

<<横向自旋物理学/TRANSVERSE S>>

图书基本信息

书名：<<横向自旋物理学/TRANSVERSE SPIN PHYSICS>>

13位ISBN编号：9789812381019

10位ISBN编号：9812381015

出版时间：2003-03

出版时间：World Scientific Publishing Company

作者：Vincenzo Barone, Philip G. Ratcliffe

页数：294

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

内容概要

This book deals with the theory and phenomenology of transverse spin effects in high-energy hadronic physics. Contrary to common past belief, it is now rather clear that these effects are far from irrelevant, A decade or so of intense theoretical work has shed much light on the subject and brought to the surface an entire class of new phenomena, which now await thorough experimental investigation. Over the next few years a number of experiments worldwide (at DESY, CERN and Brookhaven) will run with transversely polarised particles, providing data that will enrich our knowledge of the transverse spin structure of hadrons. It is therefore timely to assess the state of the art, and this is the principal aim of the book. The outline of the book is as follows. After a few introductory remarks (Chapter 1), in the first part (Chapters 2-4) attention is directed to polarised deep inelastic scattering (DIS), particularly DIS on transversely polarised targets, which probes the transverse spin structure function g_2 . This structure function is examined within the framework of the quark-parton model and its improvement via perturbative QCD. The existing data are reviewed and commented on (for completeness and comparison, a brief presentation of longitudinally polarised DIS and of the helicity structure of the proton is provided).

书籍目录

Preface

Chapter 1 Introduction 1.1 The transverse-spin structure function and the transversity distributions
 1.2 A first look at g_2 1.3 A prelude to transversity 1.4 Notation and terminology 1.5

Conventions

Chapter 2 Polarised deeply-inelastic scattering 2.1 Basics of DIS 2.2 The unpolarised cross-section 2.3 Polarised cross-sections 2.4 Target polarisation 2.5 Forward virtual Compton scattering
 2.6 Spin asymmetries 2.7 The partonic content of structure functions 2.7.1 Unpolarised structure functions
 2.7.2 The longitudinal spin structure function 2.7.3 The transverse-spin structure function
 2.8 Mellin moments of polarised structure functions 2.8.1 The first moment of g_1 2.8.2 The Bjorken sum rule
 2.8.3 The Wandzura-Wilczek relation 2.8.4 The Burkhardt-Cottingham sum rule 2.8.5 The Efremov-Leader-Teryaev sum rule 2.9 Experimental results on polarised structure functions. 2.10

Transverse spin in electroweak DIS

Chapter 3 The transverse-spin structure of the proton 3.1 The quark-quark correlation matrix 3.2 Leading-twist distribution functions 3.3 Probabilistic interpretation of distribution functions
 3.4 Vector, axial and tensor charges 3.5 Quark-nucleon helicity amplitudes 3.6 The Softer inequality
 3.7 Transverse motion of quarks 3.8 Twist-three distributions 3.9 Sum rules for AT_f and g_T
 3.10 T-odd distributions 3.11 Model calculations 3.11.1 Models for the transversity distributions
 3.11.2 Calculations of the tensor charges 3.11.3 Models for g_2

Chapter 4 The QCD evolution of transversity
 4.1 The renormalisation-group equation 4.2 QCD evolution at leading order 4.3 QCD evolution at next-to-leading order
 4.4 Fragmentation functions at next-to-leading order 4.5 Evolution of the transversity distributions
 4.6 Evolution of the Softer inequality and positivity constraints 4.7 The low- x behaviour of h_i

Chapter 5 The g_2 structure function in QCD 5.1 The operator-product expansion--non-singlet 5.2 Ladder-diagram summation
 5.3 Singlet g_2 in LO 5.4 Non-singlet and singlet coefficients g_2 in NLO 5.5 Sum rules for g_2 in QCD
 5.5.1 The Burkhardt-Cottingham sum rule in QCD 5.5.2 The Wandzura-Wilczek relation in QCD.....

Chapter 6 Transversity in Drell-Yan Production

Chapter 7 Transversity in inclusive lepton production

Chapter 8 Transversity in inclusive Hadron production

Appendix A Polarisation of A Dirac particle

Appendix B Sudakov decomposition of vectors

Appendix C Projectors for structure functions

Appendix D Reference frames

Appendix E Dimensional regularisation and minimal subtraction

Appendix F Mellin-moment identities

Bibliography

Index

版权说明

本站所提供下载的PDF图书仅提供预览和简介, 请支持正版图书。

更多资源请访问:<http://www.tushu007.com>