

# Particle Therapy Technology for Safe Treatment

Jay Flanz

This book provides a practical introduction to particle therapy. It provides a thorough introduction to the tools, their applications, and then details the components that are needed to implement it. It explains the foundations of beam production and beam delivery which serve to meet the necessary clinical requirements.

## KEY FEATURES

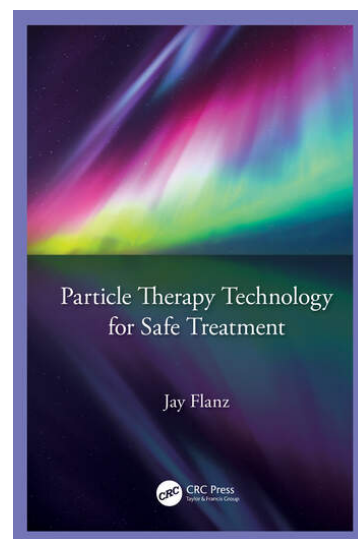
- Presents a practical and accessible journey from application requirements to technical solutions
- Provides a pedagogic treatment of the underlying technology
- Describes how safety is to be considered in the application of this technology and how safety and quality can be factored into the overall system.

## SELECTED CONTENTS

Chapter 1 Introduction. Chapter 2 Evolution of Medical Particles. Chapter 3 A Personal Historical Perspective. Chapter 4 Flow of Requirements. Chapter 5 External Beam Systems. Chapter 6 How to Damage Unwanted Cells. Chapter 7 Exponentials. Chapter 8 Relativistic Dynamics. Chapter 9 Charged Particle Interactions in Matter. Chapter 10 Review of Charged Particle Motion. Chapter 11 Clinical Perspective of Charged Particle Therapy Beams. Chapter 12 Three-Dimensional Dose Conformation. Chapter 13 Accelerator Systems. Chapter 14 Gantries. Chapter 15 Safety in Radiotherapy. Chapter 16 Sensitivities and Tolerances: Scattering. Chapter 17 From Clinical to Technical Tolerances: Scanning. Chapter 18 Afterword. Acknowledgments. Appendix A: Particle Therapy Facilities (as of June 2021). Appendix B: Some Useful Constants. Appendix C: Hazard Topics. Appendix D: Beam QA Frequency Possibility. Appendix E: Some Element and Compound Parameters. Index.

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