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Titolo	Beams : The Story of Particle Accelerators and the Science They Discover / / by Volker Ziemann
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2024
ISBN	3-031-51852-7
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (X, 198 p. 70 illus., 67 illus. in color.)
Collana	Copernicus Books, Sparking Curiosity and Explaining the World, , 2731-8990
Disciplina	539.73
Soggetti	Particle accelerators Particles (Nuclear physics) Physics - History Accelerator Physics Particle Physics History of Physics and Astronomy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro -- Preface -- Contents -- 1 Introduction -- 2 Accelerator Prehistory -- 3 Nature's Accelerators -- 4 The Echo of Rutherford's Call -- 5 The Cosmotron Meets the Strangeness of Physics -- 6 CERN and the Taming of the Zoo -- 7 A Monster Encounters Quarks -- 8 Spearheading Charm -- 9 The Tevatron and Generation Matters -- 10 Particle Horns of Plenty -- 11 Large Hadron Colliders -- 12 Future Accelerators -- 13 Special-Purpose Accelerators -- 14 Epilogue -- Timeline -- Selected Bibliography -- Glossary -- Index.
Sommario/riassunto	This book describes and explains the world of particle accelerators and the physics they study. The presentation is non-technical ($E=mc^2$ is the only equation!) and the prose accessible. By following the co-evolution of particle accelerators and particle physics, readers will learn why the accelerators are built, how they work, and what "results" they produce. The book highlights the great ideas (e.g. synchrotron) and technological advances (superconducting magnets) that boosted the potential of accelerators and led to new discoveries, eventually resulting in the standard model of particle physics. Many concepts are

illustrated with figures derived from three-dimensional models; these include the accelerators, detectors, and particles. Background information about the main protagonists, along with pointers to further reading, e.g. from "Scientific American," are provided in end notes.
