

# Titles in **Medical Imaging and Technology** 2010/11

## PRINCIPLES AND ADVANCED METHODS IN MEDICAL IMAGING AND IMAGE ANALYSIS

edited by **Atam P Dhawan** (*New Jersey Institute of Technology, USA*), **H K Huang** (*University of Southern California, USA*), & **Dae-Shik Kim** (*Boston University, USA*)

### Key Features:

- Unique combination of papers describing the principles and advanced methods in medical imaging and image analysis
- An insightful learning experience from theoretical concepts to advanced methods and applications
- Contributions by internationally renowned experienced researchers and experts in medical imaging and image analysis

This book offers in-depth knowledge of medical imaging instrumentation and techniques as well as multidimensional image analysis and classification methods for research, education, and applications in computer-aided diagnostic radiology. Internationally renowned researchers and experts in their respective areas provide detailed descriptions of the basic foundation as well as the most recent developments in medical imaging, thus helping readers to understand theoretical and advanced concepts for important research and clinical applications.

**Readership:** Graduate-level readers in medical imaging and medical image processing.

868pp  
978-981-270-534-1  
978-981-281-480-7(ebook)

Mar 2008  
US\$290  
US\$377

£200



## MOLECULAR IMAGING PROBES FOR CANCER RESEARCH

edited by **Xiaoyuan Chen** (*National Institutes of Health, USA*)

### Key Features:

- Emphasizes the chemistry of the design and development of cancer molecular imaging probes
- Covers the topics of early detection, therapy response, and drug development
- Contributors are world's leading experts in the rapidly emerging molecular imaging field

This review volume integrates the advances in cancer biology, molecular imaging techniques and imaging probes for visualization and quantitative measurement of anatomical, functional, and molecular profiles of cancer. The volume also presents a comprehensive summary of the state-of-the-art technology in molecular imaging probe design and applications in radionuclide (PET and SPECT), magnetic resonance (MR), optical

(fluorescence, Raman, photoacoustic), ultrasound, CT, and multimodality imaging. Bringing together the fundamentals of molecular imaging, and the basic principles of each molecular imaging modality in this volume, readers' understanding in this field is further enhanced. With a strong emphasis on the chemistry of the design of appropriate molecular imaging probes for early cancer detection, therapy-response monitoring, and anti-cancer drug development, the process of translating novel cancer imaging probes from bench to bedside is extensively discussed.

**Readership:** Postgraduates, academics and researchers interested in diagnostic technology in cancer research.

700pp  
978-981-4293-67-9  
978-981-4293-68-6(ebook)

Apr 2011  
US\$178  
US\$231

£123

## HIGHLIGHTS

### ADVANCES IN MRI OF THE KNEE FOR OSTEOARTHRITIS

edited by **Sharmila Majumdar**  
(*University of California, San Francisco, USA*)

Pg 2

### THE KNEE

A Comprehensive Review  
edited by **Giles R Scuderi** (*Insaill Scott Kelly Institute, USA*) & **Alfred J Tria, Jr** (*Robert Wood Johnson Medical School, USA*)

Pg 3

### MEDICAL IMAGING SYSTEMS TECHNOLOGY

A 5-Volume Set  
edited by **Cornelius T Leondes**  
(*University of California, Los Angeles, USA*)

Pg 4

:: Textbook

## NMR PROBEHEADS FOR BIOPHYSICAL AND BIOMEDICAL EXPERIMENTS (2nd Edition)

**Theoretical Principles and Practical Guidelines**

by **Joël Mispelter** (INSERM, France & Curie Institute, France), **Mihaela Lupu** (Curie Institute, France), & **André Briguet** (University Claude Bernard Lyon 1, France)

This book is intended to provide a solid knowledge base in order to design and build NMR probeheads specific for a given experiment like in vivo magnetic resonance spectroscopy or imaging. Since the book is intended for practical use, each step leading to the realization of the probe is detailed. The covered subjects include the principles of the operation of NMR probes, and guidelines for choosing a specific configuration, as well as the electrical and mechanical details to construct the resonator. Examples of NMR probes, already built and working, are given and commented on in detail. A set of tools (formulae and numerical calculations) useful for designing, evaluating and debugging the probes is given.

**Readership:** Bioengineers, biomedical researchers and non-experts in RF technology willing to acquire basic knowledge on RF sensors design; inquisitive user of an NMR spectrometer could be interested in some "knowing-how" about this "black box".

<b>600pp</b>	<b>Dec 2011</b>	
<b>978-1-84816-662-2</b>	<b>US\$148</b>	<b>£92</b>
<b>978-1-84816-701-8(ebook)</b>	<b>US\$192</b>	

:: Textbook

## DEVELOPMENT OF BIOLOGICALLY OPTIMIZED RADIATION THERAPY

edited by **Anders Brahme** (Karolinska Institutet, Sweden)

**Contents:** Fundamentals of Clinical Radiation Biology (*A Brahme et al.*); The Biological Bases of Radiation Therapy (*A Brahme et al.*); Physically and Biologically Based Radiation Therapy Optimization (*A Brahme et al.*); Properties and Clinical Possibilities of Biologically Based Treatment Optimization (*K Moaierifar & A Brahme*); Development of Bioart: Biologically Optimized *In Vivo* Predictive Assay Based Adaptive Radiation Therapy (*A Brahme*); Development of High Quality Beams for Uniform and Intensity Modulated Radiation Therapy (*R Svensson et al.*); Development of External Beam Treatment Units (*K Moaierifar et al.*); Physical, Biological and Clinical Background for the Development of Biologically Optimized Light Ion Therapy..

**Readership:** Oncologists, medical physicists, radiation biologists, molecular oncologists, radiation therapists, radiation physicists, undergraduates and graduates studying or doing research on medical imaging.

<b>450pp</b>	<b>Jun 2011</b>	
<b>978-981-4277-75-4</b>	<b>US\$102</b>	<b>£70</b>

:: Textbook

## THEORY OF QUANTITATIVE MAGNETIC RESONANCE IMAGING

by **Hernán Jara** (Boston University, USA)

### Key Features:

- Provides a concise and unified theoretical treatment of qMRI theory thus providing a solid base for the understanding and development of qMRI pulse sequences and qMRI computer algorithms
- Situates qMRI in the context of modern medical imaging and identifies potential roles in clinical radiology
- Could be used as textbook for a one- or two-semester graduate level course for physics and biomedical engineering students

**Contents:** Medical Imaging: Historical Perspective; Imaging Theory; MRI Physics; Quantitative MR.

**Readership:** Graduate students in physics and biomedical engineering disciplines, engineers and practitioners in biomedical engineering, MRI equipments and image processing industry.

<b>200pp</b>	<b>May 2011</b>	
<b>978-981-4295-23-9</b>	<b>US\$68</b>	<b>£47</b>

## HOLOGRAPHIC MICROSCOPY OF PHASE MICROSCOPIC OBJECTS

**Theory and Practice**

by **Natalya Kizilova** & **Tatyana Tishko** (*V N Karazin Kharkiv National University, Ukraine*)

This book presents a clear and comprehensive review of the current status of three-dimensional (3D) digital holographic imaging of phase microscopic objects, with insightful discussions on the positive and negative features of classical, electronic and holographic microscopy. The technical details and results of the restoration of the 3D shapes of red blood cells, bacteria, yeasts, thin films and other micro-objects are presented. The physical background of the method was substantiated by the authors in 1989 and in 1998, the very first digital holographic interference microscope was developed. Clear evidence of the pathological flattened shape of the erythrocytes relevant to different pathologies is given by detailed measurements on the 3D images. Based on the model of the erythrocyte as a liquid-filled, charged, and viscoelastic shell reinforced by skeleton, numerical computations of the equilibrium shapes of human erythrocytes are made, and the results are analyzed and compared to the 3D visualization data.

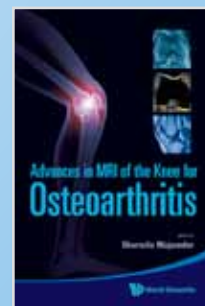
**Readership:** Students, professionals and general public.

<b>200pp</b>	<b>May 2011</b>	
<b>978-981-4289-54-2</b>	<b>US\$89</b>	<b>£61</b>
<b>978-981-4289-55-9(ebook)</b>	<b>US\$116</b>	

## ADVANCES IN MRI OF THE KNEE FOR OSTEOARTHRITIS

edited by **Sharmila Majumdar** (*University of California, San Francisco, USA*)

This book brings together contributions from key investigators in the area of magnetic resonance imaging (MRI) for osteoarthritis of the knee. Written by a multidisciplinary group of scientists, engineers, and clinicians, this book is the first to cover MRI as a new emerging modality for the diagnosis of osteoarthritis, and presents new findings in both basic and clinical science research.



**Readership:** Undergraduate and graduate students in radiology as well as practicing radiologists; experts in the field of musculoskeletal, osteoarthritis, and magnetic resonance research.

<b>284pp</b>	<b>Mar 2010</b>	
<b>978-981-4271-70-7</b>	<b>US\$96</b>	<b>£66</b>
<b>978-981-4271-71-4(ebook)</b>	<b>US\$125</b>	

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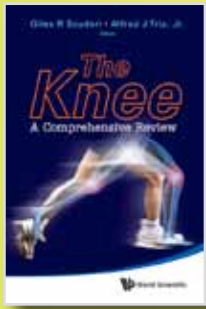
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### THE KNEE

#### A Comprehensive Review

edited by **Giles R Scuderi** (*Insall Scott Kelly Institute, USA*) & **Alfred J Tria, Jr** (*Robert Wood Johnson Medical School, USA*)

This book covers all the basics of the knee for practicing orthopedic surgeons and residents who are finishing their training and preparing for the board examinations. The text begins with chapters on the anatomy, physical examinations, and imaging, before proceeding on to pediatric considerations, arthroscopic techniques, ligament injuries, trauma, reconstructions, and the future of knee replacement surgery.

There are many textbooks on the knee but no recent one has addressed the entire area of the knee from start to finish.

**Readership:** Orthopedic surgeons and residents in orthopedic surgery.

620pp  
978-981-4282-03-1 Feb 2010 US\$201 £138  
978-981-4282-04-8(ebook) US\$261

### HIGH-RESOLUTION ULTRASONOGRAPHY FOR PERIPHERAL NERVE DIAGNOSTICS

#### A Guide for Clinicians Involved in Diagnosis and Management of Peripheral Nerve Disorders

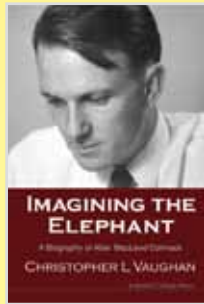
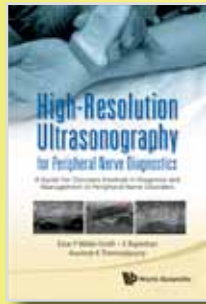
by **Einar P Wilder-Smith, K Rajendran & Aravinda K Therimadasamy** (*National University Hospital*)

#### Key Features:

- Provides a comprehensive overview of the use of high-resolution sonography in diagnosing peripheral nerve diseases
- Places special emphasis on disorders of the brachial plexus
- Includes useful illustrations that guide the user to achieve anatomical localization, in particular of complicated regions such as the brachial plexus

**Readership:** Neurologists, clinical neurophysiologists, orthopedic surgeons, hand surgeons, rehabilitation medicine specialists.

72pp  
978-981-283-903-9(pbk) Sep 2009 US\$45 £31  
978-981-283-904-6(ebook) US\$59



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by **Joël Mispelter** (*INSERM, France & Curie Institute, France*), **Mihaela Lupu** (*Curie Institute, France*), & **André Briguet** (*University Claude Bernard Lyon 1, France*)

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**Readership:** Bioengineers, biomedical researchers and non-experts in RF technology willing to acquire basic knowledge on RF sensors design.

600pp  
978-1-84816-662-2 Dec 2011 US\$148 £92  
978-1-84816-701-8(ebook) US\$192

### CENTRAL NERVE PLEXUS INJURY (With CD-ROM)

by **Thomas Carlstedt** (*University College London, UK & Karolinska Institutet, Sweden*)

*"Overall, I found the textbook to be an excellent read. It was highly informative. It laid out the challenges of clinical nerve root reimplantation very nicely, its potential benefits as well as its limitations ... This book should be on the shelf of every surgeon who has a serious interest in understanding and repairing brachial plexus and peripheral nerve injuries. It should also be widely read and understood by basic scientists and others in the field interested in either spinal cord or peripheral nerve repair and regeneration."*

**Journal of Neurosurgery**

**Readership:** Neurosurgeons, orthopedic surgeons, plastic surgeons, neuroscientists, radiologists and postgraduate teaching.

192pp  
978-1-86094-573-1 Jun 2007 US\$124 £86  
978-1-86094-870-1(ebook) US\$161

#### :: Textbook

### RADIATION PROTECTION IN THE HEALTH SCIENCES (Second Edition)

#### (With Problem Solutions Manual)

by **Marilyn E Noz** (*New York University School of Medicine, USA*) & **Gerald Q Maguire, Jr** (*Royal Institute of Technology, Sweden*)

*"It is most appropriate either for an introductory health or medical physics course on radiation protection or for training radiology and nuclear medicine technologists and residents in the radiation protection aspects of their respective vocations ... This book can also be used by technologists, physicians, and physicists for self-study or as a quick reference for basic information on radiation protection."*

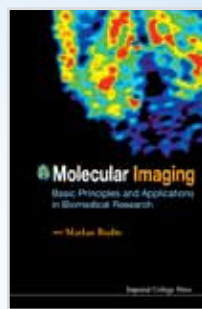
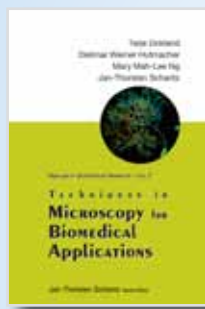
**Journal of Nuclear Medicine**

**Readership:** Residents and technologists in radiology and radiation oncology; physicians and nurses in radiology and radiation oncology imaging practices or hospitals.

324pp  
978-981-270-596-9 Apr 2007 US\$121 £83  
978-981-270-597-6(pbk) US\$62 £43



# Titles in Medical Imaging and Technology 2010/11



Series on Biophysics and Biocybernetics - Vol. 4

## FUNDAMENTALS AND APPLICATIONS OF BIOPHOTONICS IN DENTISTRY

by **Anil Kishen** (National University of Singapore) & **Anand Asundi** (Nanyang Technological University, Singapore)

Biophotonics in dentistry is a rapidly growing area. Unlike other books, this invaluable compendium touches on the fundamental areas in biophotonics. Contributed by world-renowned authors, it provides a basic understanding on a range of topics for individuals of different backgrounds to acquire a minimum knowledge of research and development in biophotonics. The chapters are arranged in two major categories. The first describes the fundamental aspects of photonics, such as photomechanics, biomedical imaging, lasers and laser-tissue interaction, spectroscopy and photodynamic therapy. The second details the applications of biophotonics, with special relevance to dentistry, including dental photobiomechanics, Raman spectroscopy and dental tissue optics.

**Readership:** Researchers, academics and graduate students of biophotonics in dentistry.

340pp  
978-1-86094-704-9      Dec 2006      US\$107      £74  
978-1-86094-883-1(ebook)      US\$139

### :: Study Guide

Manuals in Biomedical Research - Vol. 2

## TECHNIQUES IN MICROSCOPY FOR BIOMEDICAL APPLICATIONS

by **Terje Dokland** (University of Alabama, USA), **Dietmar Werner Hutmacher**, **Mary Mah-Lee Ng** & **Jan-Thorsten Schantz** (National University of Singapore)

The second volume of the series *Manuals in Biomedical Research*, this book is aimed to be both a concise introduction to the diverse field of microscopy and a practical guide those who require the use of microscopic for methods in their research. It provides young as well as experienced scientists a state-of-the-art multidisciplinary overview of microscopic techniques, covering all the major microscopy fields in biomedical sciences and showing their application in evaluating samples ranging from molecules to cells and tissues.

**Readership:** Course textbook for graduate students and postgraduate students in joint programs in biomedical engineering, cell biology and medical physics.

420pp  
978-981-256-434-4(pbk)      Sep 2006      US\$60      £41

## MOLECULAR IMAGING

### Basic Principles and Applications in Biomedical Research

by **Markus Rudin** (University of Zürich, Switzerland)

This volume familiarizes the reader with the concepts of imaging and molecular imaging in particular. Basic principles of imaging technologies, reporter moieties for the various imaging modalities and the design of target reporter constructs are described in the first part. The second part illustrates how these tools can be used to visualize relevant molecular events: the biodistribution of drugs/ligands, the expression of drug targets (receptors, enzymes), and the consequences of the molecular drug-target interactions (pathway activations, system responses). A final chapter deals with visualization of cell migration (cell therapies).

**Readership:** Academics (medicine, pharmacology, biomedical technology) and industry (pharmaceutical, diagnostic, biomedical technology).

564pp  
978-1-86094-528-1      Sep 2005      US\$199      £137  
978-1-86094-930-2(ebook)      US\$259

## MEDICAL IMAGING SYSTEMS TECHNOLOGY

A 5-Volume Set

**Volume 1: Analysis and Computational Methods**

**Volume 2: Modalities**

**Volume 3: Methods in General Anatomy**

**Volume 4: Methods in Diagnosis Optimization**

**Volume 5: Methods in Cardiovascular and Brain Systems**

edited by **Cornelius T Leondes** (University of California, Los Angeles, USA)

Complementing and intersecting one another, each volume offers a comprehensive treatment of substantive importance to the subject areas. The chapters, in turn, address topics in a self-contained manner with authoritative introductions, useful summaries, and detailed reference lists. Extensively well-illustrated with figures throughout, the five volumes as a whole achieve a unique depth and breath of coverage.

**Readership:** Academics, researchers, industrialists, postgraduate and graduate students in databases, fuzzy logic, machine vision/pattern recognition, neural networks, bioengineering, electrical & electronic engineering, and bioinformatics.

<b>Set</b>	<b>408pp</b>	<b>Oct2005</b>
978-981-256-364-4	US\$745	£513
<b>Vol. 1</b>		
978-981-256-993-6	US\$164	£113
978-981-270-578-5(ebook)	US\$213	
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## Journals

### Biomedical Engineering: Applications, Basis and Communications (BME)

<http://www.worldscinet.com/bme/bme.shtml>

#### Aims & Scope

Biomedical Engineering: Applications, Basis and Communications explores all facets of biomedical engineering, with emphasis on both the clinical and scientific aspects of the study. It covers the fields of bioelectronics, biomaterials, biomechanics, bioinformatics, nano-biological sciences and clinical engineering. The journal fulfils this aim by publishing regular research / clinical articles, short communications, technical notes and review papers. Papers from both basic research and clinical investigations will be considered.

#### Abstracting/Indexing

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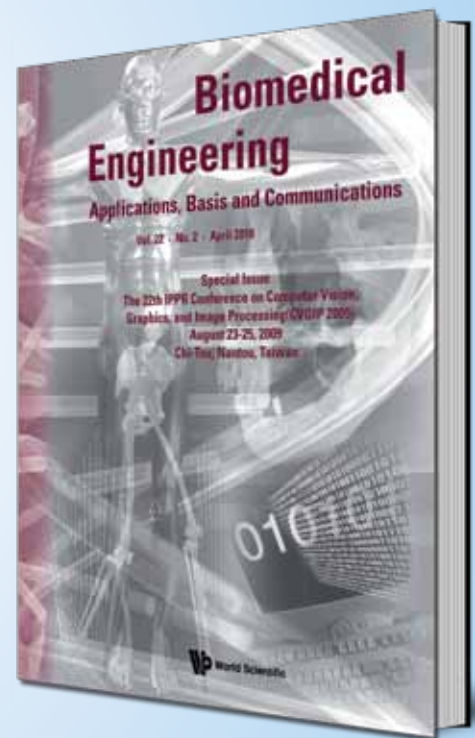
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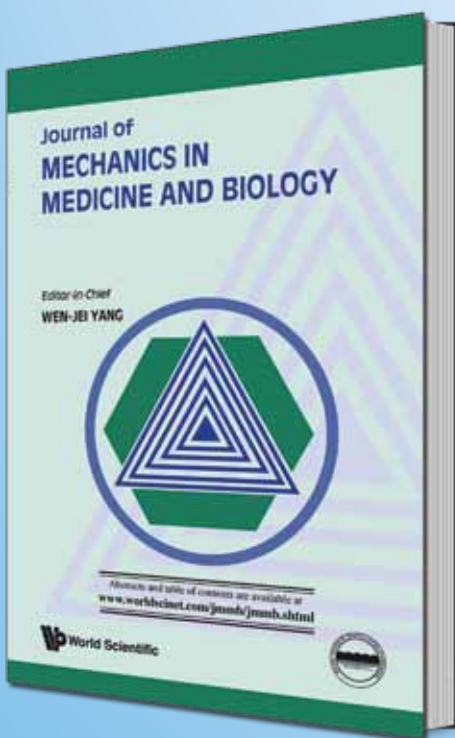
### Journal of Mechanics in Medicine and Biology (JMMB)

[www.worldscinet.com/jmmb.html](http://www.worldscinet.com/jmmb.html)

JMMB's **Impact Factor** has improved from **0.118 in 2008 to 0.435 in 2009!** Congratulations to the Editorial Board and contributors of JMMB.

#### Article Highlights

- MECHANICAL BEHAVIOR UNDER UNCONFINED COMPRESSION LOADINGS OF DENSE FIBRILLAR COLLAGEN MATRICES MIMETIC OF LIVING TISSUES**  
 SALAH RAMTANI (*Université Paris Nord, France*), YOSHIYUKI TAKAHASHI-IÑIGUEZ (*Université Paris Val de Marne, France*), CHRISTOPHE HELARY (*Université Pierre et Marie Curie, France*), DIDIER GEIGER (*Université Paris Val de Marne, France*) and MARIE MADELEINE GIRAUD GUILLE (*Université Pierre et Marie Curie, France*)
- NON-CIRCULAR CHAIN RING ALLOWS A REDUCTION OF JOINT LOADING IN CYCLING**  
 MARIA CRISTINA BISI, RITA STAGNI, GIANNI GNUDI and ANGELO CAPPELLO (*University of Bologna, Italy*)
- INFLUENCE OF THE CONSTITUTIVE MATERIAL BEHAVIOR MODEL ASSIGNED TO THE ANNULUS FIBROSUS AND THE NUCLEUS PULPOSUS ON THE BIOMECHANICAL PERFORMANCE OF A MODEL OF THE CERVICAL SPINE: A FINITE ELEMENT ANALYSIS STUDY**  
 YUAN LI and GLADIUS LEWIS (*The University of Memphis, USA*)



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