

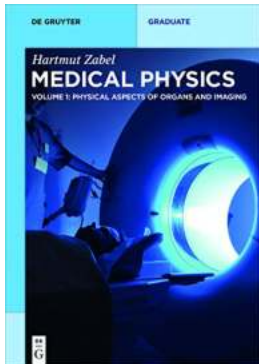
The Astonishing Physical Aspects of Organs and Imaging Discussed in the De Gruyter Textbook



When it comes to understanding the human body and its intricate workings, the field of organ imaging plays a crucial role. The De Gruyter Textbook provides an in-depth exploration of the physical aspects of organs and how various imaging techniques help uncover their mysteries. Through this engaging textbook, readers can delve into a world of fascinating discoveries and gain a deeper understanding of the human body's complex anatomy.

The Importance of Exploring Physical Aspects of Organs

Organs are the building blocks of the human body, each contributing to the overall functioning and well-being of an individual. The physical aspects of these organs hold valuable insights into their structure, composition, and the processes they undertake. By studying the physical aspects of organs, medical professionals can diagnose diseases, identify abnormalities, and develop effective treatment plans.



Physical Aspects of Organs and Imaging (De Gruyter Textbook) by Linda Lappin (Kindle Edition)

★★★★☆ 4.1 out of 5

Language : English
File size : 25759 KB
Text-to-Speech : Enabled
Screen Reader : Supported
Enhanced typesetting : Enabled
Word Wise : Enabled
Print length : 423 pages



The De Gruyter Textbook adopts an interdisciplinary approach, combining biology, anatomy, physics, and medical imaging techniques to provide a comprehensive understanding of organ structure. Experts in the field have contributed their knowledge, making this textbook a valuable resource for professionals, researchers, and students alike.

The Role of Imaging Techniques in Unveiling Organ Secrets

Traditional anatomical studies have allowed us to visualize organs externally or through dissection. While these methods provided essential information about the organs, they lacked the ability to capture their internal structure and dynamic functioning.

This is where imaging techniques have revolutionized the field of medicine. Advanced technologies such as magnetic resonance imaging (MRI), computed tomography (CT), ultrasound, and positron emission tomography (PET) have enabled medical professionals to explore organs in unprecedented detail. By capturing images of organs, these techniques allow experts to examine their physical aspects, identify abnormalities, detect tumors, and even monitor the effectiveness of treatment.

The De Gruyter Textbook delves into these imaging techniques, explaining their principles, benefits, limitations, and practical applications. It provides a comprehensive overview of the equipment involved, the imaging processes, and the interpretation of the acquired images. Readers will gain an appreciation for the immense capabilities of these imaging techniques in studying the physical aspects of organs.

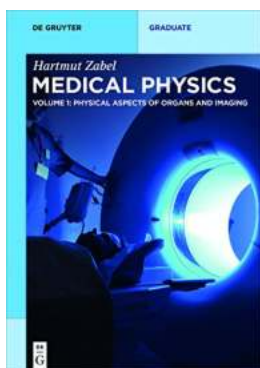
Exploring Cutting-Edge Research and Innovation

The De Gruyter Textbook goes beyond covering the fundamentals of organ imaging. It also highlights the latest research and innovations in the field. Readers will discover advancements in imaging technology, such as the development of contrast agents for enhanced visualization, functional imaging techniques that capture organ functionality in real-time, and the integration of artificial intelligence for automated image analysis.

This textbook serves as a platform for researchers to stay up-to-date with the ongoing advancements in organ imaging. It encourages collaboration, providing a space for scholars to discuss their findings, share their knowledge, and propel the field forward.

The De Gruyter Textbook on the Physical Aspects of Organs and Imaging is a captivating resource that immerses readers in the incredible world of organ exploration. Through a combination of detailed descriptions, vivid illustrations, and engaging case studies, this textbook transforms the complex subject matter into an accessible and enjoyable learning experience.

Whether you are a medical professional seeking to enhance your understanding, a researcher looking for cutting-edge ideas, or a student embarking on a journey into the wonders of organ imaging, the De Gruyter Textbook is an invaluable resource that will broaden your horizons and deepen your knowledge.



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Medical Physics covers the applied branch of physics concerned with the application of concepts and methods of physics to diagnostics and therapeutics of human diseases. The first part, Physical and Physiological Aspects of the Body, covers those body systems that have a strong physical component, such as body mechanics, energy household, action potential, signal transmission in neurons, respiratory and circulatory system as well as visual and sound perception. The

second part of this volume, Imaging Modalities without Ionizing Radiation, introduces sonography, endoscopy, and magnetic resonance imaging.

The second volume complements the imaging modalities with the use of ionizing radiation: x-ray radiography, scintigraphy, SPECT, and PET. This first part is followed by chapters on radiation treatment of tumors, in particular x-ray radiotherapy, proton and neutron radiation therapy, and brachytherapy. The last part treats aspects of diagnostics and therapeutics beyond radiology, including laser applications, multifunctional nanoparticles and prosthetics.

This first volume

- connects the basic principles of physics with the functionality of the body and with physical methods used for diagnostics and therapeutics.
- covers the first part of the entire field, including the physics of the body and imaging methods without the use of ionizing radiation.
- provides an for Bachelor students to the main concepts of Medical Physics during their first semesters guiding them to further specialized and advanced literature.
- contains many questions & answers related to the content of each chapter.
- is also available as a set together with Volume 2.

Contents

Part A: Physical and physiological aspects of the body

Brief overview of body parts and functions

Body mechanics and muscles

Elastomechanics: bones and fractures

Energy household of the body

Resting potential and action potential

Signal transmission in neurons

Electrophysical aspects of the heart

The circulatory system

The respiratory system

Kidneys

Basic mechanism of vision

Sound and sound perception

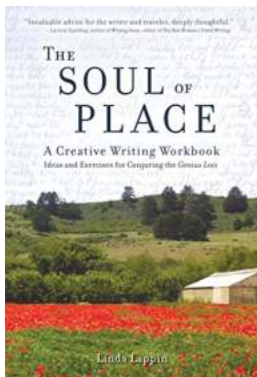
Part B: Imaging modalities without ionizing radiation

Sonography

Endoscopy

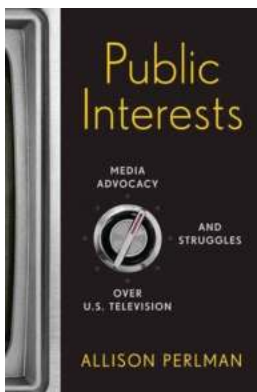
Magnetic resonance imaging

Questions & answers



Ideas And Exercises For Conjuring The Genius Loci

The Genius Loci, often referred to as the spirit of a place or the soul of a location, is a concept deeply ingrained in human history. It is believed to be the essence or...



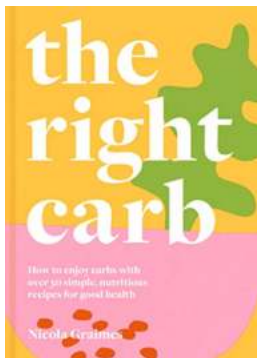
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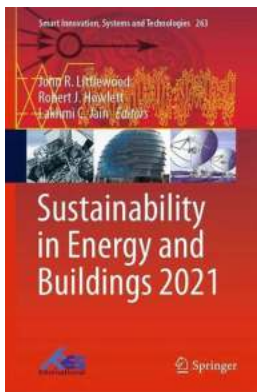
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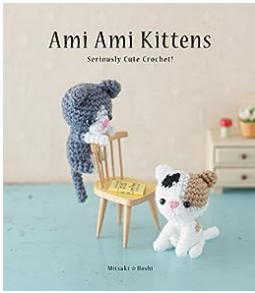
Sustainability In Energy And Buildings 2021 Smart Innovation Systems And

In a rapidly evolving world, where the demand for energy continues to rise, sustainability has become a paramount concern. Governments, organizations, and individuals are now...



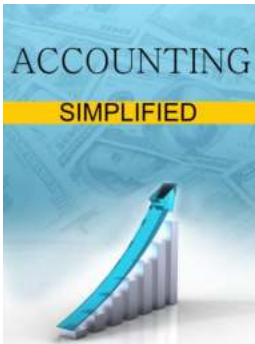
How To Create Interfaith, Interspiritual, and Intercultural Wedding Ceremonies

Are you and your partner from different religious, spiritual, or cultural backgrounds? Planning a wedding that honors both of your beliefs and traditions can be a beautiful...



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physical characteristics of an organism