

CONTENTS

Preface.....	ix
Photos	xiii

STRONG INTERACTIONS

Introduction to Relativistic Gases.....	3
T. Kodama	
High-Energy Nuclear Interactions and QCD: An Introduction.....	27
D. E. Kharzeev and J. Raufeisen	
A QCD Primer	70
G. Altarelli	
Lattice QCD at Finite Temperature	112
F. Karsch	
Quark-Gluon Plasma and Strangeness	142
J. Rafelski and J. Letessier	
QCD Vacuum and Confinement	168
A. Di Giacomo	
Introduction to Effective Field Theories in QCD.....	191
U. van Kolck, L. J. Abu-Raddad, and D. M. Cardamone	
The Nucleon and the Nuclear Force: Effective Theory and Path-Integral Methods	221
L. J. Abu-Raddad	
Relativistic Quantum Transport Theory	229
H.-T. Elze	

EXPERIMENTS

RHIC Physics Overview	255
J. W. Harris, C. Beckmann, J. Gans, and K. H. Gulbrandsen	
Introduction to Ultrarelativistic Heavy-Ion Physics at the CERN-SPS	294
F. Antinori, A. Billmeier, and J. Zaranek	
PHENIX for Beginners	325
W. A. Zajc (for the PHENIX Collaboration) and P. Fachini	
Survey of Recent Results from the PHOBOS Experiment at RHIC.....	349
C. Roland (for the PHOBOS Collaboration)	
K*(892)⁰ Production in Relativistic Heavy-Ion Collisions	358
P. Fachini (for the STAR Collaboration)	
Azimuthal Anisotropy of K_S^0 and Λ Production at Mid-rapidity from Au+Au Collisions at $\sqrt{S_{NN}}=130$ GeV	366
P. Sorensen (for the STAR Collaboration)	
Multi-strange Baryon Production at Mid-rapidity in Au+Au Collisions at $\sqrt{S_{NN}}=130$ GeV	371
J. Castillo (for the STAR Collaboration)	

Particle Tracking.....	377
K. Safairik, I. Kraus, J. Newby, and P. Sorensen	

RELATIVISTIC HEAVY-ION COLLISIONS

Physics of Event Generators	397
K. Werner	
Baryon Production in Proton-Proton Collisions.....	422
F. M. Liu and K. Werner	
Hydrodynamics for Modeling Ultrarelativistic Heavy-Ion Reactions	428
L. P. Csemai	
Nonequilibrium Hydrochemistry in QGP Hadronization	460
J. Rafelski and J. Letessier	
Nonlinear Behavior of Quarkonium Formation and Deconfinement Signals	* 490
R. L. Thews	
Nuclear Effects in the Drell-Yan Process	525
J. Raufeisen	
Strange Hadron Resonances: Freeze-Out Probes in Heavy-Ion Collisions.....	533
C. Markert, G. Torrieri, and J. Rafelski	
Critical Review of Quark Gluon Plasma Signatures	553
H. Stocker, J. Berger, U. Eichmann, S. Salur, S. Scherer, and D. Zschiesche	
Hot Hadronic Matter with the NJL Model	580
J. Aichelin, G. Torrieri, and F. Gasticneau	
Purpose and Physics of Event-by-Event Analysis	* 599
T. A. Trainor	

LATIN-AMERICAN RESEARCH

QCD/QGP in Latin America 2002	615
E. Ferreira	
Λ^0 Polarization and QGP Production in High-Energy Heavy-Ion Collisions.....	620
A. Ayala, E. Cuautle, G. Herrera, and L. M. Montaño	
Soft and Hard QCD in Charmonium Production	631
C. Brenner Mariotto, M. B. Gay Ducati, and G. Ingelman	
Unitarity Corrections and Structure Functions	637
M. B. Gay Ducati and M. V. T. Machado	
Particle Emission in Hydrodynamics: A Problem Not Yet Solved	646
F. Grassi	
The F_2^D Logarithmic Slope and the Saturation Phenomena	655
M. V. T. Machado	
Small Quark Stars in the Chromodielectric Model	658
M. Malheiro, E. O. Azevedo, L. G. Nuss, M. Fiolhais, and A. Taurines	

Strangelets and Their Possible Astrophysical Origin.....	666
L. Masperi	
Is Nuclear Multifragmentation Related with the Liquid-Gas	
Phase Transition?	672
D. P. Menezes and C. Providencia	
QCD Sum Rules Applications to the J/ψ Dissociation.....	676
M. Nielsen, F. S. Navarra, R. S. Marques de Carvalho, G. Krein, and	
M. E. Bracco	
Hydrodynamical Evolution from Event-by-Event Fluctuating	
Initial Conditions	686
T. Osada, C. E. Aguiar, Y. Hama, and T. Kodama	
Finite Temperature and Density in Nonlocal Chiral Quark Models.....	695
N. N. Scoccola and D. Gomez Dumm	
Front Form Approach to $q\bar{Q}$ Mesons with Harmonic Confinement,	704
C. A. Z. Vasconcellos, M. Dillig, E. F. Lütz, F. G. Pilotto, and	
G. F. Marranghello	
Crossing Symmetry Violation of Inverse Amplitude Method.. .,.,.,.,.	713
I. P. Cavalcante and J. Sá Borges	
Bosons Production W^\pm via e-p-Collisions at CERN LEP/LHC	
Energies with a W^\pm Anomalous Magnetic Moment.....	715
A. Gutierrez-Rodriguez	
Nucleon-Nucleon Potential: Relativistic and Heavy Baryon Formalism.	717
R. Higa	
Models of Black Hole Production at LHC	719
R. Klippert and C. J. Solano Salinas	
Proton-Proton Total Cross-Section Scenarios at Cosmic-Ray Energies	721
E. G. S. Luna and M. J. Menon	
Charmonium-Pion Cross Section from QCD Sum Rules	723
F. S. Navarra, M. Nielsen, R. S. Marques de Carvalho, and G. Krein	
Coulomb Gauge Quark Model, Vacuum Condensates, and	
High-Density Quark Matter	725
P. K. Panda and G. Krein	
Author Index.....	727