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KNOX MATHIAS

Radiation Dose from Multidetector CT Oxford University Press

This book (vol. 2) presents the proceedings of the IUPESM World Congress on Biomedical Engineering and Medical Physics, a triennially organized joint meeting of medical physicists, biomedical engineers and adjoining health care professionals. Besides the purely scientific and technological topics, the 2018 Congress will also focus on other aspects of professional involvement in health care, such as education and training, accreditation and certification, health technology assessment and patient safety. The IUPESM meeting is an important forum for medical physicists and biomedical engineers in medicine and healthcare learn and share knowledge, and discuss the latest research outcomes and technological advancements as well as new ideas in both medical physics and biomedical engineering field.

Electromagnetic Fields in Biological Systems CRC Press

A new, comprehensively updated edition of the acclaimed textbook by F.H. Attix (Introduction to Radiological Physics and Radiation Dosimetry) taking into account the substantial developments in dosimetry since its first edition. This monograph covers charged and uncharged particle interactions at a level consistent with the advanced use of the Monte Carlo method in dosimetry; radiation quantities, macroscopic behaviour and the characterization of radiation fields and beams are covered in detail. A number of chapters include addenda presenting derivations and discussions that offer new insight into established dosimetric principles and concepts. The theoretical aspects of dosimetry are given in the comprehensive chapter on cavity theory, followed by the description of primary measurement standards, ionization chambers, chemical dosimeters and solid state detectors. Chapters on applications include reference dosimetry for standard and small fields in radiotherapy, diagnostic radiology and interventional procedures, dosimetry of unsealed and sealed radionuclide sources, and neutron beam dosimetry. The topics are presented in a logical, easy-to-follow sequence and the text is supplemented by numerous illustrative diagrams, tables and appendices. For senior undergraduate- or graduate-level students and professionals.

High-Performance Computing Systems and Technologies in Scientific Research, Automation of Control and Production Springer Science & Business Media

This compendium gives a comprehensive overview of the advances in fibrillation-defibrillation knowledge ? recognition of fibrillation as a unique life threatening cardiac arrhythmia; discovery of the electric discharge in its double role of culprit and savior; and technological improved contributions. The book stands on the well-known philosophy of Education-Based on Problems (or EBP), that is, take fibrillation as a medical daily problem and search for that knowledge, technique or principle trying to solve it. The book is interdisciplinary, multidisciplinary and

transdisciplinary. It addresses undergraduate and graduate biomedical engineering students, physicians going into cardiology, clinical engineers and clinical engineering technicians, nurses, paramedics and emergency medical personnel. *Safety and Biological Effects in MRI* Springer Science & Business Media

The leading Textbook on the subject. A completely rewritten and up-to-date fifth edition, based upon the highly respected fourth edition, edited by C. Jacobs, C.M. Kjellstrand, K.M. Koch and J.F. Winchester. This new edition is truly global in scope and features the contributions of the top experts from around the world.

Neurophysiological Monitoring During Intensive Care and Surgery Lippincott Williams & Wilkins

th On behalf of the organizing committee of the 13 International Conference on Biomedical Engineering, I extend our w- mest welcome to you. This series of conference began in 1983 and is jointly organized by the YLL School of Medicine and Faculty of Engineering of the National University of Singapore and the Biomedical Engineering Society (Singapore). First of all, I want to thank Mr Lim Chuan Poh, Chairman A*STAR who kindly agreed to be our Guest of Honour to give th the Opening Address amidst his busy schedule. I am delighted to report that the 13 ICBME has more than 600 participants from 40 countries. We have received very high quality papers and inevitably we had to turndown some papers. We have invited very prominent speakers and each one is an authority in their field of expertise. I am grateful to each one of them for setting aside their valuable time to participate in this conference. For the first time, the Biomedical Engineering Society (USA) will be sponsoring two symposia, ie "Drug Delivery S-tems" and "Systems Biology and Computational Bioengineering". I am thankful to Prof Tom Skalak for his leadership in this initiative. I would also like to acknowledge the contribution of Prof Takami Yamaguchi for organizing the NUS-Tohoku's Global COE workshop within this conference. Thanks also to Prof Fritz Bodem for organizing the symposium, "Space Flight Bioengineering". This year's conference proceedings will be published by Springer as an IFMBE Proceedings Series.

Medical electrical equipment - Part 2: Particular requirements for the safety of electromyographs and evoked response equipment [After payment, write to & get a FREE-of-charge, unprotected true-PDF from: Sales@ChineseStandard.net] Springer Science & Business Media

Computed tomography (CT) is a powerful technique providing precise and confident diagnoses. The burgeoning use of CT has resulted in an exponential increase in collective radiation dose to the population. Despite investigations supporting the use of lower radiation doses, surveys highlight the lack of proper understanding of CT parameters that affect radiation dose. Dynamic advances in CT technology also make it important to explain the latest dose-saving strategies in an easy-to-comprehend manner. This book aims to review all aspects of the radiation dose from CT and to provide simple rules and tricks for radiologists and radiographers that will assist in the appropriate

use of CT technique. The second edition includes a number of new chapters on the most up-to-date strategies and technologies for radiation dose reduction while updating the outstanding contents of the first edition. Vendor perspectives are included, and an online image gallery will also be available to readers. Principles and Applications PHI Learning Pvt. Ltd.

This highly comprehensive and informed textbook has been prepared by the Cardiovascular Magnetic Resonance section of the European Society of Cardiology association on imaging, the EACVI. The EACVI Textbook of Cardiovascular Magnetic Resonance is the authority on the subject. The textbook is aligned with ESC Core Curriculum and EACVI Core Syllabus for CMR. It is a practical resource and provides a disease orientated outlook on the subject. Structured with thirteen clear and detailed sections, ranging from Physics to Methodology, and featuring specific sections on ischemic heart disease, myocardial disease, pericardial disease, and congenital heart disease and adult congenital heart disease, The EACVI Textbook of Cardiovascular Magnetic Resonance provides extensive knowledge across the entire subject area in CMR. Beautifully illustrated and physical principles enriched with schematic animations, the textbook is advanced further with key video content based on clinical cases. Written by leading experts in the field from across the world, the textbook aims to summarise the existing research and clinical evidence for the various CMR indications and provide an invaluable resource for cardiologists and radiologists across the board. The textbook is ideal for cardiologists and radiologists new to the field of Cardiovascular Magnetic Resonance, those preparing for ESC certification in CMR, and those established in the field wishing to gain a deep understanding of CMR. Online access to the digital version is included with purchase of the print book, with accompanying videos referenced within the text available on Oxford Medicine Online.

A simple model for fluorescent layers - analysis and applications Springer Science & Business Media

Advances in technological devices unveil new architectures for instrumentation and improvements in measurement techniques. Sensing technology, related to biomedical aspects, plays a key role in nowadays applications; it promotes different advantages for: healthcare, solving difficulties for elderly persons, clinical analysis, microbiological characterizations, etc.. This book intends to illustrate and to collect recent advances in biomedical measurements and sensing instrumentation, not as an encyclopedia but as clever support for scientists, students and researchers in order to stimulate exchange and discussions for further developments.

Health Effects and Safety Springer Science & Business Media

The introduction of low temperature plasma technology to medical research and to the healthcare arena in general is set to revolutionise the way we cure diseases. This innovative medium offers a valid and advantageous replacement of traditional chemical-based medications. Its application in the inactivation of pathogens in particular, avoids the recurrent problem of drug resistant microorganisms. This is the first book dedicated exclusively to the emerging interdisciplinary field of plasma medicine. The opening chapters discuss plasmas and plasma chemistry, the fundamentals of non-equilibrium plasmas and cell biology. The rest of the book is dedicated to current applications, illustrating a plasma-based approach to wound healing, electrosurgery, cancer treatment and even dentistry. The text provides a clear and integrated introduction to plasma technology and has been devised to answer the needs of researchers from different communities. It will appeal to graduate students and physicists, engineers, biologists, medical doctors and biochemists.

Vol. 25/VII Diagnostic and Therapeutic Instrumentation, Clinical Engineering Elsevier

This text is an invaluable, comprehensive data reference for anyone involved in health physics or radiation safety. This new edition addresses the specific data requirements of health physicists, with data presented in large tables, including the latest NCRP recommendations, which are tabulated and given in both SI and traditional units for ease of use. Although portions of these data can be obtained from various internet sites, many are obscure, difficult to navigate and/or have conflicting information for even the most common data, such as specific gamma ray constants. This new edition compiles all essential data in this vast field into one user-friendly, authoritative source. It also offers a website with full-text search capability. Markets include radiation safety, medical physics and nuclear medicine

June 3-8, 2018, Prague, Czech Republic (Vol.2) Elsevier Health Sciences

Clinical Neurophysiology: Basis and Technical Aspects, the latest release in the Handbook of Clinical Neurology series, is organized into sections on basic physiological concepts, on the function and limitations of modern instrumentation, and on other fundamental or methodologic aspects related to the recording of various bioelectric signals from the nervous system for clinical or investigative purposes. There is discussion of the EEG, nerve conduction studies, needle electromyography, intra-operative clinical neurophysiology, sleep physiology and studies, the autonomic nervous system, various sensory evoked potentials, and cognitive neurophysiology. Provides an up-to-date review on the practice of neurophysiological techniques in the assessment of neurological disease Explores the electrophysiological techniques used to better understand neurological function and dysfunction, first in the area of consciousness and epilepsy, then in the areas of the peripheral nervous system and sleep Focuses on new techniques, including electrocorticography, functional mapping, stereo EEG, motor evoked potentials, magnetoencephalography, laser evoked potentials, and transcranial magnetic stimulation

INTRODUCTION TO BIOMEDICAL INSTRUMENTATION Springer

Provides developmental solutions and explanations for cardiovascular diagnostics. Presents a collection of studies on medical data redundancy, priority, and validity.

Fundamentals of Ionizing Radiation Dosimetry Electromagnetic Fields in Biological Systems

Primarily intended as a textbook for the undergraduate students of Instrumentation, Electronics, and Electrical Engineering for a course in biomedical instrumentation as part of their programmes. The book presents a detailed introduction to the fundamental principles and applications of biomedical instrumentation. The book familiarizes the students of engineering with the basics of medical science by explaining the relevant medical terminology in simple language. Without presuming prior knowledge of human physiology, it helps the students to develop a substantial understanding of the complex processes of functioning of the human body. The mechanisms of all major biomedical instrumentation systems—ECG, EEG, CT scanner, MRI machine, pacemaker, dialysis machine, ultrasound imaging machine, laser lithotripsy machine, defibrillator, and plethysmograph—are explained comprehensively. A large number of illustrations are provided throughout the book to aid in the development of practical understanding of the subject matter. Chapter-end review questions help in testing the students' grasp of the underlying concepts. The second edition of the book incorporates detailed explanations to action potential supported with illustrative example and improved figure, ionic action of silver-silver chloride electrode, and isolation amplifiers.

It also includes mathematical treatment to ultrasonic transit time flowmeters. A method to find approximate axis of heart and image reconstruction in CT scan is explained with simple examples. A topic on MRI has been simplified for clear understanding and a new section on Positron Emission Tomography (PET), which is an emerging tool for cancer detection, has been introduced.

Advances in Biomedical Sensing, Measurements, Instrumentation and Systems Linköping University Electronic Press

This book illustrates the significance of biomedical engineering in modern healthcare systems. Biomedical engineering plays an important role in a range of areas, from diagnosis and analysis to treatment and recovery and has entered the public consciousness through the proliferation of implantable medical devices, such as pacemakers and artificial hips, as well as the more futuristic technologies such as stem cell engineering and 3-D printing of biological organs. Starting with an introduction to biomedical engineering, the book then discusses various tools and techniques for medical diagnostics and treatment and recent advances. It also provides comprehensive and integrated information on rehabilitation engineering, including the design of artificial body parts, and the underlying principles, and standards. It also presents a conceptual framework to clarify the relationship between ethical policies in medical practice and philosophical moral reasoning. Lastly, the book highlights a number of challenges associated with modern healthcare technologies.

Handbook of Clinical Neurology Series John Wiley & Sons

This book constitutes the refereed proceedings of the 10th International Conference on Functional Imaging and Modeling of the Heart, held in Bordeaux, France, in June 2019. The 46 revised full papers were carefully reviewed and selected from 50 submissions. The focus of the papers is on following topics: Electrophysiology: mapping and biophysical modelling; Novel imaging tools and analysis methods for myocardial tissue characterization and remodeling; Biomechanics: modeling and tissue property measurements; Advanced cardiac image analysis tools for diagnostic and interventions.

EEG - fMRI CRC Press

This volume presents the proceedings of the Brazilian Congress on Biomedical Engineering (CBEB 2018). The conference was organised by the Brazilian Society on Biomedical Engineering (SBEB) and held in Armação de Buzios, Rio de Janeiro, Brazil from 21-25 October, 2018. Topics of the proceedings include these 11 tracks: • Bioengineering • Biomaterials, Tissue Engineering and Artificial Organs • Biomechanics and Rehabilitation • Biomedical Devices and Instrumentation • Biomedical Robotics, Assistive Technologies and Health Informatics • Clinical Engineering and Health Technology Assessment • Metrology, Standardization, Testing and Quality in Health • Biomedical Signal and Image Processing • Neural Engineering • Special Topics • Systems and Technologies for Therapy and Diagnosis

Biomedical Engineering and its Applications in Healthcare

John Wiley & Sons

Many international experts collaborated in creating this groundbreaking work, a principal-coding system, and in developing reference films and imaging parameters for the International Classification of HRCT for Occupational and

Environmental Respiratory Diseases. The book is an authoritative guide to the recognition of dust diseases of the lung, using radiological imaging techniques, with special emphasis on high-resolution computerized tomography (CT). The classification is a powerful, essential tool for recording patient data on CT in a globally standardized semiquantitative way. The system is also applicable to surveillance and screening for occupational and environmental respiratory diseases. The book is a valuable resource not only for radiologists but for all who work in occupational medicine and public health.

13th International Conference on Biomedical Engineering Springer Nature

IEC 60601-2-50:2009 establishes particular basic safety and essential performance requirements for infant phototherapy equipment, which reduce the safety hazards to patients and operators as much as possible, and specifies tests for demonstrating compliance with these requirements. This second edition cancels and replaces the first edition published in 2000. This edition constitutes a technical revision. The main purpose of this new edition is to provide consistency with the third edition of the general standard. This edition further provides consistency with the four other particular standards related to pediatric equipment for which the committee is responsible. The contents of the corrigendum of August 2010 have been included in this copy.

Occupational Safety and Hygiene II John Wiley & Sons

Magnetic Resonance Procedures: Health Effects and Safety is the first authoritative text on MR procedures and its associated health and safety concerns written by noted radiologists, physicists, and scientists with expertise in the field. It contains both theoretical and practical information. This timely text discusses emergent issues related to MR imaging and concerns such as shielding, the safe use of contrast agents, and management of patients with claustrophobia, anxiety, and emotional stress. It also contains a sample pre-MR screening form; comprehensive safety information for over 700 implants, devices, and materials; a list of medical devices and products for interventional MR procedures; and a summary of peer-reviewed MR safety studies. In the wake of recent government demands for increased patient safety in hospitals, along with the rapidly expanding use of MRI, this book is particularly important. It is the definitive resource for information on the safety aspects of magnetic resonance procedures.

Developments and Applications for ECG Signal Processing Springer Science & Business Media

This title enables readers to understand how to undertake appropriate neurophysiological investigations in the critical care setting. The book addresses the scientific principles (biological and technological), recording techniques, the development of electrical potentials in normal subjects, and the ways these are disturbed by trauma, surgery and disease. The impact of digital technologies and the possibilities of quantification, statistical treatment and advanced signal processing techniques have enabled practitioners to work to more rigorous scientific standards. The increasing availability of such tools in daily clinical work means that patients can now benefit from investigations of known specificity and sensitivity.