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V.10 Superconducting Magnets; Chapter VI. Colliders; VI.1 Science Motivation; VI.2 Principles; VI.3 Electron-Electron Colliders; VI.4 Electron-Positron Colliders; VI.5 Superconducting Cavities; VI.6 Proton-Proton Colliders; VI.7 Proton-Antiproton Colliders; VI.8 Asymmetric Collider Rings; VI.9 Large Hadron Collider (LHC); VI.10 Heavy-Ion Colliders; Chapter VII. Detectors; VII.1 Early Primitive Detectors VII.2 Scintillators, Photomultipliers and Cerenkov Counters VII.3 Collisions in Three Dimensions; VII.4 A Modern Detector; VII.5 Digital X-ray Imaging; VII.6 Detection Techniques for Synchrotron Radiation Sources; Chapter VIII. Synchrotron Radiation Sources; VIII.1 Scientific Motivation; VIII.2 Principles and Early History; VIII.3 Synchrotron Radiation; VIII.4 First Generation Synchrotron Sources; VIII.5 Second Generation Synchrotron Sources; VIII.6 Third Generation Synchrotron Sources; VIII.7 Angstrom Wavelength Free Electron Laser Facilities VIII.8 Future Fourth Generation Synchrotron Sources Chapter IX. Cancer Therapy Accelerators; IX.1 Cyclotrons; IX.2 Linacs; IX.3 Synchrotrons; IX.4 Other Therapies; IX.5 Future Facilities; Chapter X. Past, Present and Future; X.1 Future Needs; X.2 Linear Colliders and Their Origins; X.3 The International Linear Collider (ILC); X.4 The Compact Linear Collider (CLIC); X.5 Spallation Neutron Sources; X.6 Rare Isotope Accelerators; X.7 Neutrino Super Beams, Neutrino Factories and Muon Colliders; X.8 Accelerators for Heavy Ion Fusion and for Creating High Energy Density Plasmas  
X.9 Proton Drivers for Power Reactors

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#### Sommario/riassunto

This book for the first time chronicles the development of particle accelerators from the invention of electrostatic accelerators, linear accelerators, and the cyclotron to the colliders of today. It also addresses accelerators employed as sources of x-rays, for medical purposes, and in industrial applications. The book identifies the crucial discoveries in applied physics and engineering that have driven the field and gives the reader insight into the people who made these discoveries as well as the methods they used. Particle accelerators exploit every aspect of today's cutting edge technology

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