

Table of Contents

Preface.....	vii
About the Editors.....	ix
List of Contributors	xvii

Volume 1

Part 1 Basic Principles of Detectors and Accelerators	1
1 Interactions of Particles and Radiation with Matter	3
<i>Simon I. Eidelman · Boris A. Shwartz</i>	
2 Electronics Part I.....	25
<i>Helmuth Spieler</i>	
3 Electronics Part II.....	53
<i>Helmuth Spieler</i>	
4 Data Analysis	83
<i>Günther Dissertori</i>	
5 Statistics	103
<i>Glen Cowan</i>	
6 Particle Identification	125
<i>Jürgen Engelfried</i>	
7 Accelerators for Particle Physics	139
<i>Helmut Burkhardt</i>	
8 Synchrotron Radiation and FEL Instrumentation.....	159
<i>Shaukat Khan · Klaus Wille</i>	
9 Calibration of Radioactive Sources	187
<i>Dirk Arnold · Herbert Janßen</i>	
10 Radiation Protection	201
<i>Claus Grupen</i>	

Part 2 Specific Types of Detectors..... 237

11 Gaseous Detectors..... 239
Maxim Titov

12 Tracking Detectors..... 265
Manfred Krammer · Winfried Mitaroff

13 Photon Detectors..... 297
Peter Križan

14 Neutrino Detectors 313
Franz von Feilitzsch · Jean-Côme Lanfranchi · Michael Wurm

15 Scintillation Counters..... 349
Zane W. Bell

16 Semiconductor Counters..... 377
Douglas S. McGregor

17 Gamma-Ray Detectors..... 411
William L. Dunn · Douglas S. McGregor

18 Cherenkov Counters..... 453
Blair Ratcliff · Jochen Schwiening

19 Muon Spectrometers..... 473
Thomas Hebbeker · Kerstin Hoepfner

20 Calorimeters..... 497
Richard Wigmans

21 New Solid State Detectors 519
Christoph J. Ilgner

22 Radiation Damage Effects 535
R.-Y. Zhu