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Physics : Emerging Practice / Nicholas J Hangiandreou, Paul Carson, and Zheng Feng Lu -- Clinical MRI Physics : Perspective / Douglas E Pfeiffer -- Clinical MRI Physics : State of Practice / Ron Price -- Clinical MRI Physics : Emerging Practice / David Pickens -- Clinical Physics in IT : Perspective / Ehsan Samei -- Clinical Physics in Informatics Display : Current and Emerging Practice / Michael Flynn -- Clinical Physics in Informatics Management : Current and Emerging Practice / Donald Peck

Sommario/riassunto

"Six primary developments are converging today to raise radiologic imaging to an ever more prominent role in biomedical and medical research and in the clinical practice of medicine: (1) Increasing sophistication of the biological questions that can be addressed as knowledge expands and understanding grows about the complexity of the human body and its static and dynamic properties; (2) Ongoing evolution of imaging technologies and the increasing breadth and depth of the questions that these technologies can address at ever more fundamental levels; (3) Accelerating advances in computer technology and information networking that support imaging advances such as three- and four-dimensional representations, superposition of images from different devices, creation of virtual-reality environments, and transportation of images to remote sites in real time; (4) Growth of massive amounts of information about patients that can best be compressed and expressed through the use of images; (5) Entry into research and clinical medicine of young persons who are highly facile with computer technologies and comfortable with images as the principal pathway to information acquisition and display; and (6) Growing importance of images as effective means to convey information in visually-oriented developed cultures. A major challenge confronting medical imaging now is the need to efficiently exploit this convergence of developments to accelerate biological and medical imaging toward the realization of its true potential. Central to all of these developments is clinical medical physics, a growing field whose importance in the clinical practice of radiology is especially strong. Around the world, tens of thousands imaging physicists are employed by healthcare facilities or consulting groups. These individuals are tasked with properly setting up and optimally operating medical imaging devices to achieve the highest diagnostic performance and patient safety. They also constantly consult directly with radiologists and other clinical imaging staff on day to day issues ranging from basic technology to image refinement, interpretation, and diagnostics. Despite a substantial knowledgebase on the practice of medical physics in clinical imaging, until now medical physicists and radiologists have not had the benefit of a single-source reference and textbook on the science and clinical application of medical physics"--
