Gender and Technology in the Making

This book will review the current status of the agriculture and agri-food sector in regard to green processing and provide strategies that can be used by the sector to enhance the use of environmentally-friendly technologies for production, processing. The book will look at the full spectrum from farm to fork beginning with chapters on life cycle analysis and environmental impact assessment of different agri-food sectors. This will be followed by reviews of current and novel on-farm practices that are more environmentally-friendly, technologies for food processing that reduce chemical and energy use and emissions as well as novel analytical techniques for R&D and QA which reduce solvent, chemical and energy consumption. Technologies for waste treatment, "reducing, reusing, recycling", and better water and energy stewardship will be reviewed. In addition, the last section of the book will attempt to look at technologies and processes that reduce the generation of process-induced toxins (e.g., trans fats, acrylamide, D-amino acids) and will address consumer perceptions about current and emerging technologies available to tackle these processing and environmental issues.

Ferroelectrics in Microwave Devices, Circuits and Systems

Food processing is the step of the food chain that principally affects a food's physical or biochemical properties, along with determining the safety and shelf life of the product. This book provides a comprehensive overview of innovations in non-thermal technologies specifically for fluid foods, recognized for their high bioavailability of macronutrients and micronutrients. Considerable resources and expertise has been devoted to the processing of safe and wholesome foods. Non-thermal technologies have been developed as an alternative to thermal processing, while still meeting required safety or shelf-life demands and minimising the effects on its nutritional and quality attributes. Examines non-thermal processing techniques specifically applied to fluid foods Includes methods for mathematically evaluating each technique Addresses global regulatory requirements for fluid foods Provides recommendations and opportunities for various safety-related issues

The Emerging Telecommunications Technologies Act of 1991

Isoflavones remain the subject of many scientific studies most of which reveal them to have some health benefits. Coverage within this book begins with an overview of phytoestrogens in health and plants with specific reference to isoflavones, how isoflavones are found in the diet and novel compounds in nuts. Expert accounts of the chemical and biochemical research on this topic are provided followed by analytical and bioanalytical assessments. Rounding up the book are the chapters on function and effects of isoflavones which provide details on isoflavones in beverages, soy and soy products and other food delivery systems and how their function effects the thyroid, menopause, prostate, breast, bone and cardiovascular disease to name but a few. Delivering high quality information, this extensive and detailed book provides a fascinating insight into this area of health and nutritional science. It will bridge scientific disciplines so that the information is
more meaningful and applicable to health in general. Part of a series of books, it is specifically designed for chemists, analytical scientists, forensic scientists, food scientists, dieticians and health care workers, nutritionists, toxicologists and research academics. Due to its interdisciplinary nature it could also be suitable for lecturers and teachers in food and nutritional sciences and as a college or university library reference guide.

**Novel Technologies for Microwave and Millimeter — Wave Applications**

This volume looks at modern approaches to catalysis and reviews the extensive literature which bridges the gap from academic studies in the laboratory to practical applications in industry not only for catalysis field but also for environmental protection.

**Green Technologies in Food Production and Processing**

Recently, the rapid development of microwave technologies has had a significant impact on current industrial, agricultural, medical, and food processing fields. This book is a self-contained collection of valuable scholarly papers related to the microwave applications. This book contains 10 chapters that cover several subtopics of the microwave engineering, namely, microwave system design models, emerging microwave devices, and microwave heating/drying technologies. Hence, this book should be useful to the academics, scientists, practicing researchers, and postgraduate students whose works are related to microwave technologies.

**Novel Food Processing Technologies**

Milk is nature’s perfect food (lacking only iron, copper, and vitamin C) and is highly recommended by nutritionists for building healthy bodies. New technologies have emerged in the processing of milk. This new volume focuses on the processing of milk by novel techniques, emphasizing the conservation of energy and effective methods. This book is divided four parts that cover: applications of novel processing technologies in the dairy industry novel drying techniques in the dairy industry management systems and hurdles in the dairy industry energy conservation and opportunities in the dairy industry This book presents new information on the technology of ohmic heating for milk pasteurization. It goes on to provide an overview of the commercial thermal, non-thermal technologies, and hybrid technologies for milk pasteurization. There are non-thermal technologies such as pulse light, irradiation, ultra violet treatment, etc., that can be used in combination with other technologies for the processing of milk and milk products. This hybrid technology can provide multiple benefits, such extended shelf life, reduced energy costs, reduced heat treatment, and better organoleptic and sensory properties. The book also describes the different aspects of food safety management used in dairy processing. The book also looks at recent advances in microwave-assisted thermal processing of milk and the effects of microwaves on microbiological, physicochemical, and organoleptic properties of processed milk and milk products. Technological advances in value addition and standardization of the products have been reported, but well-established processes for mechanized production are recommended in the book for a uniform quality nutritious product produced under hygienic conditions. This new volume will be of interest to faculty, researchers, postgraduate students, researchers, as well as engineers in the dairy industry.

**Novel Microwave and Millimeter-wave Radar Technologies and Applications**

The first of its kind, this comprehensive work details the theory and practical design of new multi-band filters.

**Sustainable Agriculture Reviews**

Biodeterioration can be defined as the breakdown of food by agents of microbiological origin, either directly or from products of their metabolism. Microbiological sources can be present in foods prior to packaging or on the surfaces of packaging materials. The shelf life and safety of the food will depend on the type and quantity of microorganism, as well as the hurdles to their growth offered by various preservation techniques. This book discusses how the agents of food biodeterioration operate, and examines the commercially-used industrial methods available to control them, allowing the production of safe and wholesome foods. There is an emphasis on the equipment employed to carry out the various methods of preservation. The introductory chapter describes in detail the microorganisms and mechanisms of food breakdown intrinsic to various key food types; dairy, meat and fish, fruit, and vegetables. Direct microorganism action will be covered in addition to enzymatic breakdown. The second chapter addresses HACCP, including food safety legislation. Subsequent chapters outline the principal, commercially-used methods of preserving foods. These chapters follow a common structure: theoretical background; flow sheets of operations; food preparation/processing equipment; special features of hygiene; packaging; shelf life; and product safety. Food Biodeterioration and Preservation is directed at food scientists and technologists in industry and academia. Since it covers all the commonly-used methods of food preservation, it will be relevant across the entire food manufacturing industry.
RF and Microwave Transistor Oscillator Design

The Microwave Processing of Foods, Second Edition, has been updated and extended to include the many developments that have taken place over the past 10 years. Including new chapters on microwave assisted frying, microwave assisted microbial inactivation, microwave assisted disinfection, this book continues to provide the basic principles for microwave technology, while also presenting current and emerging research trends for future use development. Led by an international team of experts, this book will serve as a practical guide for those interested in applying microwave technology. Provides thoroughly up-to-date information on the basics of microwaves and microwave heating Discusses the main factors for the successful application of microwaves and the main problems that may arise Includes current and potential future applications for real-world application as well as new research and advances Includes new chapters on microwave-assisted frying, microbial inactivation, and disinfection

Microwave and Millimeter Wave Technologies

A New X-Band Mobile Direction Finder

The Microwave Processing of Foods Novel Technologies for Microwave and Millimeter-Wave Applications provides an overview of current research status in selected field, to facilitate a learning process from concepts to practices, from component design to system architecture, and from small scale to large scale. Each chapter focuses on a topic and is organized to be self-sufficient. Contents in each chapter include concise description of relevant background information, major issues, current trend and future challenges. Useful references are also listed for further reading. Novel Technologies for Microwave and Millimeter-Wave Applications is suitable as a textbook for senior or graduate courses in microwave engineering.

Safeguarding the Polar Environment with Novel Microwave and Lightweight Antenna Technologies

SEMLA

Novel Thermal and Non-Thermal Technologies for Fluid Foods This text offers an international and interdisciplinary analysis of the complex interactions between infrastructure networks and urban spaces. Drawing on case studies and examples from across the globe, it offers a statement on the urban condition.

Food Biodeterioration and Preservation This innovative book demonstrates the making of gender and technology as comparable social processes, one helping shape the other. The authors take as an example the microwave oven, a recent innovation in domestic technology that neatly encapsulates the technology/gender relation. In the microwave, masculine engineering encounters an age old woman’s technology: cooking. The authors show how the microwave begins as a state-of-the-art masculine technology, is translated in the retail trade into a ‘family’ commodity, one of a range of domestic white goods, and eventually settles into the kitchen alongside other humble feminine appliances; unlike the old cooker, however, the microwave retains just a whiff of aftershave. The au

Novel Dairy Processing Technologies Microwave and Millimeter Wave Circuits and Systems: Emerging Design, Technologies and Applications provides a wide spectrum of current trends in the design of microwave and millimeter circuits and systems. In addition, the book identifies the state-of-the-art challenges in microwave and millimeter wave circuits systems design such as behavioral modeling of circuit components, software radio and digitally enhanced front-ends, new and promising technologies such as substrate-integrated-waveguide (SIW) and wearable electronic systems, and emerging applications such as tracking of moving targets using ultra-wideband radar, and new generation satellite navigation systems. Each chapter treats a selected problem and challenge within the field of Microwave and Millimeter wave circuits, and contains case studies and examples where appropriate. Key Features: Discusses modeling and design strategies for new appealing applications in the domain of microwave and millimeter wave circuits and systems Written by experts active in the Microwave and Millimeter Wave frequency range (industry and academia) Addresses modeling/design/applications both from the circuit as from the system perspective Covers the latest innovations in the respective fields Each chapter treats a selected problem and challenge within the field of Microwave and Millimeter wave circuits, and contains case studies and examples where appropriate. This book serves as an excellent reference for engineers, researchers, research project managers and engineers working in R&D, professors, and post-graduates studying related courses. It will also be of interest to professionals working in product development and PhD students.
Phytochemicals in Goji Berries This book reviews concepts and recent advances of biotechnological approaches for livestock production. Indeed, biotechnologies have recently emerged as powerful tools for animal breeding, genetics, production, nutrition, and animal health. Applications to the production of livestock such as cattle, camel, and poultry are detailed. Chapters also present biotechnological applications for diagnostics, animal nutrition, and animal food production.

Microwave and Millimeter Wave Circuits and Systems Goji berries (Lycium barbarum), which are widely distributed in Northwestern China, Southeastern Europe and the Mediterranean areas, have traditionally been employed in Chinese medicine from ancient times. Goji berries, also known as wolfberry, have become increasingly popular in the Western world because of their nutritional properties, often advertised as a superfood in Europe and North America. With the development of analysis methods, various chemical constituents have been identified, including carbohydrates, carotenoids, flavonoids, betaine, cerebroside, -sitosterol, amino acids, trace elements, vitamins and other constituents. Polysaccharides have been identified as one of the major active ingredients responsible for biological activities. Phytochemicals in Goji Berries: Applications in Functional Foods, a volume in the Functional Foods and Nutraceuticals Series, provides information about the chemical, biochemical, botanic properties, bioactive components and health benefits of Goji berries. It also discusses postharvest storage technology, processing technology, and the development and utilization of Goji berry by-products in medicinal foods and functional foods, as well as addressing food safety issues. Features: Provide information on Goji fruit origin and growing conditions, distribution, and biochemical properties Discusses such medicinal properties and health benefits of Goji berries as the capacity to lower blood pressure, treat anemia, maintain cholesterol levels in the normal range and decrease risk of cardiovascular disease. Additionally, Goji berries have anti-inflammatory and anti-tumor properties, among others Includes information on traditional products, new products and innovative processing technologies This book will serve college and university students majoring in food science, nutrition, pharmaceutical science, and botanical science. It also will serve as a unique reference for food science professionals pursuing functional foods, marketing expansion, as well as nutritional dietary management. Readers will obtain sound scientific knowledge of the nutritional value and health benefits of the different Goji berry products such as juice, cake, soup, snacks, and medicinal foods. Also available in the Functional Foods and Nutraceuticals series: Korean Functional Foods: Composition, Processing and Health Benefits, edited by Kun-Young Park, Dae Young Kwon, Ki Won Lee, Sunmin Park (ISBN 978-1-4987-9965-2) Phytochemicals in Citrus: Applications in Functional Foods, edited by Xingqian Ye (ISBN 978-1-4987-4272-6) Food as Medicine: Functional Food Plants of Africa, by Maurice M. Iwu (ISBN 978-1-4987-0609-4) For a complete list of books in the series, please visit our website at https://www.crcpress.com/Functional-Foods-and-Nutraceuticals/book-series/CRCFUNFOONUT

Novel Technologies and Techniques for Low-cost Phased Arrays and Scanning Antennas This multi-authored book is edited by an expert in the field and includes chapters from international contributors. It is fully cross disciplinary relating green principles to the food industry, covering legal and policy issues, engineering, food processing and food science. It addresses the alternatives to conventional food processing that have reduced energy requirements or solvent use and how they affect final food quality. Initially, the principles of green chemistry and technologies are outlined to provide a justification and basis for the processing methods that are addressed. This is followed by a discussion of legal and policy issues in both the EU and the US which provide further justification for the need for such technologies and the constraints and benefits of current policies and regulations. The major green technologies available to the food industry are discussed, outlining the main principles and applications of each. The degree to which they are already in commercial use and developments needed to extend their use further are also covered.

Sustainable Seaweed Technologies

Splintering Urbanism

Fruit Preservation Microwave and Millimeter Wave Technologies A New X-Band Mobile Direction Finder.

Copyright and New Technologies

Isoflavones The role of the chemical reactor is crucial for the industrial conversion of raw materials into products and numerous factors must be considered when selecting an appropriate and efficient chemical reactor. Chemical Reaction Engineering and Reactor Technology defines the qualitative aspects that
affect the selection of an industrial chemical reactor and couples various reactor models to case-specific kinetic expressions for chemical processes. Offering a systematic development of the chemical reaction engineering concept, this volume explores: Essential stoichiometric, kinetic, and thermodynamic terms needed in the analysis of chemical reactors Homogeneous and heterogeneous reactors Residence time distributions and non-ideal flow conditions in industrial reactors Solutions of algebraic and ordinary differential equation systems Gas- and liquid-phase diffusion coefficients and gas-film coefficients Correlations for gas-liquid systems Solubilities of gases in liquids Guidelines for laboratory reactors and the estimation of kinetic parameters The authors pay special attention to the exact formulations and derivations of mass energy balances and their numerical solutions. Richly illustrated and containing exercises and solutions covering a number of processes, from oil refining to the development of specialty and fine chemicals, the text provides a clear understanding of chemical reactor analysis and design.

Microwave-Enhanced Polymer Chemistry and Technology Froiture and fruit based products are, in most cases, associated with very good sensory characteristics, health, well-being, perishability, relatively easy to mix with food products of diverse origin, amenable to be processed by conventional and novel technologies. Given the multiplicity of aspects whenever fruit preservation is considered, the editors took the challenge of covering in a thorough, comprehensive manner most aspects dealing with this topic. To accomplish these goals, the editors invited well known colleagues with expertise in specific disciplines associated with fruit preservation to contribute chapters to this book. Eighteen chapters were assembled in a sequence that would facilitate, like building blocks, to have at the same time, a birds-eye view and an in-depth coverage of traditional and novel technologies to preserve fruits. Even though processing took center stage in this book, ample space was dedicated to other relevant and timely topics on fruit preservation such as safety, consumer perception, sensory and health aspects. FEATURES: Traditional and Novel Technologies to Process Fruits Microwaves Ohmic Heating UV-C light Irradiation High Pressure Pulsed Electric Fields Ultrasound Vacuum Impregnation Membranes Ozone Hurdle Technology Topics Associated with Fruit Preservation Safety Nutrition and Health Consumer Perception Sensory Minimal Processing Packaging Unit Operations for Fruit Processing Cooling and Freezing Dehydration Frying

Using New Ocean Technologies This dissertation introduces new technologies and techniques for low-cost phased arrays and scanning antennas. Special emphasis is placed on new approaches for low-cost millimeter-wave beam control. Several topics are covered. A novel reconfigurable grating antenna is presented for low-cost millimeter-wave beam steering. The versatility of the approach is proven by adapting the design to dual-beam and circular-polarized operation. In addition, a simple and accurate procedure is developed for analyzing these antennas. Designs are presented for low-cost microwave/millimeter-wave phased-array transceivers with extremely broad bandwidth. The target applications for these systems are mobile satellite communications and ultra-wideband radar. Monolithic PIN diodes are a useful technology, especially suited for building miniaturized control components in microwave and millimeter-wave phased arrays. This dissertation demonstrates a new strategy for extracting bias-dependent small-signal models for monolithic PIN diodes. The space solar-power satellite (SPS) is a visionary plan that involves beaming electrical power from outer space to the earth using a high-power microwave beam. Such a system must have retrodirective control so that the high-power beam always points on target. This dissertation presents a new phased-array architecture for the SPS system that could considerably reduce its overall cost and complexity. In short, this dissertation presents technologies and techniques that reduce the cost of beam steering at microwave and millimeter-wave frequencies. The results of this work should have a far-ranging impact on the future of wireless systems.

EPD Congress 2015 Today's wireless communications and information systems are heavily based on microwave technology. Current trends indicate that in the future along with - crowaves, the millimeter wave and Terahertz technologies will be used to meet the growing bandwidth and overall performance requirements. Moreover, motivated by the needs of the society, new industry sectors are gaining ground; such as wi- less sensor networks, safety and security systems, automotive, medical, envi- mental/food monitoring, radio tags etc. Furthermore, the progress and the pr- lems in the modern society indicate that in the future these systems have to be more user/consumer friendly, i. e. adaptable, reconfigurable and cost effective. The mobile phone is a typical example which today is much more than just a phone; it includes a range of new functionalities such as Internet, GPS, TV, etc. To handle, in a cost effective way, all available and new future standards, the growing n- ber of the channels and bandwidth both the mobile handsets and the associated systems have to be agile (adaptable/reconfigurable). The complex societal needs have initiated considerable activities in the field of cognitive and software defined radios and triggered extensive research in adequate components and technology platforms. To meet the stringent
requirements of these systems, especially in agility and cost, new components with enhanced performances and new functionalities are needed. In this sense the components based on ferroelectrics have greater - tential and already are gaining ground.

Alternatives to Conventional Food Processing While polymer technology forms one of the largest areas of application of microwave technology, and the methods and procedures used therein are among the most developed, there is still a relative lack of published information on the subject. Microwave-Enhanced Polymer Chemistry and Technology describes novel approaches to polymer processing using microwave technologies. Coverage includes background and scientific data, analysis of processes and product properties in comparison with existing technology, applications that are being used in various approaches, and the status of current research. Features of microwave irradiation, i.e., solvent-free reactions, low waste, energy efficiency, high yield, short reaction time, and possible use of alternative solvents, can play an important role in the development of green chemistry methods.

Electroceramic-Based MEMS Thermal processing remains one of the most important processes in the food industry. Now in its second edition, Thermal Food Processing: New Technologies and Quality Issues continues to explore the latest developments in the field. Assembling the work of a worldwide panel of experts, this volume highlights topics vital to the food industry today an

Thermal Food Processing

High Power Microwave Sources and Technologies Using Metamaterials Microwave photonics continues to see rapid growth. The integration of optical fiber and wireless networks has become a commercial reality and is becoming increasingly pervasive. Such hybrid technology will lead to many innovative applications, including backhaul solutions for mobile networks and ultrabroadband wireless networks that can provide users with very high bandwidth services. Microwave Photonics, Second Edition systematically introduces important technologies and applications in this emerging field. It also reviews recent advances in micro- and millimeter-wavelength and terahertz-frequency systems. The book features contributions by leading international researchers, many of whom are pioneers in the field. They examine wave generation, measurement, detection, control, and propagation in detail, as well as the devices and components that enable ultrawide-band and ultrafast transmission, switching, and signal processing. These devices and components include optical-controlled microwave devices, optical transmitters, receivers, switching devices, detectors, and modulators. The book explores the theory, techniques, and technologies that are fueling applications such as radio-over-fiber, injection-locked semiconductor lasers, and terahertz photonics. Throughout, the contributors share insights on overcoming current limitations and on potential developments. What’s New in This Edition Two new chapters, on fiber Bragg gratings for microwave photonics applications and ultrawide-band sub-THz photonic wireless links Updates throughout, reflecting advances in the field New illustrations in each chapter Fully illustrated with more than 300 figures and tables, this book offers a detailed, wide-ranging overview of the current state and future directions of this burgeoning technology.

Catalysis Volume 33 Food engineering is a required class in food science programs, as outlined by the Institute for Food Technologists (IFT). The concepts and applications are also required for professionals in food processing and manufacturing to attain the highest standards of food safety and quality. The third edition of this successful textbook succinctly presents the engineering concepts and unit operations used in food processing, in a unique blend of principles with applications. The authors use their many years of teaching to present food engineering concepts in a logical progression that covers the standard course curriculum. Each chapter describes the application of a particular principle followed by the quantitative relationships that define the related processes, solved examples, and problems to test understanding. The subjects the authors have selected to illustrate engineering principles demonstrate the relationship of engineering to the chemistry, microbiology, nutrition and processing of foods. Topics incorporate both traditional and contemporary food processing operations.

Microwave Photonics The book is focused on the use of functional oxide and nitride films to enlarge the application range of MEMS (microelectromechanical systems), including micro-sensors, micro-actuators, transducers, and electronic components for microwaves and optical communications systems. Applications, emerging applications, fabrication technology and functioning issues are presented and discussed. The book covers the following topics: Part A: Applications and devices with electroceramic-based MEMS: Chemical microsensors Microactuators based on thin films Micromachined ultrasonic transducers Thick-film piezoelectric and magnetostrictive devices Pyroelectric microsystems RF bulk
acoustic wave resonators and filters High frequency tunable devices MEMS for optical functionality Part B: Materials, fabrication technology, and functionality: Ceramic thick films for MEMS Piezoelectric thin films for MEMS Materials and technology in thin films for tunable high frequency devices Permittivity, tunability and loss in ferroelectrics for reconfigurable high frequency electronics Microfabrication of piezoelectric MEMS Nano patterning methods for electroceramics Soft lithography emerging techniques

The book is addressed to engineers, scientists and researchers of various disciplines, device engineers, materials engineers, chemists, physicists and microtechnologists who are working and/or interested in this fast growing and highly promising field. The publication of this book follows a Special Issue on electroceramic-based MEMS that was published in the Journal of Electroceramics at the beginning of 2004. The ten invited papers of that special issue were adapted by the authors into chapters of the present book and five additional chapters were added.

Advances in Multi-Band Microstrip Filters EPD Congress is an annual collection that addresses extraction and processing metallurgy. The papers in this book are drawn from symposia held at the 2015 Annual Meeting of The Minerals, Metals & Materials Society. The 2015 edition includes papers from the following symposia: •Materials Processing Fundamentals •Solar Cell Silicon •High-Temperature Electrochemistry II

The Role of Modern Technology in Food Inspection Sustainable Seaweed Technologies: Cultivation, Biorefinery, and Applications collates key background information on efficient cultivation and biorefinery of seaweeds, combining underlying chemistry and methodology with industry experience. Beginning with a review of the opportunities for seaweed biorefinery and the varied components and properties of macroalgae, the book then reviews all the key steps needed for industrial applications, from its cultivation, collection and processing, to extraction techniques, concentration and purification. A range of important applications are then discussed, including the production of energy and novel materials from seaweed, before a set of illustrative case studies shows how these various stages work in practice. Drawing on the expert knowledge of a global team of editors and authors, this book is a practical resource for both researchers and businesses who currently work with macroalgae. Highlights the specific challenges and benefits of developing seaweed for sustainable products Presents useful case studies that demonstrate varied approaches and methodologies in practice Covers the complete seaweed chain, from cultivation to waste management

Chemical Reaction Engineering and Reactor Technology Terahertz (THz) radiation, which is electromagnetic radiation in a frequency int- val from 0.3 to 10 THz (1 mm–30 ?m wavelength), is the next frontier in science and technology. This band occupies a large portion of the electromagnetic sp- trum between the infrared and microwave bands. Basic research, new initiatives, and developments in advanced sensing and imaging technology with regard to the THz band remain unexplored compared to the relatively well-developed science and technology in the microwave and optical frequencies. Historically, THz technologies were used mainly within the astronomy c- munity for studying the background of cosmic far-infrared radiation, and by the laser-fusion community for the diagnostics of plasmas. Since the ?rst demonstration of THz wave time-domain spectroscopy in the late 1980s, there has been a series of sign?cant advances (particularly in recent years) as more intense THz sources and higher sensitivity detectors provide new opportunities for understanding the basic science in the THz frequency range.

Emerging Microwave Technologies in Industrial, Agricultural, Medical and Food Processing The increase of consumer electronics and communications applications using Radio Frequency (RF) and microwave circuits has implications for oscillator design. Applications working at higher frequencies and using novel technologies have led to a demand for more robust circuits with higher performance and functionality, but decreased costs, size and power consumption. As a result, there is also a need for more efficient oscillators. This book presents up to date information on all aspects of oscillator design, enabling a selection of the best oscillator topologies with optimized noise reduction and electrical performance. RF and Microwave Transistor Oscillator Design covers: analyses of non-linear circuit design methods including spectral-domain analysis, time-domain analysis and the quasilinear method; information on noise in oscillators including chapters on varactor and oscillator frequency tuning, CMOS voltage-controlled oscillators and wideband voltage-controlled oscillators; information on the stability of oscillations, with discussions on the stability of multi-resonant circuits and the phase plane method; optimized design and circuit techniques, beginning with the empirical and analytic design approaches, moving on to the high-efficiency design technique; general operation and design principles of oscillators, including a section on the historical aspects of oscillator configurations. A valuable reference for practising RF and Microwave designers and engineers, RF and Microwave Transistor Oscillator Design is
also useful for lecturers, advanced students and research and design (R&D) personnel.

Microwave Journal Explore the latest research avenues in the field of high-power microwave sources and metamaterials. A stand-alone follow-up to the highly successful *High Power Microwave Sources and Technologies*, the new *High Power Microwave Sources and Technologies Using Metamaterials*, demonstrates how metamaterials have impacted the field of high-power microwave sources and the new directions revealed by the latest research. It’s written by a distinguished team of researchers in the area who explore a new paradigm within which to consider the interaction of microwaves with material media. Providing contributions from multiple institutions that discuss theoretical concepts as well as experimental results in slow wave structure design, this edited volume also discusses how traditional periodic structures used since the 1940s and 1950s can have properties that, until recently, were attributed to double negative metamaterial structures. The book also includes: A thorough introduction to high power microwave oscillators and amplifiers, as well as how metamaterials can be introduced as slow wave structures and other components Comprehensive explorations of theoretical concepts in dispersion engineering for slow wave structure design, including multi-transmission line models and particle-in-cell code virtual prototyping models Practical discussions of experimental measurements in dispersion engineering for slow wave structure design In-depth examinations of passive and active components, as well as the temporal evolution of electromagnetic fields. *High Power Microwave Sources and Technologies Using Metamaterials* is a perfect resource for graduate students and researchers in the areas of nuclear and plasma sciences, microwaves, and antennas.

Introduction to Food Engineering

Introduction to THz Wave Photonics Reflecting current trends in alternative food processing and preservation, this reference explores the most recent applications in pulsed electric field (PEF) and high-pressure technologies, food microbiology, and modern thermal and nonthermal operations to prevent the occurrence of food-borne pathogens, extend the shelf-life of foods, and improve...