

Heat Wave Sdr

Software Defined Radio makes wireless communications easier, more efficient, and more reliable. This book bridges the gap between academic research and practical implementation. When beginning a project, practicing engineers, technical managers, and graduate students can save countless hours by considering the concepts presented in these pages. The author covers the myriad options and trade-offs available when selecting an appropriate hardware architecture. As demonstrated here, the choice between hardware- and software-centric architecture can mean the difference between meeting an aggressive schedule and bogging down in endless design iterations. Because of the author's experience overseeing dozens of failed and successful developments, he is able to present many real-life examples. Some of the key concepts covered are: Choosing the right architecture for the market – laboratory, military, or commercial, Hardware platforms – FPGAs, GPPs, specialized and hybrid devices, Standardization efforts to ensure interoperability and portability, State-of-the-art components for radio frequency, mixed-signal, and baseband processing. The text requires only minimal knowledge of wireless communications; whenever possible, qualitative arguments are used instead of equations. An appendix provides a quick overview of wireless communications and introduces most of the concepts the readers will need to take advantage of the material. An essential introduction to SDR, this book is sure to be an invaluable addition to any technical bookshelf.

In its 114th year, Billboard remains the world's premier weekly music publication and a diverse digital, events, brand, content and data licensing platform. Billboard publishes the most trusted charts and offers unrivaled reporting about the latest music, video, gaming, media, digital and mobile entertainment issues and trends.

Wireless Broadband utilizes a reader-friendly approach to clearly explain the business, regulatory, and technology issues of the future market for wireless services. It covers broadband and the information society; drivers of broadband consumption; global wireless market analysis; broadband IP core networks; convergence; and contention and conflict. Complemented with more than eighty illustrations, this book provides unparalleled insight into the emerging technologies, service delivery options, applications, and digital content that will influence and shape the next phase of the wireless revolution.

Biomedical optics holds tremendous promise to deliver effective, safe, non- or minimally invasive diagnostics and targeted, customizable therapeutics. Handbook of Biomedical Optics provides an in-depth treatment of the field, including coverage of applications for biomedical research, diagnosis, and therapy. It introduces the theory and fundamental

This book is a guide to the research, findings, and discussions of US and international experts on climate change and respiratory health. Since the publication of the first edition, climate change has been increasingly acknowledged as being directly related to the prevalence and incidence of respiratory morbidity. Evidence is increasing that climate change does drive respiratory disease onset and exacerbation as a result of increased ambient and indoor air pollution, desertification, heat stress, wildfires, and the geographic and temporal spread of pollens, molds and infectious agents. This second edition is fully updated to include the latest research by international experts on topics such as heat waves causing critical care-related diseases, climate-driven air pollution increases, and high-level ozone and ozone exposure linked to idiopathic pulmonary fibrosis, lung cancer, and acute lower respiratory infection. Seven new chapters have also been added on extreme weather and agricultural safety in California; desert dust effects on lung health; climate policy and the EPA; California's integrated approach to air quality and climate change; integrating climate change, the environment, and sustainability themes into professional health science courses; and the role of the physician as climate advocate. This is an ideal guide for all pulmonologists and health professionals treating patients with pulmonary disease.

A comprehensive guide to the RTL2832U RTL-SDR software defined radio by the authors of the RTL-SDR Blog. The RTL-SDR is a super cheap software defined radio based on DVB-T TV dongles that can be found for under \$20. This book is about tips and tutorials that show you how to get the most out of your RTL-SDR dongle. Most projects described in this book are also compatible with other wideband SDRs such as the HackRF, Airspy and SDRPlay RSP. What's in the book? Learn how to set up your RTL-SDR with various free software defined radio programs such as SDR#, HSDR, SDR-Radio and more. Learn all the little tricks and oddities that the dongle has. A whole chapter dedicated to improving the RTL-SDR's performance. Dozens of tutorials for fun RTL-SDR based projects such as ADS-B aircraft radar, AIS boat radar, ACARS decoding, receiving NOAA and Meteor-M2 weather satellite images, listening to and following trunked radios, decoding digital voice P25/DMR signals, decoding weather balloon telemetry, receiving DAB radio, analysing GSM and listening to TETRA signals, decoding pagers, receiving various HF signals such as ham radio modes, weatherfax and DRM radio, decoding digital D-STAR voice, an introduction to GNU Radio, decoding RDS, decoding APRS, measuring filters and SWR with low cost equipment, receiving Inmarsat, Outernet and Iridium L-Band satellite data, and many many more projects! Guide to antennas, cables and adapters. Third Edition Released 20 December 2016.

This timely book locates older people as major clients of occupational therapy services. It provides a comprehensive resource for students and a basic working reference for clinicians. The book encompasses current theories, debates and challenges which occupational therapists need to engage in if they are to provide pro-active and promotional approaches to ageing. Detailed coverage of bodily structures, functions and pathologies leads onto chapters dedicated to activity, occupation and participation. The ethos of the book is to inspire innovation in the practice of occupational therapy with older people, promoting successful ageing that entails control and empowerment. Features: * Contains many practical elements, including case studies, and narratives from practice. * Promotes active ageing. * Adopts the framework of the World Health Organisation's International Classification of Functioning, Disability and Health (2001) * Specialist contributions reveal the diversity of occupational performance considerations in older age.

This book focuses on the risks that climate change poses for the health sector. It discusses the current vulnerabilities to climate-sensitive diseases, the resultant mortality and morbidity in human populations, the projected risks in connection with increasing global warming, and the options for tackling the adverse impacts of climate change. Adapting to climate change so as to effectively address the risks for and adverse impacts on the health sector requires an in-depth understanding of current deficits in health sector preparedness for climate-sensitive illnesses, as well as future plans and programs for increasing adaptive capacity and building resilience. The book situates climate and health adaptation concerns in the broader context of developing countries, providing insights that can be useful for other countries as well, helping them further their health adaptation efforts. In India, poverty and inadequate access to basic water, health and sanitation services combine with climate-related events to adversely impact health outcomes. Three case studies on the occurrence of heat stress, flooding, and extreme cyclonic events in India are presented along with a critical assessment of the level of preparedness and capacity of healthcare facilities to respond to the threats posed by climate change. The book presents the key challenges faced in reducing the risks posed to the health sector

by climatic factors, and highlights the most important opportunities for promoting resilience and adaptation to achieve sustainable development. Dr. Dasgupta's excellent book reviews the health risks of climate change, outlines an operational framework for health adaptation, and describes the socioeconomic context for adaptation in India. - Kristie L. Ebi Professor, Departments of Global Health, and Environmental and Occupational Health Sciences, University of Washington, USA This pioneering work contributes to an the understanding of the preparedness in India to manage health risks from such (climate) change on the basis of detailed data analysis, both from large national surveys and contextualized field based surveys.- Kanchan Chopra Former Director and Professor, Institute of Economic Growth, New Delhi, India/div

The main objective of this comprehensive text is to introduce the students the physics and the operational principles as well as the characteristics, and applications of the microwave semiconductor devices. These devices are making a revolutionary change in the field of communication and radars. As a result of the accelerating rate of growth of microwave technology in research and industry, students, engineers and scientists need to understand the theoretical and experimental design and analysis of these devices. The book also deals with higher frequency microwaves called millimeter waves, which are finding wide applications in ground and satellite communication, radars and missile guidance. Millimeter wave system development is one of the most advanced technologies in radio science, especially in view of the ever increasing demand of communication and saturation of microwave frequency range with increasing number of channels. The book discusses in greater detail about the semiconductor devices such as IMPATT diodes, Gunn diodes, HEMT diodes and FET diodes. It emphasizes on various two and three terminal devices in the microwave and millimeter wave field based on silicon and Groups III-V compound semiconductors. The book is intended to serve as a textbook for undergraduate electronics and electrical engineering students and postgraduate students of physics. It would also be a valuable reference book for professional engineers and physicists.

A Complete Treatment of Current Research Topics in Fourier Transforms and Sinusoids Sinusoids: Theory and Technological Applications explains how sinusoids and Fourier transforms are used in a variety of application areas, including signal processing, GPS, optics, x-ray crystallography, radioastronomy, poetry and music as sound waves, and the medical sciences. With more than 200 illustrations, the book discusses electromagnetic force and sychrotron radiation comprising all kinds of waves, including gamma rays, x-rays, UV rays, visible light rays, infrared, microwaves, and radio waves. It also covers topics of common interest, such as quasars, pulsars, the Big Bang theory, Olbers' paradox, black holes, Mars mission, and SETI. The book begins by describing sinusoids—which are periodic sine or cosine functions—using well-known examples from wave theory, including traveling and standing waves, continuous musical rhythms, and the human liver. It next discusses the Fourier series and transform in both continuous and discrete cases and analyzes the Dirichlet kernel and Gibbs phenomenon. The author shows how invertibility and periodicity of Fourier transforms are used in the development of signals and filters, addresses the general concept of communication systems, and explains the functioning of a GPS receiver. The author then covers the theory of Fourier optics, synchrotron light and x-ray diffraction, the mathematics of radioastronomy, and mathematical structures in poetry and music. The book concludes with a focus on tomography, exploring different types of procedures and modern advances. The appendices make the book as self-contained as possible.

A state-of-the-art presentation of millimeter wave technology. Contains a comprehensive, yet broad spectrum of topics on generation, propagation, components, circuits, antennas and applications. Discusses the importance of this new communications technology in military, aerospace, governmental, and civil communications systems.

Nanosatellites: Space and Ground Technologies, Operations and Economics Rogerio Atem de Carvalho, Instituto Federal Fluminense, Brazil Jaime Estela, Spectrum Aerospace Group, Germany and Peru Martin Langer, Technical University of Munich, Germany Covering the latest research on nanosatellites Nanosatellites: Space and Ground Technologies, Operations and Economics comprehensively presents the latest research on the fast-developing area of nanosatellites. Divided into three distinct sections, the book begins with a brief history of nanosatellites and introduces nanosatellites technologies and payloads, also explaining how these are deployed into space. The second section provides an overview of the ground segment and operations, and the third section focuses on the regulations, policies, economics, and future trends. Key features: Payloads for nanosatellites Nanosatellites components design Examines the cost of development of nanosatellites. Covers the latest policies and regulations. Considers future trends for nanosatellites. Nanosatellites: Space and Ground Technologies, Operations and Economics is a comprehensive reference for researchers and practitioners working with nanosatellites in the aerospace industry.

This volume constitutes the proceedings of the Fourth International Workshop on Materials Processing at High Gravity, held at Clarkson University, May 29 to June 2, 2000. There were 73 attendees from 16 countries. Since the topics extended well beyond materials processing, it was felt appropriate to name this proceedings "Centrifugal Processing." Processing by Centrifugation includes the traditional bench-scale centrifuges, as well as all rotating systems utilizing the centrifugal and Coriolis forces to provide unique performance. Centrifugation led to the formation of sticky porous Teflon membranes, as well as improved polymeric solar cells. Centrifugation on large equipment improved the chemical vapor deposition of diamond films, influenced the growth and dissolution of semiconductor crystals, and elucidated the influence of gravity on coagulation of colloidal Teflon. A million g centrifuge was constructed and used to study sedimentation in solids and to prepare compositionally graded materials and new phases. Rotation of a pipe about its axis allowed the casting of large-diameter metal alloy pipes as well as coating the interior of pipes with a cermet utilizing self-propagating high-temperature synthesis. Such coatings are highly corrosion and erosion resistant. Flow on a rotating disk was shown to be useful for process intensification, such as large-scale manufacturing of nano-particles, polymerization reactions, and heat & mass transfer. Several theoretical studies dealt with the influence of rotation on fluid convection on surfaces and in pipes, tubes, and porous media. These have applications to integrated-circuit chip manufacturing, alloy casting, oil production, crystal growth, and the operation of rotating machinery.

Protein research is a frontier field in science. Proteins are widely distributed in plants and animals and are the principal constituents of the protoplasm of all cells, and consist essentially of combinations of a-amino acids in peptide linkages. Twenty different amino acids are commonly found in proteins, and serve as enzymes, structural elements, hormones, immunoglobulins, etc., and are involved throughout the body, and in photosynthesis. This book gathers new leading-edge research from throughout the world in this exciting and exploding field of research.

To handle many standards and ever increasing bandwidth requirements, large number of filters and switches are used in transceivers of modern wireless communications systems. It makes the cost, performance, form factor, and power consumption of these systems, including cellular phones, critical issues. At present, the fixed frequency filter banks based on Film Bulk Acoustic Resonators (FBAR) are regarded as one of the most promising technologies to address performance -form factor-cost issues. Even though the FBARs improve the overall performances the complexity of these systems remains high. Attempts are being made to exclude some of the filters by bringing the digital signal processing (including channel selection) as close to the antennas as possible. However handling the increased interference levels is unrealistic for low-cost battery operated radios. Replacing fixed frequency filter banks by one tuneable filter is the most desired and widely considered scenario. As an example, development of

the software based cognitive radios is largely hindered by the lack of adequate agile components, first of all tuneable filters. In this sense the electrically switchable and tuneable FBARs are the most promising components to address the complex cost-performance issues in agile microwave transceivers, smart wireless sensor networks etc. Tuneable Film Bulk Acoustic Wave Resonators discusses FBAR need, physics, designs, modelling, fabrication and applications. Tuning of the resonant frequency of the FBARs is considered. Switchable and tuneable FBARs based on electric field induced piezoelectric effect in paraelectric phase ferroelectrics are covered. The resonance of these resonators may be electrically switched on and off and tuned without hysteresis. The book is aimed at microwave and sensor specialists in the industry and graduate students. Readers will learn about principles of operation and possibilities of the switchable and tuneable FBARs, and will be given general guidelines for designing, fabrication and applications of these devices.

This book is planned to publish with an objective to provide a state-of-the-art reference book in the areas of advanced microwave, MM-Wave and THz devices, antennas and system technologies for microwave communication engineers, Scientists and post-graduate students of electrical and electronics engineering, applied physicists. This reference book is a collection of 30 Chapters characterized in 3 parts: Advanced Microwave and MM-wave devices, integrated microwave and MM-wave circuits and Antennas and advanced microwave computer techniques, focusing on simulation, theories and applications. This book provides a comprehensive overview of the components and devices used in microwave and MM-Wave circuits, including microwave transmission lines, resonators, filters, ferrite devices, solid state devices, transistor oscillators and amplifiers, directional couplers, microstripeline components, microwave detectors, mixers, converters and harmonic generators, and microwave solid-state switches, phase shifters and attenuators. Several applications area also discusses here, like consumer, industrial, biomedical, and chemical applications of microwave technology. It also covers microwave instrumentation and measurement, thermodynamics, and applications in navigation and radio communication.

This study, conducted by RIVM, compares the health of people in the Netherlands with that of other EU countries using the ECHI shortlist. The shortlist is a set of more than eighty European health indicators on, e.g., disease, lifestyle and prevention. The report also focuses on the health of young and old people and includes an analysis of the availability, comparability and quality of the data necessary for international comparisons.

The successful implementation of greener chemical processes relies not only on the development of more efficient catalysts for synthetic chemistry but also, and as importantly, on the development of reactor and separation technologies which can deliver enhanced processing performance in a safe, cost-effective and energy efficient manner. Process intensification has emerged as a promising field which can effectively tackle the challenges of significant process enhancement, whilst also offering the potential to diminish the environmental impact presented by the chemical industry. Following an introduction to process intensification and the principles of green chemistry, this book presents a number of intensified technologies which have been researched and developed, including case studies to illustrate their application to green chemical processes. Topics covered include: • Intensified reactor technologies: spinning disc reactors, microreactors, monolith reactors, oscillatory flow reactors, cavitation reactors • Combined reactor/separator systems: membrane reactors, reactive distillation, reactive extraction, reactive absorption • Membrane separations for green chemistry • Industry relevance of process intensification, including economics and environmental impact, opportunities for energy saving, and practical considerations for industrial implementation. Process Intensification for Green Chemistry is a valuable resource for practising engineers and chemists alike who are interested in applying intensified reactor and/or separator systems in a range of industries to achieve green chemistry principles.

Process intensification (PI) leads to a substantially smaller, cleaner, safer and more energy efficient process technology. For example, the scale reduction made possible by using high gravity fields to separate liquids has seen the reduction of distillation columns from 75m to a four of five metres in height in some areas. PI is a hot topic in chemical and process engineering - and beyond - and is now reaching a maturity that is seeing PI concepts applied to a wide range of processes and technologies. This is the first book to provide a practical working guide to understanding PI and developing successful PI solutions and applications. By demonstrating the broad application of PI this book will be of value to audiences looking to take current technologies into new process areas as well as those looking to further its use in the chemical engineering sector. As well as detailing technologies and practical applications the book focusses on safety, energy and environmental issues, giving guidance on how to incorporate PI in plant design and operation safely, efficiently and effectively. This book provides up to date access to the best current information on PI, both through the world-class experience of the authors and by pinpointing other significant sources of data, equipment and expertise. * Shows chemical and process engineers how to apply process intensification (PI) to their product, process or production line * A hard-working reference and user guide to the technology AND application of PI, covering fundamentals, industry applications, and supplemented by a development and implementation guide * Leading author team, including Professor Colin Ramshaw, developer of the HiGee high gravity distillation process at ICI, who is widely credited as the father of PI

Based on the popular Artech House classic, Digital Communication Systems Engineering with Software-Defined Radio, this book provides a practical approach to quickly learning the software-defined radio (SDR) concepts needed for work in the field. This up-to-date volume guides readers on how to quickly prototype wireless designs using SDR for real-world testing and experimentation. This book explores advanced wireless communication techniques such as OFDM, LTE, WLA, and hardware targeting. Readers will gain an understanding of the core concepts behind wireless hardware, such as the radio frequency front-end, analog-to-digital and digital-to-analog converters, as well as various processing technologies. Moreover, this volume includes chapters on timing estimation, matched filtering, frame synchronization message decoding, and source coding. The orthogonal frequency division multiplexing is explained and details about HDL code generation and deployment are provided. The book concludes with coverage of the WLAN toolbox with OFDM beacon reception and the LTE toolbox with downlink reception. Multiple case studies are provided throughout the book. Both MATLAB and Simulink source code are included to assist readers with their projects in the field.

Process Intensification: Engineering for Efficiency, Sustainability and Flexibility is the first book to provide a practical working guide to understanding process intensification (PI) and developing successful PI solutions and applications in chemical process, civil, environmental, energy, pharmaceutical, biological, and biochemical systems. Process intensification is a chemical and process design approach that leads to substantially smaller, cleaner, safer, and more energy efficient process technology. It improves process flexibility, product quality, speed to market and inherent safety, with a reduced environmental footprint. This book represents a valuable resource for engineers working with leading-edge process technologies, and those involved research and development of chemical, process, environmental, pharmaceutical, and bioscience systems. No other reference covers both the technology and application of PI, addressing fundamentals, industry applications, and including a development and implementation guide Covers hot and high growth topics, including emission prevention, sustainable design, and pinch analysis World-class authors: Colin Ramshaw pioneered PI at ICI and is widely credited as the father of the technology In recent years the need for sustainable process design and alternative reaction routes to reduce industry's impact on the environment has

gained vital importance. The book begins with a general overview of new trends in designing industrial chemical processes which are environmentally friendly and economically feasible. Specific examples written by experts from industry cover the possibilities of running industrial chemical processes in a sustainable manner and provide an up-to-date insight into the main concerns, e.g., the use of renewable raw materials, the use of alternative energy sources in chemical processes, the design of intrinsically safe processes, microreactor and integrated reaction/ separation technologies, process intensification, waste reduction, new catalytic routes and/or solvent and process optimization.

This text presents a comprehensive and state-of the-art approach to stereotactic and functional neurosurgery. Overarching sections include achieving stereotactic precision, defining trajectories and targets, the biophysics of stereotactic therapies, diseases and targets, and the future of functional neurosurgery. Each section is designed to be inclusive of all relevant topics, serving as an unbiased resource to new clinicians in this field or established clinicians that are aiming to better understand complementary methods. Importantly, each section and the associated chapters can be used by basic and translational scientists as well as engineers and industry to better understand and deliver innovation to the field. Chapters within each section methodically analyze traditional and recently emerging concepts and techniques; address underlying principles with examples drawn from specific diseases and applications; and cover patient selection, target selection, available stereotactic methods, nuanced surgical methods, and clinical evidence across treatment options. Written by experts in each area, Stereotactic and Functional Neurosurgery is a definitive guide to the latest developments in stereotactic targeting, electrode implantation, surgical treatment of neurological and psychiatric disorders, the renaissance of stereotactic lesions, and the frontier of restorative neurosurgery for a variety of disorders that have no other therapeutic options.

Adapting to Severe Heat Waves The Rosen Publishing Group, Inc

Advances in Ground-Source Heat Pump Systems relates the latest information on source heat pumps (GSHPs), the types of heating and/or cooling systems that transfer heat from, or to, the ground, or, less commonly, a body of water. As one of the fastest growing renewable energy technologies, they are amongst the most energy efficient systems for space heating, cooling, and hot water production, with significant potential for a reduction in building carbon emissions. The book provides an authoritative overview of developments in closed loop GSHP systems, surface water, open loop systems, and related thermal energy storage systems, addressing the different technologies and component methods of analysis and optimization, among other subjects. Chapters on building integration and hybrid systems complete the volume. Provides the geological aspects and building integration covered together in one convenient volume Includes chapters on hybrid systems Presents carefully selected chapters that cover areas in which there is significant ongoing research Addresses geothermal heat pumps in both heating and cooling modes

Like a row of dominoes, persistent and repetitive heat waves also threaten the environment, exacerbate current climate-related problems, stress a country's health system, damage its infrastructure, and strain its energy resources. Readers examine efforts, including drought and heat-resistant energy-efficient "smart" homes and buildings, green roof gardens, next-generation building materials, and alternative energy sources as well as technologically advanced climate modeling, weather prediction, and emergency warning systems. Also highlighted are governmental efforts that can be made to alleviate human suffering, including energy conservation initiatives, the opening of public shelters and cooling centers, and the organizing of neighborhood watch programs for heat-vulnerable residents. Most importantly, readers learn how they can learn to reduce their carbon footprint while also coping with increasing heat and remaining healthy.

Infrared and Millimeter Waves, Volume 9: Millimeter Components and Techniques, Part I compiles the work of several authors while focusing on certain aspects of infrared and millimeter waves, such as sources of radiation, instrumentation, and millimeter systems. This volume deals with millimeter components and techniques. Chapter 1 covers millimeter wave communications, and then the succeeding chapter discusses a comparative study of millimeter waves and transmission lines. This book then tackles dielectric waveguide electrooptic devices, as well as millimeter-wave propagation and remote sensing of the atmosphere, which are covered in Chapter 4. The fifth chapter presents the technology of large radio telescopes for millimeter and submillimeter. The next chapter explains a gyrotron study program, and the last chapter discusses multimode analysis of quasi-optical gyrotrons and gyroklystrons. This book will be of great use for researchers or professionals whose work involves infrared and millimeter waves.

Robots are used in industry, rescue missions, military operations, and subwater missions. Their use in hazardous environments is crucial in terms of occupational safety of workers and the health of rescue and military operations. This book presents several hazardous environment operations and safe operations of robots interacting with people in the context of occupational health and safety.

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