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BOOK REVIEW

**Clinical 3D dosimetry in modern radiation therapy**, edited by Mijnheer Mijnheer, Florida, New York, USA and Abingdon, UK, CRC Press, Taylor & Francis Group, 2018, 673 pp., ISBN: 978-1-4822-5221-7

This book is one in a series entitled 'Imaging in medical diagnosis and t herapy' initiated by the American Association of Physicist in Medicine and the publisher Taylor and Francis Group. It comprises an extensive volume summarising the current knowledge of three-dimensional (3D) dosimetry required for planning and verification of the advanced radiation therapy (RT) used today. Over the past decades this field has undergone a very rapid development driven by new technologies and modeling tools as well as demands from the clinics. This has enabled precise tailoring of dose distributions to complex target volumes identified by the imaging techniques available in modern clinics. The dominating technique for advanced cancer treatment is intensity modulated RT (IMRT) in various forms delivered by linear accelerators. But the book also deals with other forms of advanced RT (proton and light ion beams and brachy therapy) as well as emerging treatment modalities and techniques (adaptive RT, micro beams from synchrotrons, MR-Linacs etc.).

The focus of the book is the experimental verification in 3D of the dose given to the patient. The whole dosimetric chain from reference dose measurements in a point (0D), over line dose measurements (1D), dose measurements across a surface (2D) to full 3D and time dependent 4D dose measurements in the treated volume is extensively treated with examples from all available experimental techniques. Of particular interest are the sections dealing with small field dosimetry. This is a challenging task that has become very important with the introduction of IMRT, where the resulting dose distribution is built up from a large number of small beamlets. The book gives a very useful overview of instrumentation and correction factors for different detectors.

Another very important issue is how accurately delivered dose distributions can be verified both with phantom measurements and on-line during treatment (*in-vivo*). Accuracy requirements are discussed in detail and may serve as guidelines for local, national and international quality protocols.

Many of the measuring techniques for 3D dosimetry also require modelling techniques for reconstruction, evaluation and comparison with calculated dose distributions. The book therefore presents an overview of dose calculation models used for treatment planning and evaluation tools for dose comparisons.

Although written mainly for medical physicists, this book is of interest also for other professions and is therefore highly recommended both for clinically active newcomers and veterans. Because of the rapid development we see today, this book in parts may become outdated in five to ten years' time and it would therefore be desirable that updated future versions will be published

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