



Radiotherapy Treatment Planning

By Haas, Olivier C.

Book Condition: New. Publisher/Verlag: Springer, Berlin | New System Approaches | An in depth examination of many of the complex issues associated with planning and optimisation of intensity modulated radiotherapy treatment. It includes: a presentation of current practice, techniques and equipment used by medical physicists and others to deliver radiotherapy treatment; a systems modelling approach in the formulation of a beam model for optimisation, describing the effect of X-rays on human body tissues; a deterministic approach to the inverse problem in radiotherapy, based on weighted iterative least squares is modified to allow an adaptive scaling of the error to improve the performance of a general least squares algorithm; a guided random search methodology, based on genetic algorithms which is aimed at solving multi-objective optimisation problems is developed to optimise beam weight/wedge angle as well as coplanar beam orientation; the overall approach developed is demonstrated practically using both traditional and modern measurement techniques. | 1. Introduction and Brief Review of Developments in Radiotherapy.- 1.1 Introduction.- 1.2 Historical Review of Developments in Radiotherapy.- 1.2.1 The Early Workers.- 1.2.2 Effect of Radiation on Human Tissues.- 1.2.3 Improving the Physical Selectivity of Treatments.- 1.2.4 Developments of Megavoltage X-ray Machines.- 1.3 Radiotherapy Treatment Planning...



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