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Nota di contenuto	Contents; Editorial Preface; Physical and Biological Basis of Proton and of Carbon Ion Radiation Therapy and Clinical Outcome Data Herman Suit, Thomas F. Delaney and Alexei Trofimov; 1. Introduction; 2. Physics; 2.1. General considerations; 2.2. Need for gantries; 2.3. Penumbra; 2.4. Heterodensities in the beam path a narrow age range. The tumor(s) would be transplanted; 3. Radiation-Biological Considerations; 3.1. Slopes of dose-response curves; 3.2. LET and RBE; 3.3. RBE and dose; 3.4. OER; 4. Clinical Outcome Data; 4.1. Chordoma; 4.2. Chondrosarcoma; 4.3. Uveal melanoma; 4.4. Head and neck 4.5. Non-small-cell lung carcinoma4.6. Hepatocellular carcinoma; 4.7. Prostate carcinoma; 5. Discussion; Acknowledgments; References; The Production of Radionuclides for Radiotracers in Nuclear Medicine Thomas J. Ruth; 1. Introduction; 2. Radioisotope/Radionuclide Production; 2.1. Specific activity [1, 2]; 3. Accelerators; 3.1. Development of the linac; 3.1.1. Principles of operation; 3.1.2. Radio frequency acceleration; 3.1.3. Current linacs; 3.2. Development of the cyclotron; 3.2.1. Principles of cyclotron operation; 3.2.2. Energies and particles; 3.3. Choice of an accelerator 3.3.1. Comparison between cyclotrons and other accelerators [1]4.

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Proton Radiation Therapy in the Hospital Environment: Conception, Development, and Operation of the Initial Hospital-Based Facility James M. Slater, Jerry D. Slater and Andrew J. Wroe

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Sommario/riassunto

The theme of this volume, "Medical Applications of Accelerators", is of enormous importance to human health and has a deep impact on our society. The invention of particle accelerators in the early 20th century created a whole new world for producing energetic X-rays, electrons, protons, neutrons and other particle beams. Immediately these beams found revolutionary applications in medicine. There are two important yet distinct medical applications. One is that accelerators produce radioisotopes for various nuclear medicines for millions of patients each year. The other is that accelerators p
