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2021-07-17

ANNABEL PIPER

Balanced Microwave Filters Allied Publishers

This book focuses on soft computing and its applications to solve real-life problems occurring in different domains ranging from medical and health care, supply chain management and image processing to cryptanalysis. It presents the proceedings of International Conference on Soft Computing: Theories and Applications (SoCTA 2016), offering significant insights into soft computing for teachers and researchers and inspiring more and more researchers to work in the field of soft computing. >The term soft computing represents an umbrella term for computational techniques like fuzzy logic, neural networks, and nature inspired algorithms. In the past few decades, there has been an exponential rise in the application of soft computing techniques for solving complex and intricate problems arising in different spheres of life. The versatility of these techniques has made them a favorite among scientists and researchers working in diverse areas. SoCTA is the first international conference being organized

at Amity University Rajasthan (AUR), Jaipur. The objective of SoCTA 2016 is to provide a common platform to researchers, academicians, scientists, and industrialists working in the area of soft computing to share and exchange their views and ideas on the theory and application of soft computing techniques in multi-disciplinary areas. The aim of the conference is to bring together young and experienced researchers, academicians, scientists, and industrialists for the exchange of knowledge. SoCTA especially encourages the young researchers at the beginning of their career to participate in this conference and present their work on this platform.

[RF Circuit Design Techniques for MF-UHF Applications](#) IGI Global

This first volume in the Mosharaka for Research and Studies International Conference Proceedings series (P-MIC) contains peer-reviewed papers presented at the 1st International Congress on Engineering Technologies (EngiTek 2020). This event was held remotely on 16-18 June 2020, and hosted by the Faculty of Engineering, Jordan University of Science & Technology (Irbid, Jordan). The conference represented a major forum for professors, students, and

professionals from all over the world to present their latest research results, and to exchange new ideas and practical experiences in the most cutting-edge areas of the field of engineering technologies. Topics covered include electrical engineering, computer science and electronics.

2001 CIE International Conference on Radar Proceedings CRC Press Building on the success of the previous three editions, *Foundations for Microstrip Circuit Design* offers extensive new, updated and revised material based upon the latest research. Strongly design-oriented, this fourth edition provides the reader with a fundamental understanding of this fast expanding field making it a definitive source for professional engineers and researchers and an indispensable reference for senior students in electronic engineering. Topics new to this edition: microwave substrates, multilayer transmission line structures, modern EM tools and techniques, microstrip and planar transmission line design, transmission line theory, substrates for planar transmission lines, Vias, wirebonds, 3D integrated interposer structures, computer-aided design, microstrip and power-dependent effects, circuit models, microwave network analysis, microstrip passive elements, and slotline design fundamentals. *Information Bulletin* John Wiley & Sons This book gathers selected high-quality research papers presented at the International Conference on Paradigms of Communication, Computing and Data Sciences (PCCDS 2021), held at the National Institute of Technology, Kurukshetra, India, during May 07-09, 2021. It discusses high-quality and cutting-edge research in the areas of advanced computing, communications,

and data science techniques. The book is a collection of latest research articles in computation algorithm, communication, and data sciences, intertwined with each other for efficiency.

[Analysis and Design of Substrate Integrated Waveguide Using Efficient 2D Hybrid Method](#) IET

This volume presents 70 carefully selected papers from a major joint event: the 8th International Conference on Soft Computing and Pattern Recognition (SoCPaR 2016) and the 8th International Conference on Computational Aspects of Social Networks (CASoN 2016). SoCPaR-CASoN 2016, which was organized by the Machine Intelligence Research Labs (MIR Labs), USA and Vellore Institute of Technology (VIT), India and held at the VIT on December 19-21, 2016. It brings together researchers and practitioners from academia and industry to share their experiences and exchange new ideas on all interdisciplinary areas of soft computing and pattern recognition, as well as intelligent methods applied to social networks. This book is a valuable resource for practicing engineers/scientists and researchers working in the field of soft computing, pattern recognition and social networks.

Defence Science Journal Artech House Focusing on novel materials and techniques, this pioneering volume provides engineers with a solid understanding of the design and fabrication of smart RF passive components. Professionals find comprehensive details on LCP, metal materials, ferrite materials, nanomaterials, high aspect ratio enabled materials, green materials for RFID, and on-chip silicon techniques. Moreover, this practical book offers expert guidance on how to apply these

materials and techniques to design a wide range of cutting-edge RF passive components, from MEMS switch-based tunable passives and 3D passives, to metamaterial-based passives and on-chip passives. Supported with over 145 illustrations, this forward-looking resource summarizes the growing trend of smart RF passive component design and serves as a guide to the performance-improving and cost-down solutions this technology offers the next generation of wireless communications. *IETE Technical Review* Springer Nature Presents an overview of CubeSat antennas designed at the Jet Propulsion Laboratory (JPL)

CubeSats—nanosatellites built to standard dimensions of 10cm x 10 cm x cm—are making space-based Earth science observation and interplanetary space science affordable, accessible, and rapidly deployable for institutions such as universities and smaller space agencies around the world. CubeSat Antenna Design is an up-to-date overview of CubeSat antennas designed at NASA's Jet Propulsion Laboratory (JPL), covering the systems engineering knowledge required to design these antennas from a radio frequency and mechanical perspective. This authoritative volume features contributions by leading experts in the field, providing insights on mission-critical design requirements for state-of-the-art CubeSat antennas and discussing their development, capabilities, and applications. The text begins with a brief introduction to CubeSats, followed by a detailed survey of low-gain, medium-gain, and high-gain antennas. Subsequent chapters cover topics including the telecommunication subsystem of Mars Cube One (MarCO), the enabling technology of Radar in a

CubeSat (RainCube), the development of a one-meter mesh reflector for telecommunication at X- and Ka-band for deep space missions, and the design of multiple metasurface antennas. Written to help antenna engineers to enable new CubeSat NASA missions, this volume: Describes the selection of high-gain CubeSat antennas to address specific mission requirements and constraints for instruments or telecommunication Helps readers learn how to develop antennas for future CubeSat missions Provides key information on the effect of space environment on antennas to inform design steps Covers patch and patch array antennas, deployable reflectarray antennas, deployable mesh reflector, inflatable antennas, and metasurface antennas CubeSat Antenna Design is an important resource for antenna/microwave engineers, aerospace systems engineers, and advanced graduate and postdoctoral students wanting to learn how to design and fabricate their own antennas to address clear mission requirements. CubeSat Antenna Design John Wiley & Sons

Along with numerous opportunities in communication and imaging applications, the design of emerging millimeter-wave (mm-wave) and terahertz (THz) electronic circuits and systems in CMOS technology faces new challenges and requires new devices. Design of CMOS Millimeter-Wave and Terahertz Integrated Circuits with Metamaterials provides alternative s *Development of Coherent Detector Technologies for Sub-Millimetre Wave Astronomy Observations* Springer Nature Essentials of RF Front-end Design and Testing Highly comprehensive text delivering the RF system essentials required to understand, develop, and

evaluate the performance of RF wireless systems. *Essentials of RF Front-end Design and Testing: A Practical Guide for Wireless Systems* is a system-oriented book which provides several wireless communication disciplines in one volume. The book covers a wide range of topics, including antenna fundamentals, phased array antenna and MIMOs that are crucial for the latest 5G mmWave and future 6G wireless systems, high-frequency transmission lines, RF building blocks that are necessary to understand how various RF subsystems are interrelated and implemented in wireless systems, and test setups for conducted and Over-The-Air (OTA) transmitter and receiver tests. The text enables readers to understand, develop, and evaluate the performance of RF wireless systems. The text focuses on RF system performance and testing rather than mathematical proofs, which are available in the provided references. Although the book is intended for testing and building RF system prototypes, it has the sufficient theoretical background needed for RF systems design and testing. Each chapter includes learning objectives, review questions, and references. Sample topics covered in the book include: An overview of cellular phone systems, 5G NR wireless technology, MIMO technology, terahertz communications for 6G wireless technology, and modulation and multiplexing. Analog and digital modulation techniques, including AM, SSB, FM, FSK, PSK, QAM, SSFH, DSSS, and OFDM. High-frequency transmission lines, S-parameters, low-noise amplifier, RF mixers, filters, power amplifiers, frequency synthesizers, circulators/isolators, directional couplers, RF switches, and RF phase shifters. Antenna basics, including antenna gain,

radiation pattern, input impedance, polarization, and antenna noise temperature; microstrip antenna, antenna array, propagation path loss, compact antenna test range (CATR), and test setups for antenna measurements. Basics of MIMO and beamforming technology, including analog, digital, and hybrid beamforming. Test setups for characterizing the key RF performance parameters of 5G New Radio base station transmitters and receivers. *Essentials of RF Front-end Design and Testing: A Practical Guide for Wireless Systems* is a highly comprehensive resource on the subject and is intended for graduate engineers and technologists involved in designing, developing, and testing wireless systems, along with undergraduate/graduate students, enhancing their learning experience of RF subsystems/systems characterization. *Applications of Advanced Electromagnetics* John Wiley & Sons. Magnetic resonance imaging, semiconductor processing, and RFID are some of the critical applications within the medium frequency (MF) to ultrahigh frequency (UHF) range that require RF designers to have a solid understanding of analytical and experimental RF techniques. Designers need to be able to design components and devices cost effectively, and integrate them with high efficiency, minimal loss, and required power. Computer-aided design (CAD) tools also play an important part in helping to reduce costs and improve accuracy through optimization. *RF Circuit Design Techniques for MF-UHF Applications* explains how to design, simulate, and implement RF/microwave components and devices for applications within the medium frequency (MF) to ultrahigh frequency (UHF) range. The book makes RF design simple by

expertly blending theory, simulation, and practical application examples. A Practical Guide to RF Circuit Design in the MF-UHF Range: Theory, Simulation, and Real-World Application Examples After a review of network parameters used in the analysis of RF components and devices, the book examines MF-UHF design techniques in detail. These include techniques for designing high-power microstrip circuits, directional couplers, transformers, composite and multilayer inductors, filters, combiners/dividers, and RFID systems. For every device, the book gives the required theory and then explains the verification process with CAD tools. In addition, each design is illustrated with real-life implementation examples that use a variety of CAD tools such as MATLAB®, Mathcad, HFSSTM, Ansoft Designer®, Sonnet®, and PSpice®. Design tables, curves, and charts are included to demonstrate an efficient design process. Throughout, the book also offers practical hints to help engineers shorten the design time. Design MF-UHF Devices More Cost-Effectively The book reflects the optimum design methodology used in RF engineering, from the application of theory, to simulation for verification, to experimentation. Packed with useful techniques, tips, and examples, it is an invaluable resource for engineers, researchers, and students working in the MF-UHF range.

Characteristic Modes CRC Press

This book presents and discusses strategies for the design and implementation of common-mode suppressed balanced microwave filters, including, narrowband, wideband, and ultra-wideband filters This book examines differential-mode, or balanced, microwave filters by discussing several

implementations of practical realizations of these passive components. Topics covered include selective mode suppression, designs based on distributed and semi-lumped approaches, multilayer technologies, defect ground structures, coupled resonators, metamaterials, interference techniques, and substrate integrated waveguides, among others. Divided into five parts, Balanced Microwave Filters begins with an introduction that presents the fundamentals of balanced lines, circuits, and networks. Part 2 covers balanced transmission lines with common-mode noise suppression, including several types of common-mode filters and the application of such filters to enhance common-mode suppression in balanced bandpass filters. Next, Part 3 examines wideband and ultra-wideband (UWB) balanced bandpass filters with intrinsic common-mode suppression. Narrowband and dual-band balanced bandpass filters with intrinsic common-mode suppression are discussed in Part 4. Finally, Part 5 covers other balanced circuits, such as balanced power dividers and combiners, and differential-mode equalizers with common-mode filtering. In addition, the book: Explores a research topic of increasing interest due to the growing demand of balanced transmission lines and circuits in modern communication systems Includes contributions from prominent worldwide experts in the field Provides readers with the necessary knowledge to analyze and synthesize balanced filters and circuits Balanced Microwave Filters is an important text for R&D engineers, professionals, and specialists working on the topic of microwave filters. Post graduate students and Masters students in the field of microwave engineering and wireless communications, especially

those involved in courses related to microwave filters, and balanced filters and circuits will also find it to be a vital resource.

Ultra-thin Chip Technology and Applications John Wiley & Sons

This book comprises select proceedings of the International Conference on VLSI, Communication and Signal processing (VCAS 2020). The contents are broadly divided into three topics - VLSI, Communication, and Signal Processing. The book focuses on the latest innovations, trends, and challenges encountered in the different areas of electronics and communication, especially in the area of microelectronics and VLSI design, communication systems and networks, and image and signal processing. It also offers potential solutions and provides an insight into various emerging areas such as Internet of Things (IoT), System on a Chip (SoC), Sensor Networks, underwater and underground communication networks etc. This book will be useful for academicians and professionals alike.

Proceedings of the Eighth International Conference on Soft Computing and Pattern Recognition (SoCPaR 2016)

Springer Science & Business Media

This book discusses terahertz (THz) wireless communication, particularly for 6G enabling technologies, including antenna design, and channel modeling with channel characteristics for the success of reliable 6G wireless communication. The authors describe THz microstrip antenna technologies with different substrates and introduce some useful substrates to reduce the conductor and substrate losses at the THz frequencies. The discussion also includes the design of the THz unit-cell microstrip antenna and the techniques to boost the microstrip antennas' gain,

directivity, and impedance bandwidth (BW), which influence the wireless communication range which is highly affected by the path losses of atmospheric conditions, and transmit and receive data rates, respectively. Moreover, this book discusses the multi-beam and beamforming THz antenna technologies with the multi-user-multiple-input-multiple-output (MU-MIMO) features. Additionally, this book describes the reconfigurable capabilities, artificial intelligence, machine learning, and deep learning technologies that will influence the success of 6G wireless communication and the authors suggest a remedy for integrating multiple radios into the system-on-chip (SoC) design.

Advances in Intelligent Computing and Communication Artech House

This comprehensive new resource guides professionals in the latest methods used when designing active integrated antennas (AIA) for wireless communication devices for various standards. This book provides complete design procedures for the various elements of such active integrated antennas such as the matching network, the amplifier/active element as well as the antenna. This book offers insight into how active integration and co-design between the active components (amplifier, oscillator, mixer, diodes) and the antenna can provide better power transfer, higher gains, increased efficiencies, switched beam patterns and smaller design footprints. It introduces the co-design approach of active integrated antennas and its superior performance over conventional methods. Complete design examples are given of active integrated antenna systems for narrow and wideband applications as well as for multiple-input-multiple-output (MIMO) systems. Readers find the latest

design methods for narrow and broadband RF matching networks. This book provides a complete listing of performance metrics for active integrated antennas. The book serves as a complete reference and design guide in the area of AIA.

Essentials of RF Front-end Design and Testing Springer Nature

Offers a detailed explanation of the development of the impedance concept and its equivalent microwave circuits.

Proceedings of the International Conference on Paradigms of Communication, Computing and Data Sciences Springer

This book presents and discusses strategies for the design and implementation of common-mode suppressed balanced microwave filters, including, narrowband, wideband, and ultra-wideband filters. This book examines differential-mode, or balanced, microwave filters by discussing several implementations of practical realizations of these passive components. Topics covered include selective mode suppression, designs based on distributed and semi-lumped approaches, multilayer technologies, defect ground structures, coupled resonators, metamaterials, interference techniques, and substrate integrated waveguides, among others. Divided into five parts, *Balanced Microwave Filters* begins with an introduction that presents the fundamentals of balanced lines, circuits, and networks. Part 2 covers balanced transmission lines with common-mode noise suppression, including several types of common-mode filters and the application of such filters to enhance common-mode suppression in balanced bandpass filters. Next, Part 3 examines wideband and ultra-wideband (UWB) balanced bandpass filters with

intrinsic common-mode suppression. Narrowband and dual-band balanced bandpass filters with intrinsic common-mode suppression are discussed in Part 4. Finally, Part 5 covers other balanced circuits, such as balanced power dividers and combiners, and differential-mode equalizers with common-mode filtering. In addition, the book: Explores a research topic of increasing interest due to the growing demand of balanced transmission lines and circuits in modern communication systems. Includes contributions from prominent worldwide experts in the field. Provides readers with the necessary knowledge to analyze and synthesize balanced filters and circuits. *Balanced Microwave Filters* is an important text for R&D engineers, professionals, and specialists working on the topic of microwave filters. Post graduate students and Masters students in the field of microwave engineering and wireless communications, especially those involved in courses related to microwave filters, and balanced filters and circuits will also find it to be a vital resource.

A 2-18 GHz Power Divider Springer Science & Business Media

The 2020 IEEE 23rd International Multitopic Conference (INMIC) will take place in Bahawalpur, Pakistan, 5-7 November 2020. The INMIC is the flagship annual conference of IEEE in Pakistan. The focus of the INMIC is on multidisciplinary topics in the field of electrical & electronics engineering, computer systems engineering, and computer science. The aim of INMIC2020 is to provide a friendly and supportive environment for rich scientific exchange of ideas between researchers and industry practitioners. It also presents an excellent opportunity to graduate students and PhD scholars to familiarize

themselves with the state of art research in various computing disciplines The conference program will feature oral and poster presentations, and plenary sessions Special attention will be devoted to student contributions in INMIC2020 Regular student papers, for which the first author is a student, will be considered for the best student paper award

Design and Applications of Active Integrated Antennas IEEE Computer Society Press

Describes how to systematically implement various characteristic mode (CM) theories into designs of practical antenna systems This book examines both theoretical developments of characteristic modes (CMs) and practical developments of CM-based methodologies for a variety of critical antenna designs. The book is divided into six chapters. Chapter 1 provides an introduction and discusses the recent advances of the CM theory and its applications in antenna engineering. Chapter 2 describes the formulation of the characteristic mode theory for perfectly electrically conducting (PEC) bodies and discusses its numerical implementations. Chapter 3 presents the CM theory for PEC structures embedded in multilayered medium and its applications. Chapter 4 covers recent advances in CM theory for dielectric bodies and also their applications. Chapter 5 discusses the CM theory for N-port networks and its applications to the design of antenna arrays. Finally, Chapter 6 discusses the design of platform-integrated antenna systems using characteristic modes. This book features the following: Introduces characteristic mode theories for various electromagnetic structures including PEC bodies, structures in multilayered

medium, dielectric bodies, and N-port networks Examines CM applications in electrically small antennas, microstrip patch antennas, dielectric resonator antennas, multiport antennas, antenna arrays, and platform mounted antenna systems Discusses numerical algorithms for the implementation of the characteristic mode theories in computer code Characteristic Modes: Theory and Applications in Antenna Engineering will help antenna researchers, engineers, and students find new solutions for their antenna design challenges.

Recent Trends in Electronics and Communication Springer Nature

The thesis describes the development of receiver technologies for sub-millimetre astronomy instruments, focusing on high performance coherent cryogenic detectors operating close to the superconductor gap frequency. The mixer chip which comprises the SIS devices, fed by a unilateral finline and matching planar circuits was fabricated on 15 micron silicon substrate using the recently developed Silicon-On-Insulator (SOI) technology. This offered broadband IF and RF performance, with fully integrated on-chip planar circuits resulting in an easily reproducible mixer chip and a simple mixer block. An important consequence of this design is that it can be extended to the supra-THz region and making the fabrication of multi-pixel heterodyne arrays feasible. The extension of the operation of major telescopes such as ALMA, APEX and the GLT from single pixel to large format arrays is the subject of extensive research at present time since it will allow fast mapping combined with high resolution of the submillimetre sky. The technology described in this thesis makes a major contribution to this effort. Soft Computing: Theories and

Applications Springer Nature

The book presents high-quality research papers presented at 4th International Conference on Intelligent Computing and Advances in Communication (ICAC 2021) organized by Siksha 'O' Anusandhan, Deemed to be University, Bhubaneswar, Odisha, India, in November 2021. This book brings out the new advances and

research results in the fields of theoretical, experimental, and applied signal and image processing, soft computing, networking, and antenna research. Moreover, it provides a comprehensive and systematic reference on the range of alternative conversion processes and technologies.