

Magnetic Resonance Imaging The Basics

This concise account of the physics and functioning of magnetic resonance imaging (MRI) is aimed at everyone who wishes to work with MRI and who seeks an easily understandable introduction to the workings of this somewhat complex technique. The reader is presented with a condensed, yet clearly structured overview of the basics of MRI. Special emphasis is placed on the demands of its everyday clinical routine application. The opening chapters introduce the basics of MR function and the MR sequences most widely applied for clinical routines. There follow discussions of the basics of parallel imaging and of techniques to image the arterial and venous systems. The book is rounded off by chapters on MR artefacts, MR contrast media, and safety concerns for MRI. Book jacket.

Concise, readable, and engaging, MRI: The Basics, 4th Edition, offers an excellent introduction to the physics behind MR imaging. Clinically relevant coverage includes everything from basic principles and key math concepts to more advanced topics, including the latest MR techniques and optimum image creation. Hundreds of high-quality illustrations, board-style questions and answers, legible equations, and instructive diagrams take you from the basics of MR physics through current applications.

With a focus on the basic imaging principles of breast MRI rather than on mathematical equations, this book takes a practical approach to imaging protocols, which helps radiologists increase their diagnostic effectiveness. It walks the reader through the basics of MRI, making it especially accessible to beginners. From a detailed outline of equipment prerequisites for obtaining high quality breast MRI to

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instructions on how to optimize image quality, expanded discussions on how to obtain optimized dynamic information, and explanations of good and bad imaging techniques, the book covers the topics that are most relevant to performing breast MRI.

Functional MRI (fMRI) and the basic method of BOLD imaging were introduced in 1993 by Seiji Ogawa. From very basic experiments, fMRI has evolved into a clinical application for daily routine brain imaging. There have been various improvements in both the imaging technique as such as well as in the statistical analysis. In this volume, experts in the field share their knowledge and point out possible technical barriers and problems explaining how to solve them. Starting from the very basics on the origin of the BOLD signal, the book covers technical issues, anatomical landmarks, presurgical applications, and special issues in various clinical fields. Other modalities for brain mapping such as PET, TMS, and MEG are also compared with fMRI. This book is intended to give a state-of-the-art overview and to serve as a reference and guide for clinical applications of fMRI.

Magnetic resonance imaging (MRI) is the most technically dependent imaging technique in radiology. To perform and interpret MRI studies correctly, an understanding of the basic underlying principles is essential. Understanding Magnetic Resonance Imaging explains the pulse sequences, imaging options, and coils used to produce MR images, providing a strong foundation for performing and interpreting imaging studies. The text is complemented by more than 100 figures and 25 photomicrographs illustrating the techniques discussed. Radiology residents, MR technologists, and radiologists should not be without Understanding Magnetic Resonance Imaging-the only single resource that explains all technical aspects of MRI, including recent advances, and presents all imaging options.

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This comprehensive survey of the analytical treatment of MRI physics and engineering brings the reader to a position to cope with the problems that arise when applying MRI to medical problems or when (sub)systems or sequences for new applications are designed.

Originally developed in the laboratory of Nobel Prize winner Paul C. Lauterbur in the early 1980s, the 12th edition (2018) of this standard textbook has been completely revised, updated, and new critical remarks and comments were added. The author, Peter A. Rinck, is one of the pioneers of nuclear magnetic resonance in medicine and of magnetic resonance imaging. *Radiology*: One of the most lucid and best illustrated introductory MR texts. *European Radiology*: An outstanding book, an excellent well-proven didactic approach. *Journal of Magnetic Resonance imaging (JMRI)*: The book more than fulfills its attempted purpose. *Amazon Review*: This text is by far the best treatise of MRI at the basic level. *Academic Radiology*: In summary, it is not only an ideal first text, but it's a bargain. *Fortschr Röntgenstr (RöFo)*: In fact, an MR expert has finally succeeded in putting himself in the MR beginner's shoes, explaining the necessary basic knowledge in a very vivid and entertaining way. The author: The perfect book for those wanting to do research and needing to check or refresh the basics and recent developments.

A succinct introduction to the physics and function of magnetic resonance imaging with an emphasis on practical information. This thoroughly revised second edition is clearly structured. The underlying physical principles of the MR experiment are described and the basic pulse sequences commonly used in clinical MRI. It progresses to more advanced techniques such as parallel imaging and cardiovascular MR imaging. An extensive glossary offers rapid access to MRI terminology and will help those seeking

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to understand this interesting fascinating subject.

This is the second edition of a useful introductory book on a technique that has revolutionized neuroscience, specifically cognitive neuroscience. Functional magnetic resonance imaging (fMRI) has now become the standard tool for studying the brain systems involved in cognitive and emotional processing. It has also been a major factor in the consilience of the fields of neurobiology, cognitive psychology, social psychology, radiology, physics, mathematics, engineering, and even philosophy. Written and edited by a clinician-scientist in the field, this book remains an excellent user's guide to t
The second edition of Rad Tech's Guide to MRI provides practicing and training technologists with a succinct overview of magnetic resonance imaging (MRI).

Designed for quick reference and examination preparation, this pocket-size guide covers the fundamental principles of electromagnetism, MRI equipment, data acquisition and processing, image quality and artifacts, MR Angiography, Diffusion/Perfusion, and more. Written by an expert practitioner and educator, this handy reference guide: Provides essential MRI knowledge in a single portable, easy-to-read guide Covers instrumentation and MRI hardware components, including gradient and radio-frequency subsystems Provides techniques to handle flow imaging issues and improve the quality of MRIs Explains the essential physics underpinning MRI technology Rad Tech's Guide to MRI is a must-have resource for student radiographers, especially those preparing for the American Registry of Radiation

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Technologist (ARRT) exams, as well as practicing radiology technologists looking for a quick reference guide.

This book is not intended as a general text on MRI. It is written as an introduction to the field, for nonexperts. We present here a simple exposition of certain aspects of MRI that are important to understand to use this valuable diagnostic tool intelligently in a clinical setting. The basic principles are presented nonmathematically, using no equations and a minimum of symbols and abbreviations. For those requiring a deeper understanding of MRI, this book will help facilitate the transition to standard texts. Chapters 1 through 4 provide a general introduction to the phenomenon of nuclear magnetic resonance and how it is used in imaging. Chapter 1 discusses magnetic resonance, using a compass needle as an example. In Chapter 2, the transition to the magnetic resonance of the atomic nucleus is made. Chapter 3 describes the principles of imaging. In Chapter 4, the terms T 1 and T 2 are described and their relationship to tissue characterization; the fundamental role of thermal magnetic noise in T 1 and T 2 is discussed.

The popularity of magnetic resonance (MR) imaging in medicine is no mystery: it is non-invasive, it produces high quality structural and functional image data, and it is very versatile and flexible. Research into MR technology is advancing at a blistering pace, and modern engineers must keep up with the latest developments. This is only possible with a firm grounding in the basic principles of MR, and *Advanced Image Processing in Magnetic Resonance Imaging* solidly integrates this foundational

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knowledge with the latest advances in the field. Beginning with the basics of signal and image generation and reconstruction, the book covers in detail the signal processing techniques and algorithms, filtering techniques for MR images, quantitative analysis including image registration and integration of EEG and MEG techniques with MR, and MR spectroscopy techniques. The final section of the book explores functional MRI (fMRI) in detail, discussing fundamentals and advanced exploratory data analysis, Bayesian inference, and nonlinear analysis. Many of the results presented in the book are derived from the contributors' own work, imparting highly practical experience through experimental and numerical methods. Contributed by international experts at the forefront of the field, *Advanced Image Processing in Magnetic Resonance Imaging* is an indispensable guide for anyone interested in further advancing the technology and capabilities of MR imaging.

Magnetic Resonance Imaging is a very important clinical imaging tool. It combines different fields of physics and engineering in a uniquely complex way. MRI is also surprisingly versatile, 'pulse sequences' can be designed to yield many different types of contrast. This versatility is unique to MRI. This short book gives both an in depth account of the methods used for the operation and construction of modern MRI systems and also the principles of sequence design and many examples of applications. An important additional feature of this book is the detailed discussion of the mathematical principles used in building optimal MRI systems and for sequence

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design. The mathematical discussion is very suitable for undergraduates attending medical physics courses. It is also more complete than usually found in alternative books for physical scientists or more clinically orientated works.

The popular QUESTIONS AND ANSWERS IN MAGNETIC RESONANCE IMAGING is thoroughly revised and updated to reflect the latest advances in MRI technology. Four new chapters explain recent developments in the field in the traditional question and short answer format. This clear, concise and informative text discusses hundreds of the most common questions about MRI, as well as some challenging questions for seasoned MRI specialists.

As MRI has paved its role in diagnostic angiography. MRA has the potential to provide more physiological and pathophysiological data over the disease in addition to the anatomical information. This book is divided into three sections. The first section discusses the basics of MRI angiography. It starts with focus on the contrast agents that are mainly used in MR angiography with detailed discussion of advantage and limitations of different types of contrast. The second chapter is oriented more towards the technical consideration that contribute to good quality examination, both the non contrast and contrast based sequences from black to bright blood imaging , contrast enhanced MRA, review of clinical application of MRA in different body systems and MR venography. The second section reviews the clinical application of MRI mainly in the head and neck and brain ischemia imaging. The new high resolution intracranial

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plaque imaging of the branch athermanous disease, to the hemodynamic of intracranial atherosclerotic stroke and quantitative MRA imaging in neurovascular imaging, are the topics in this section. Also this section covers the future prospective and the new frontiers MRI angiography is exploring. In the third section, MRA of aortic disease in children with emphasis on cardiac MRA. Magnetic resonance imaging (MRI) is a technique used in biomedical imaging and radiology to visualize internal structures of the body. Because MRI provides excellent contrast between different soft tissues, the technique is especially useful for diagnostic imaging of the brain, muscles, and heart. In the past 20 years, MRI technology has improved significantly with the introduction of systems up to 7 Tesla (7 T) and with the development of numerous post-processing algorithms such as diffusion tensor imaging (DTI), functional MRI (fMRI), and spectroscopic imaging. From these developments, the diagnostic potentialities of MRI have improved impressively with an exceptional spatial resolution and the possibility of analyzing the morphology and function of several kinds of pathology. Given these exciting developments, the Magnetic Resonance Imaging Handbook: Image Principles, Neck, and the Brain is a timely addition to the growing body of literature in the field. Covering MRI from fundamentals to practice, this comprehensive book: Discusses the clinical benefits of diagnosing human pathologies using MRI Explains the physical principles of MRI and how to use the technique correctly Highlights each organ's anatomy and pathological processes with high-quality images

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Examines the protocols and potentialities of advanced MRI scanners such as 7 T systems Includes extensive references at the end of each chapter to enhance further study Thus, the Magnetic Resonance Imaging Handbook: Image Principles, Neck, and the Brain provides radiologists and imaging specialists with a valuable, state-of-the-art reference on MRI.

This outstanding volume in the AEDR series introduces the basic concepts and limitations of MRI. Features a helpful exercise/study format, and complete coverage of MRI techniques for areas such as the neck, chest, liver/spleen, abdomen, adrenals and kidneys, pelvis, retroperitoneum, soft tissues and skeleton, and much more!

In the past few decades, Magnetic Resonance Imaging (MRI) has become an indispensable tool in modern medicine, with MRI systems now available at every major hospital in the developed world. But for all its utility and prevalence, it is much less commonly understood and less readily explained than other common medical imaging techniques. Unlike optical, ultrasonic, X-ray (including CT), and nuclear medicine-based imaging, MRI does not rely primarily on simple transmission and/or reflection of energy, and the highest achievable resolution in MRI is orders of magnitude smaller than the smallest wavelength involved. In this book, MRI will be explained with emphasis on the magnetic fields required, their generation, their concomitant electric

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fields, the various interactions of all these fields with the subject being imaged, and the implications of these interactions to image quality and patient safety. Classical electromagnetics will be used to describe aspects from the fundamental phenomenon of nuclear precession through signal detection and MRI safety. Simple explanations and Illustrations combined with pertinent equations are designed to help the reader rapidly gain a fundamental understanding and an appreciation of this technology as it is used today, as well as ongoing advances that will increase its value in the future. Numerous references are included to facilitate further study with an emphasis on areas most directly related to electromagnetics.

MRI Susceptibility Weighted Imaging discusses the promising new MRI technique called Susceptibility Weighted Imaging (SWI), a powerful tool for the diagnosis and treatment of acute stroke, allowing earlier detection of acute stroke hemorrhage and easier detection of microbleeds in acute ischemia. The book is edited by the originators of SWI and features contributions from the top leaders in the science. Presenting an even balance between technical/scientific aspects of the modality and clinical application, this book includes over 100 super high-quality radiographic images and 100 additional graphics and tables.

Magnetic Resonance Imaging (MRI) is a rapidly

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evolving technique which is having a significant impact on medical imaging. Only a few years ago, although Nuclear Magnetic Resonance (NMR) was well known as an important analytical technique in the field of chemical analysis, it was effectively unknown in medical circles. Following the initial work of PAUL LAUTERBUR and RAYMOND DAMADIAN in the early 1970s demonstrating that it was possible to use NMR to produce images, progress in the medical fields was relatively slow. Recently, however, with the availability of commercial systems, progress has been very rapid, with increasing acceptance of MRI as a basic imaging technique, and the development of exciting new applications. MRI is a relatively complex technique. First, the image depends on many more intrinsic and extrinsic parameters than it does of in techniques like X-ray diagraphy and computed tomography, and secondly, the intrinsic parameters such as T1 and T2 are conceptually complex, involving ideas not usually described in traditional medical imaging courses. In order to produce good MR images efficiently, and to obtain the maximum information from them, it is necessary to appreciate, if not to fully understand, these parameters. Further more, knowledge of how the image is produced helps in appreciating the origin of the artifacts sometimes found in MRI due to effects like patient motion and fluid flow.

Quantitative Magnetic Resonance Imaging is a 'go-

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to' reference for methods and applications of quantitative magnetic resonance imaging, with specific sections on Relaxometry, Perfusion, and Diffusion. Each section will start with an explanation of the basic techniques for mapping the tissue property in question, including a description of the challenges that arise when using these basic approaches. For properties which can be measured in multiple ways, each of these basic methods will be described in separate chapters. Following the basics, a chapter in each section presents more advanced and recently proposed techniques for quantitative tissue property mapping, with a concluding chapter on clinical applications. The reader will learn: The basic physics behind tissue property mapping How to implement basic pulse sequences for the quantitative measurement of tissue properties The strengths and limitations to the basic and more rapid methods for mapping the magnetic relaxation properties T1, T2, and T2* The pros and cons for different approaches to mapping perfusion The methods of Diffusion-weighted imaging and how this approach can be used to generate diffusion tensor maps and more complex representations of diffusion How flow, magneto-electric tissue property, fat fraction, exchange, elastography, and temperature mapping are performed How fast imaging approaches including parallel imaging, compressed sensing, and Magnetic

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Resonance Fingerprinting can be used to accelerate or improve tissue property mapping schemes How tissue property mapping is used clinically in different organs Structured to cater for MRI researchers and graduate students with a wide variety of backgrounds Explains basic methods for quantitatively measuring tissue properties with MRI - including T1, T2, perfusion, diffusion, fat and iron fraction, elastography, flow, susceptibility - enabling the implementation of pulse sequences to perform measurements Shows the limitations of the techniques and explains the challenges to the clinical adoption of these traditional methods, presenting the latest research in rapid quantitative imaging which has the possibility to tackle these challenges Each section contains a chapter explaining the basics of novel ideas for quantitative mapping, such as compressed sensing and Magnetic Resonance Fingerprinting-based approaches

Preceded by Magnetic resonance imaging: physical principles and sequence design / E. Mark Haacke ... [et al.]. c1999.

Functional magnetic resonance imaging (fMRI) measures quick, tiny metabolic changes that take place in the brain, providing the most sensitive method currently available for identifying, investigating, and monitoring brain tumors, stroke, and chronic disorders of the nervous system like

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multiple sclerosis, and brain abnormalities related to dementia or seizures. This overview explores experimental research design, outlines challenges and limitations of fMRI, provides a detailed neuroanatomic atlas, and describes clinical applications of fMRI in cognitive, sensory, motor, and pharmacological cases, translating research into clinical application.

Magnetic resonance imaging (MRI) is a scan that uses strong magnetic fields and radio waves to produce detailed images of the inside of the body. This book is a comprehensive guide to the diagnosis and management of neurological infectious diseases using MRI. Divided into four sections, the text begins with an introduction to tropical diseases of the central nervous system, and their epidemiology. The second section provides in depth coverage of the technique of MRI, from the basic principles, to clinical application and more advanced features. The following sections describe use of the technique for both infectious diseases, including tuberculosis, HIV and parasitic diseases; and noninfectious conditions, such as stroke, poisoning and epilepsy. Each chapter features numerous MRI and pathological images and extensive references. Key points

Comprehensive guide to diagnosis and management of neurological infectious diseases in tropics using MRI
In depth coverage of the technique, from basics to more advanced aspects
Covers MRI for both

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infectious and noninfectious conditions Includes nearly 300 MRI and pathological images

In 1971 Dr. Paul C. Lauterbur pioneered spatial information encoding principles that made image formation possible by using magnetic resonance signals. Now Lauterbur, "father of the MRI", and Dr. Zhi-Pei Liang have co-authored the first engineering textbook on magnetic resonance imaging. This long-awaited, definitive text will help undergraduate and graduate students of biomedical engineering, biomedical imaging scientists, radiologists, and electrical engineers gain an in-depth understanding of MRI principles. The authors use a signal processing approach to describe the fundamentals of magnetic resonance imaging. You will find a clear and rigorous discussion of these carefully selected essential topics: Mathematical fundamentals Signal generation and detection principles Signal characteristics Signal localization principles Image reconstruction techniques Image contrast mechanisms Image resolution, noise, and artifacts Fast-scan imaging Constrained reconstruction Complete with a comprehensive set of examples and homework problems, Principles of Magnetic Resonance Imaging is the must-read book to improve your knowledge of this revolutionary technique.

Dette er en grundlæggende lærebog om konventionel MRI samt billedteknik. Den begynder med et overblik over elektricitet og magnetisme, herefter gives en dybtgående forklaring på hvordan MRI fungerer og her diskuteres de seneste metoder i radiografisk billedtagning, patientsikkerhed m.v.

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This handy reference, revised and updated for this Second Edition, will give the practicing and training technologist a solid understanding of basic MRI principles on which further learning can be built. Beginning with a hardware overview and moving through tissue characteristics, image quality and flow imaging, Rad Tech's Guide to MRI: Basic Physics, Instrumentation, and Quality Control should be used as both an introduction and an examination preparation tool. Each book in the Rad Tech's Guide Series covers the essential basics for those preparing for their certifying examinations and those already in practice.

This full-text electronic textbook on MRI (magnetic resonance imaging) for medical professionals and students explains the science and mathematics of MRI in detail, and covers the hardware, characteristics of the image and the techniques used, plus a step-by-step description of a MRI examination. The content of this educational package has been organized so that background material and underlying principles are introduced first in separate chapters. Each chapter builds on the previous one.

Here's the perfect review tool for radiologic technologists taking the ARRT's Advanced Qualifications Examination in Magnetic Resonance Imaging. It's packed with over 700 questions and answers covering all aspects of MRI. Detailed explanations of answers and references for further study help reinforce problem areas.

This third edition provides a concise and generously illustrated survey of the complete field of medical imaging and image computing, explaining the

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mathematical and physical principles and giving the reader a clear understanding of how images are obtained and interpreted. Medical imaging and image computing are rapidly evolving fields, and this edition has been updated with the latest developments in the field, as well as new images and animations. An introductory chapter on digital image processing is followed by chapters on the imaging modalities: radiography, CT, MRI, nuclear medicine and ultrasound. Each chapter covers the basic physics and interaction with tissue, the image reconstruction process, image quality aspects, modern equipment, clinical applications, and biological effects and safety issues. Subsequent chapters review image computing and visualization for diagnosis and treatment. Engineers, physicists and clinicians at all levels will find this new edition an invaluable aid in understanding the principles of imaging and their clinical applications.

Presents the full-text, online version of the "Basics of MRI," written by Joseph P. Hornak at the Rochester Institute of Technology. Includes details of magnetic resonance imaging (MRI) and information about vectors, differentials and integrals, spin physics, spectroscopy, Fourier transforms, imaging principles, artifacts, advanced imaging techniques, and other information. Contains photographic images. Offers access to a glossary.

Magnetic resonance imaging (MRI) is a rapidly developing field in basic applied science and clinical practice. Research efforts in this area have already been recognized with five Nobel prizes awarded to seven

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Nobel laureates in the past 70 years. Based on courses taught at The Johns Hopkins University, *Magnetic Resonance Imaging: The Basics* provides This concise book explains the basic principles of magnetic resonance imaging.

MRI Handbook presents a concise review of the physical principles underlying magnetic resonance imaging (MRI), explaining MR physics, patient positioning, and protocols in an easy-to-read format. The first five chapters of the book introduce the reader to the basics of MR imaging, including the relaxation concept, MR pulse sequences, and MR imaging parameters and options. The second part of the book (chapters 6-11) uses extensive illustrations, images, and protocol tables to explain tips and tricks to achieve optimal MR image quality while ensuring patient safety. Individual chapters are devoted to each major anatomic region, including the central nervous, musculoskeletal, and cardiovascular systems. By using annotated MR images and examples of patient positions used during scanning correlated with sample protocols and parameters, *MRI Handbook* is a practical resource for imaging professionals to use in the course of their daily practice as well as for students to learn the basic concepts of MR imaging.

Preceded by *MRI* / Mark A. Brown, Richard C. Semelka. 4th ed. c2010.

Established as the leading textbook on imaging diagnosis of brain and spine disorders, *Magnetic Resonance Imaging of the Brain and Spine* is now in its Fourth Edition. This thoroughly updated two-volume reference delivers cutting-edge information on nearly

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every aspect of clinical neuroradiology. Expert neuroradiologists, innovative renowned MRI physicists, and experienced leading clinical neurospecialists from all over the world show how to generate state-of-the-art images and define diagnoses from crucial clinical/pathologic MR imaging correlations for neurologic, neurosurgical, and psychiatric diseases spanning fetal CNS anomalies to disorders of the aging brain. Highlights of this edition include over 6,800 images of remarkable quality, more color images, and new information using advanced techniques, including perfusion and diffusion MRI and functional MRI. A companion Website will offer the fully searchable text and an image bank.

This book is intended as a text/reference for students, researchers, and professors interested in physical and biomedical applications of Magnetic Resonance Imaging (MRI). Both the theoretical and practical aspects of MRI are emphasized. The book begins with a comprehensive discussion of the Nuclear Magnetic Resonance (NMR) phenomenon based on quantum mechanics and the classical theory of electromagnetism. The first three chapters of this book provide the foundation needed to understand the basic characteristics of MR images, e.g., image contrast, spatial resolution, signal-to-noise ratio, common image artifacts. Then MRI applications are considered in the following five chapters. Both the theoretical and practical aspects of MRI are emphasized. The book ends with a discussion of instrumentation and the principles of signal detection in MRI. Clear progression from fundamental physical principles of

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NMR to MRI and its applications Extensive discussion of image acquisition and reconstruction of MRI Discussion of different mechanisms of MR image contrast Mathematical derivation of the signal-to-noise dependence on basic MR imaging parameters as well as field strength In-depth consideration of artifacts in MR images Comprehensive discussion of several techniques used for rapid MR imaging including rapid gradient-echo imaging, echo-planar imaging, fast spin-echo imaging and spiral imaging Qualitative discussion combined with mathematical description of MR techniques for imaging flow

This fifth edition of the most accessible introduction to MRI principles and applications from renowned teachers in the field provides an understandable yet comprehensive update. Accessible introductory guide from renowned teachers in the field Provides a concise yet thorough introduction for MRI focusing on fundamental physics, pulse sequences, and clinical applications without presenting advanced math Takes a practical approach, including up-to-date protocols, and supports technical concepts with thorough explanations and illustrations Highlights sections that are directly relevant to radiology board exams Presents new information on the latest scan techniques and applications including 3 Tesla whole body scanners, safety issues, and the nephrotoxic effects of gadolinium-based contrast media

This book presents a comprehensive treatment of electromagnetic analysis and design of three critical devices for an MRI system - the magnet, gradient coils,

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and radiofrequency (RF) coils. Electromagnetic Analysis and Design in Magnetic Resonance Imaging is unique in its detailed examination of the analysis and design of the hardware for an MRI system. It takes an engineering perspective to serve the many scientists and engineers in this rapidly expanding field. Chapters present: an introduction to MRI basic concepts of electromagnetics, including Helmholtz and Maxwell coils, inductance calculation, and magnetic fields produced by special cylindrical and spherical surface currents principles for the analysis and design of gradient coils, including discrete wires and the target field method analysis of RF coils based on the equivalent lumped-circuit model as well as an analysis based on the integral equation formulation survey of special purpose RF coils analytical and numerical methods for the analysis of electromagnetic fields in biological objects With the continued, active development of MRI instrumentation, Electromagnetic Analysis and Design in Magnetic Resonance Imaging presents an excellent, logically organized text - an indispensable resource for engineers, physicists, and graduate students working in the field of MRI.

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