increasingly tight time-to-market requirements, the time available for thorough problem analysis and development of tailored solution methods is decreasing. There is no doubt that this trend will continue in the foreseeable future. Hence, it is not surprising that robust and general automated problem solving methods with satisfactory performance are needed.

Computational Science - ICCS 2022 Elsevier

Effective building performance simulation can reduce the environmental impact of the built environment, improve indoor quality and productivity, and facilitate future innovation and technological progress in construction. It draws on many disciplines, including physics, mathematics, material science, biophysics and human behavioural, environmental and computational sciences. The discipline itself is continuously evolving and maturing, and improvements in model robustness and fidelity are constantly being made. This has sparked a new agenda focusing on the effectiveness of simulation in building life-cycle processes. *Building Performance Simulation for Design and Operation* begins with an introduction to the concepts of performance indicators and targets, followed by a discussion on the role of building simulation in performance-based building design and operation. This sets the ground for in-depth discussion of performance prediction for energy demand, indoor environmental quality (including thermal, visual, indoor air quality and moisture phenomena), HVAC and renewable system performance, urban level modelling, building operational optimization and automation. Produced in cooperation with the International Building Performance Simulation Association (IBPSA), and featuring contributions from fourteen internationally recognised experts in this field, this book provides a unique and comprehensive overview of building performance simulation for the complete building life-cycle from conception to demolition. It is primarily intended for advanced students in building services engineering, and in architectural, environmental or mechanical engineering; and will be useful for building and systems designers and operators.

Applied Optimization with MATLAB Programming McGraw-Hill Companies

This book results from a Special Issue published in *Energies*, entitled "Building Thermal Envelope". Its intent is to identify emerging research areas within the field of building thermal envelope solutions and contribute to the increased use of more energy-efficient solutions in new and refurbished buildings. Its contents are organized in the following sections: Building envelope materials and systems envisaging indoor comfort and energy efficiency; Building thermal and energy modelling and simulation; Lab test procedures and methods of field measurement to assess the performance of materials and building solutions; Smart materials and renewable energy in building envelope; Adaptive and intelligent building envelope; and Integrated building envelope technologies for high performance buildings and cities.