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The Intensity Modulated Radiation Therapy – A Clinical Overview by Indra J. Das, Nicholas J. Sanfilippo, Antonella Fogliata, and Luca Cozzi. Bristol, UK: IOP Publishing Ltd, 2020. ISBN 978-0-7503-1335-3.

Reviewed by Yi Rong, PhD

DESCRIPTION

The Intensity Modulated Radiation Therapy – A Clinical Overview provides detailed explanation of fundamental concepts and technology advancement relevant to intensity modulated radiotherapy (IMRT). This book covers basic definitions and terminology in photon intensity modulation, plan optimization, and beamlet deliveries and also correlates these theories to practical clinical applications for multiple anatomical disease sites.

PURPOSE

Radiation therapy has gone through significant evolution in the past three decades with the advent of intensity modulated radiation therapy. Most modern radiotherapy is typically delivered through modulated photon beams, with the options of conventional static field IMRT, volumetric modulated arc therapy (VMAT), binary leaf-based modulation (Tomotherapy), etc. This monograph presents the cumulative knowledge of 30 years of technological evolution comprehensively covering the above-mentioned areas, while also including as an added benefit a thoughtful study tool for those preparing for the American Board of Radiology (ABR) board examinations in Therapy Physics. Additional supplementary reading material for the design of clinical physics courses is also included for teachers.

AUDIENCE

This monograph addresses the preparatory study needs for radiation therapy technology (RTT) students, dosimetrists (CMD), junior physicists, medical residents, and other radiation therapy professionals to comprehensively understand the IMRT planning, optimization, and delivery technology concept and its wide range of clinical applications. The monograph serves as an instructive and valuable complementary addition to the conventional texts and teaching materials for medical physics students and residents; an extension of depth in study specifically for the area of IMRT.

CONTENT / FEATURES

The book has a total of 20 chapters, divided into three major sections. The first section, covering Chapter 1 through 5, elaborates on the physics and technological background of IMRT treatment delivery. The second section, Chapter 6 to 12, surveys all IMRT treatment planning aspects, including contouring, optimization, dose calculation, and quality assurance. The third section of the book, Chapters 13 to 19, provides special considerations that might be applied in a variety of clinical scenarios, including head and neck, lung, breast, prostate, and cervical cancers. The last chapter is a forward and future look into the roadmap ahead in IMRT with a brief review of the most advanced technology.

ASSESSMENT / COMPARISON

From my own experience in teaching therapy students, physics students, and medical residents for more than eight years, I find this book well organized with up-to-date applications of terms of new technology. It complements other popular books used in teaching the theory of IMRT with practical clinical cases. In comparison with other similar books in the field, this book stands out and it is evident to the reader that it is based on years of experience and knowledge from four globally recognized experts, revealing IMRT fundamentals, technology advancement, and comprehensive references. I strongly recommend this book, without hesitation, as teaching material for students and residents who are entering the field of radiation and for those in their junior years of medical physics seeking to qualify for their ABR Board Exams.

Book Reviewer Biography:

Yi Rong, PhD is a Professor and Lead Photon Physicist in Radiation Oncology at Mayo Clinic Arizona. She has been in the field of radiation therapy as a faculty physicist for more than 13 years, and has worked on a wide range of cancer radiotherapy clinical and research projects and applications, with extensive experience in teaching and mentoring graduate students in the field of medical physics and biomedical engineering. Dr. Rong is a Fellow of the American Association of Physicists in Medicine, a Deputy Editor for the *Medical Physics* Journal, and serves on multiple national and international committees for several leading international professional societies.