Analysis Of Loss Tangent Effect On Microstrip Antenna Gain

Biomass Chars: Elaboration, Characterization and Applications

High-tc Thin Films And Single Crystals - Proceedings Of The European Conference

Army R, D & A. This volume is part of the Ceramic Engineering and Science Proceeding (CESP) series. This series contains a collection of papers dealing with issues in both traditional ceramics (i.e., glass, whitewares, refractories, and porcelain enamel) and advanced ceramics. Topics covered in the area of advanced ceramic include bioceramics, nanomaterials, composites, solid oxide fuel cells, mechanical properties and structural design, advanced ceramic coatings, ceramic armor, porous ceramics, and more.

Proceedings of the Multi-Conference 2011

Statistical Analysis of Novel Dielectric Materials for Microelectronics

As a result of the Process Analytical Technologies (PAT) initiative launched by the U.S. Food and Drug Administration (FDA), analytical development is receiving more attention within the pharmaceutical industry. Illustrating the importance of analytical methodologies, Thermal Analysis of Pharmaceutials presents reliable and versatile character.

Proceedings of the Third International Conference on Microelectronics, Computing and Communication Systems

Durability Analysis of Composite Systems 2001

The selection and application of engineered materials is an integrated process that requires an understanding of the interaction between material properties, manufacturing characteristics, design considerations, and the total lifecycle of the product. This reference book on engineering plastics provides practical and comprehensive coverage on how the performance of plastics is characterized during design, property testing, and failure analysis. The fundamental structure and properties of plastics are reviewed for general reference, and detailed articles describe the important design factors, properties, and failure mechanisms of plastics. The effects of composition, processing, and structure are detailed in articles on the physical, chemical, thermal, and mechanical properties. Other articles cover failure mechanisms such as crazing and fracture, impact loading, fatigue failure, wear failures, moisture related failure, organic chemical related failure, photolytic degradation; and microbial degradation. Characterization of plastics in failure analysis is described with additional articles on analysis of structure, surface analysis, and fractography.
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A Comparison Between Derived Internal Dielectric Properties and Radio-echo Sounding Records of the Ice Sheet at Cape Folger, Antarctica

This book on the Nondestructive Characterization and Imaging of Wood by Professor Voichita Bucur is truly the most outstanding reference on the subject ever written. Since the origins of mankind, wood has played a key role in the history of humans and other living creatures, ranging from provision of life from trees giving air, heat, light, and food to nourish their bodies to structures to protect them from the elements. Wood has also played a key role in one of the world’s primary religions. Nondestructive diagnostics methods have long found application in medical practice for examination of the human body in order to detect life threatening abnormalities and permit diagnosis to extend life. Nondestructive testing has been used for many years to insure the safety of machinery, air craft, railroads, tunnels, buildings and many other structures. Therefore, it is timely for a treatise, like the present one, to be written describing how wood can be characterized without employing destructive test methods. Since wood is so valuable to mankind, it is important to know the latest methods to nondestructively characterize wood for all practical applications.

EM Design and Analysis of Dipole Arrays on Non-planar Dielectric Substrate

Bone tissue plays a crucial structural role in the skeleton, yet little is known about the microstructural/mechanical property relationships of the tissue at the microscale. The objective of this research was to relate the nonmechanical properties of bone tissue to the primary microstructural constituents, collagen and mineral. First, an anhydrous sample preparation protocol was developed to maintain surface integrity and produce surfaces sufficiently smooth to enable measurements of tissue mechanical properties with submicron spatial resolution. Then, microstructure-property relationships were investigated in three systems with heterogeneous microstructures: (1) lamellar human cancellous bone, in which collagen content and orientation naturally varies within the layered tissue structure; (2) cortical bone of growing rats, in which mineral content naturally varies with tissue age; (3) cortical bone of vitamin D-deficient rats, in which mineral content is reduced due to impaired mineralization.

Biological Effects of Electromagnetic Waves

The book presents high-quality papers from the Third International Conference on Microelectronics, Computing & Communication Systems (MCCS 2018). It discusses the latest technological trends and advances in MEMS and nanoelectronics, wireless communications, optical communication, instrumentation, signal processing, image processing, bioengineering, green energy, hybrid vehicles, environmental...
is placed on the technology, and the science and technology are integrated throughout. Authors also cover research developments likely to have a commercial impact on cheesemaking in the foreseeable future within the areas of molecular genetics, advanced sensor/measurement science, chemometrics, enzymology and flavour chemistry. In order to reflect new issues and challenges that have emerged since publication of the first book, the new chapters are included on milk handling prior to cheesemaking, packaging, and major advances in the control of the end user properties of cheese using key manufacturing parameters and variables. The volume has been structured to flow through the discrete stages of cheese manufacture in the order in which they are executed in cheese plants - from milk process science, through curd process science, to cheese ripening science and quality assessment. Overall, the volume provides process technologists, product development specialists, ingredients suppliers, research and development scientists and quality assurance personnel with a complete reference to cheese technology, set against the background of its physical, chemical and biological scientific base.

Advanced Technologies and Solutions in Industry

Terrain Analysis by Electromagnetic Means

Epoxy Composites This research analyzes the re-oxidation annealing process of Barium titanate thin films on copper foils made by Chemical Solution Deposition. During this anneal, the temperature and oxygen pressure settings must be optimized to ensure the elimination of oxygen vacancies without oxidizing the copper foil substrate. This research utilizes Design of Experiments (DOE) to study the impact of re-oxidation furnace temperature and pressure on the dielectric loss tangent response. Two designs of experiments were run. The first experiment, a 32 DOE, examined a large range of temperature and pressure levels. Due to the high susceptibility of uncontrollable factors such as humidity and film position in the crystallization anneal furnace, an adequate model could not be developed. However, the temperature at 550 \( ^\circ \text{C} \) and a pressure of 10-5 Torr yielded a lower mean and standard deviation of the loss tangent response. A second and smaller scale experiment, a 22 with a center point, was run around 550 \( ^\circ \text{C} \) and 10-5 Torr to determine if more optimal temperature and pressure settings existed in the local area. Two second order response surface models were developed from two crystallization anneals that were statistically significant. The most significant finding was that the optimum level for temperature and pressure in the re-oxidation furnace in this experiment is 550 \( ^\circ \text{C} \) and 2x10-5 Torr. While the models concluded that the temperature, pressure, temperature quadratic, and interaction between pressure and temperature were important effects in the model, there were differences in the curvature of the models due to the temperature quadratic effect.

Technology of Cheesemaking The results of a survey of the current state of the art in large ground radomes for military applications are presented. The purpose of the survey was to examine the directions of current structural and electromagnetic design of large ground radomes; summarize what has been learned about the effects of various radome structures on antenna performance; and list the principal characteristics of some typical radomes.

ICCM-12

Characterization and Failure Analysis of Plastics This book presents a simple and systematic description of EM design of antenna arrays. Printed dipole antennas are known to be simple yet more efficient than wire antennas. The dielectric substrate and the presence of ground plane affect the antenna performance and the resonant frequency is shifted. This book includes the EM design and performance analysis of printed dipole arrays on planar and cylindrical substrates. The antenna element is taken as half-wave centre-fed dipole. The substrate is taken as low-loss dielectric. The effect of substrate material, ground plane, and the curvature effect is discussed. Results are presented for both the linear and planar dipole arrays. The performance of dipole array is analyzed in terms of input impedance, return loss, and radiation pattern for different configurations. The effect of curved platform (substrate and ground plane) on the radiation behaviour of dipole array is analyzed. The book explains fundamentals of EM design and analysis of dipole antenna array through numerous illustrations. It is essentially a step-to-step guide for beginners in the field of antenna array design and engineering.

Keywords Index to U.S. Government Technical Reports Selected, peer reviewed papers from the 2013 International Conference on Advanced Technologies and Solutions in Industry (ICATSI 2013), March 22-23, 2013, Taiyuan, Shanxi, China

Theory and Application of Statistical Energy Analysis The International Conference on Signals, Systems and Automation (ICSSA 2011) aims to spread awareness in the research and academic community regarding cutting-edge technological advancements revolutionizing the world. The main emphasis of this conference is on dissemination of information,
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Legislative History of Radiation Control for Health and Safety Act of 1968 An analysis is made of how mismatches in the transmission lines connecting a cavity affect the Q of the cavity. It is shown that the cavity Q can be higher or lower than the Q that would be obtained in the absence of a mismatch depending on certain phase angles. The maximum possible change in the cavity Q is a function of the mismatch, and also the ratio of the radiation resistance due to a cavity iris to the unloaded resistance of the cavity. The above results are applied to the measurement of the dielectric loss tangent of ferrites. It is shown that there can be significant errors under conditions that may occur in practice. It is also shown that the use of a ratiometer will substantially compensate the error due to a mismatch if the mismatch is located on the generator side of the cavity. However, the ratiometer will not help if the discontinuity is located on the output side of the cavity. (Author).

Reliability Analysis of Fire-exposed Light-frame Wood Floor Assemblies

Advances in Food Rheology and Its Applications This up-to-date second edition provides a comprehensive examination of the theory and application of Statistical Energy Analysis (SEA) in acoustics and vibration. Complete with examples and data taken from real problems this unique book also explores the influence of computers on SEA and emphasizes computer based SEA calculations. In addition to a discussion of the relationship between SEA and other procedures used in response estimation, Theory and Application of Statistical Energy Analysis, Second Edition, explores the basic relationships between model and wave descriptions of systems.

Safety and Biological Effects in MRI

Designing Microwave Sensors for Glucose Concentration Detection in Aqueous and Biological Solutions In vivo magnetic resonance imaging (MRI) has evolved into a versatile and critical, if not 'gold standard', imaging tool with applications ranging from the physical sciences to the clinical ' -ology'. In addition, there is a vast amount of accumulated but unpublished inside knowledge on what is needed to perform a safe, in vivo MRI. The goal of this comprehensive text, written by an outstanding group of world experts, is to present information about the effect of the MRI environment on the human body, and tools and methods to quantify such effects. By presenting such information all in one place, the expectation is that this book will help everyone interested in the Safety and Biological Effects in MRI find relevant information relatively quickly and know where we stand as a community. The information is expected to improve patient safety in the MR scanners of today, and facilitate developing faster, more powerful, yet safer MR scanners of tomorrow. This book is arranged in three sections. The first, named ' Static and Gradient Fields' (Chapters 1-9), presents the effects of static magnetic field and the gradients of magnetic field, in time and space, on the human body. The second section, named ' Radiofrequency Fields' (Chapters 10-30), presents ways to quantify radiofrequency (RF) field induced heating in patients undergoing MRI. The effect of the three fields of MRI environment (i.e. Static Magnetic Field, Time-varying Gradient Magnetic Field, and RF Field) on medical devices, that may be carried into the environment with patients, is also included. Finally, the third section, named ' Engineering' (chapters 31-35), presents the basic background engineering information regarding the equipment (i.e. superconducting magnets, gradient coils, and RF coils) that produce the Static Magnetic Field, Time-varying Gradient Magnetic Field, and RF Field. The book is intended for undergraduate and post-graduate students, engineers, physicists, biologists, clinicians, MR technologists, other healthcare professionals, and everyone else who might be interested in looking into the role of MRI environment on patient safety, as well as those just wishing to update their knowledge of the state of MRI safety. Those, who are learning about MRI or training in magnetic resonance in medicine, will find the book a useful compendium of the current state of the art of the field.
Index of Publications on Biological Effects of Electromagnetic Radiation (0-100 GHz)

Catalog of National Bureau of Standards Publications, 1966-1976 This proceedings covers the general problem related to the damage initiation and development, the failure criteria and the specific aspects related to fatigue, creep behaviour, moisture diffusion and the problem of the joining systems.

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