

XVI Workshop on High Energy Spin Physics (D-SPIN 2015)

Journal of Physics: Conference Series Volume 678

Dubna, Russia
8 - 12 September 2015

ISBN: 978-1-5108-2089-0
ISSN: 1742-6588

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2015) by the Institute of Physics
All rights reserved. The material featured in this book is subject to
IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

Table of contents

Volume 678

XVI Workshop on High Energy Spin Physics (D-SPIN2015)
8–12 September 2015, Dubna, Russia,

Accepted papers received: 10 December 2015
Published online: 5 February 2016

Preface

011001

[XVI Workshop on High Energy Spin Physics \(D-SPIN2015\)](#) OPEN ACCESS R
Lednicky

011002

[Peer review statement](#) OPEN ACCESS

Papers

012001

[The QCD evolution of TMD in the covariant approach](#) OPEN ACCESS A.V. Efremov,
O.V. Teryaev and P. Zavada pg. 1

012002

[About measurements of Higgs boson parity](#) OPEN ACCESS I. F. Ginzburg pg. 5

012003

[Transition of polarized ions through the system of ring permanent magnets](#) OPEN
ACCESS V V Fimushkin, I V Gapienko, Yu A Plis and Yu V Prokofichev pg. 8

012004

[Study for a Design of Magnet System for the SPD Detector NICA LHEP JINR](#) OPEN
ACCESS Ivan P. Yudin pg. 12

012005

[Upgraded polarized target for polarized Drell-Yan measurement at COMPASS](#) OPEN
ACCESS Michael Pešek pg. 16

012006

[Deformed nucleon, vorticity and proton spin](#) OPEN ACCESS G. Musulmanbekov pg. 20

012007

[A gravitating electroweak bag model](#) OPEN ACCESS Alexander Burinskii pg. 24

012008

[Model for non-perturbative contributions to the quark distributions](#) OPEN ACCESS B I
Ermolaev and S I Troyan pg. 28

012009

[Photo-absorption sum rules \$\sigma_{-1}\$ in different environments](#) OPEN ACCESS S.B.
Gerasimov pg. 34

012010

[Gravitational lensing and polarization in astrophysics](#) OPEN ACCESS Alexander F.
Zakharov pg. 38

012011

[Possible measurements of the spin one observables in elastic dN, dd collisions at the
NICA deuteron beams](#) OPEN ACCESS V I Sharov pg. 44

012012

[Sivers, Boer-Mulders and transversity distributions in the difference cross sections in
SIDIS](#) OPEN ACCESS Ekaterina Christova and Elliot Leader pg. 50

012013

[Sneutrino identification in tau pair production at ILC with polarized beams](#) OPEN
ACCESS A A Pankov and A V Tsytrinov pg. 56

012014

[Recent results from the NN-interaction studies with polarized beams and targets at ANKE-COSY](#) OPEN ACCESS Sergey Dymov pg. 60

012015

[Superconducting racetrack booster for the ion complex of MEIC](#) OPEN ACCESS Yu Filatov, A M Kondratenko, M A Kondratenko, A Kovalenko, Ya S Derbenev, F Lin, V S Morozov and Y Zhang pg. 68

012016

[Lightlike solitons with spin](#) OPEN ACCESS Alexander A. Chernitskii pg. 72

012017

[Generalized DGLAP evolution](#) OPEN ACCESS D Stróżik-Kotlorz, S V Mikhailov and O V Teryaev pg. 76

012018

[Infrared modified QCD couplings and Bjorken sum rule](#) OPEN ACCESS V L Khandramai, O V Teryaev and I R Gabdrakhmanov pg. 80

012019

[Spin observables in antihyperon-hyperon production at PANDA at FAIR](#) OPEN ACCESS Michael Papenbrock pg. 84

012020

[Double-Polarized pd Scattering and Test of Time-reversal Invariance](#) OPEN ACCESS Yuriy Uzikov pg. 90

012021

[Di-hadron asymmetry and interplay between transversity induced asymmetries in hadron leptoproduction at COMPASS](#) OPEN ACCESS Giulio Sbrizzai pg. 94

012022

[Orbital parameters of proton and deuteron beams in the NICA collider with solenoid Siberian snakes](#) OPEN ACCESS A D Kovalenko, A V Butenko, V D Kekelidze, V A Mikhaylov, M A Kondratenko, A M Kondratenko and Yu N Filatov pg. 98

012023

[Numerical calculation of ion polarization in the NICA collider](#) OPEN ACCESS A D Kovalenko, A V Butenko, V D Kekelidze, V A Mikhaylov, M A Kondratenko, A M Kondratenko and Yu N Filatov pg. 102

012024

[Momentum transfer dependence of GPDs](#) OPEN ACCESS O.V. Selyugin pg. 106

012025

[The gluon masses](#) OPEN ACCESS S.A. Larin pg. 112

012026

[The \$Q_{weak}\$ Experiment: First Direct Measurement of the Weak Charge of the Proton](#) OPEN ACCESS J.F. Dowd pg. 118

012027

[The physics program of PAX at COSY](#) OPEN ACCESS Yury Valdau, Alexander Aksentyev, Dieter Eversheim and Bernd Lorentz pg. 125

012028

[Polarimetry with inclusive charged pions at U-70 accelerator of IHEP](#) OPEN ACCESS V L Rykov, V V Abramov, A A Bogdanov, V V Mochalov, S B Nurushev, P A Semenov, M N Strikhanov and A N Vasiliev pg. 131

012029

[Renormdynamics, Discrete Dynamics and Spin](#) OPEN ACCESS Nugzar Makhaldiani pg. 135

012030

[Unbiased polarized PDFs upgraded with new inclusive DIS data](#) OPEN ACCESS Emanuele R. Nocera pg. 139

012031

[Study of polarization effects at Nuclotron](#) OPEN ACCESS V P Ladygin, M Janek, P K Kurilkin, N B Ladygina, P N Batyuk and S P Mertz pg. 143

012032

[Simulation of \$^3He\(d,p\)\$ \$^4He\$ reaction and recent results of the experimental investigation of \$dp\$ breakup reaction](#) OPEN ACCESS M Janek, P K Kurilkin, G Tarjanyiova, V P Ladygin, Yu V Gurchin, A Yu Isupov, J-T Karachuk, A N Khrenov, A K Kurilkin, A N Livanov, G Martinska, S M Piyadin, S G Reznikov, S P Merts, P N Batyuk, A A Terekhin and I E Vnukov pg. 151

012033

[The impact of vector mesons polarization on meson-nucleon interaction](#) OPEN ACCESS Sergey Gevorkyan pg. 155

012034

[Elastic scattering polarimeter for a polarized antiproton beam at U-70 accelerator of IHEP](#) OPEN ACCESS A A Bogdanov, M A Chetvertkov, V A Chetvertkova, V I Garkusha, A P Meschanin, V V Mochalov, M B Nurusheva, S B Nurushev, A V Ridiger, V L Rykov, P A Semenov, M N Strikhanov, A N Vasiliev and V N Zapolsky pg. 159

012035

[Role of pion pole in hard exclusive meson leptoproduction](#) OPEN ACCESS Sergey Goloskokov pg. 163

012036

[Cosmic censorship and stationary states of half-spin particles in the field of Reissner-Nordström naked singularity](#) OPEN ACCESS M V Gorbatenko, V P Neznamov, E Yu Popov and I I Safronov pg. 169

012037

[Analysis of half-spin particle motion in static Reissner-Nordström and Schwarzschild fields](#) OPEN ACCESS M V Gorbatenko, V P Neznamov and E Yu Popov pg. 173

012038

[Overview of recent HERMES results](#) OPEN ACCESS Hrachya Marukyan pg. 177

012039

[Single-spin asymmetry in pp and pA-collisions](#) OPEN ACCESS V V Abramov pg. 185

012040

[Charge exchange \$d\mu \rightarrow \(pp\)n\$ reaction study at 1.75 A GeV/c by the STRELA spectrometer](#) OPEN ACCESS S.N. Basilev, Yu.P. Bushuev, V.V. Glagolev, S.A. Dolgiy, D.A. Kirillov, N.V. Kostyaeva, A.D. Kovalenko, A.N. Livanov, P.K. Manyakov, G. Martinská, J. Mušinský, N.M. Piskunov, A.A. Povtoreiko, P.A. Rukoyatkin, R.A. Shindin, I.M. Sitnik, V.M. Slepnev, I.V. Slepnev and J. Urbán pg. 189

012041

[Radiative decays of light vector mesons in Poincare invariant quantum mechanics](#) OPEN ACCESS Viktor Andreev and Vadzim Haurysh pg. 193

012042

[Non-singlet \$Q^2\$ -evolution by inverse Mellin transform in the analytic perturbation theory](#) OPEN ACCESS A V Sidorov and O P Solovtsova pg. 197

012043

[Study of spin-density matrix in exclusive electroproduction of \$\omega\$ meson at HERMES](#) OPEN ACCESS S I Manaenkov pg. 201

012044

[Self-similarity of proton spin and z-scaling](#) OPEN ACCESS M Tokarev and I Zborovský pg. 207

012045

[Recent results from COMPASS on exclusive muoproduction](#) OPEN ACCESS Andrzej Sandacz pg. 211

012046

[Spin physics and biological membranes](#) OPEN ACCESS Yury Kiselev pg. 217

012047

[Polarized antiproton beam at U-70 accelerator of IHEP](#) OPEN ACCESS S B Nurushev, M A Chetvertkov, V A Chetvertkova, V I Garkusha, A P Meschanin, V V Mochalov, M

B Nurusheva, V L Rykov, P A Semenov, M N Strikhanov, A N Vasiliev and V N Zapolsky pg. 221

012048

[Study of single-spin asymmetries with polarized target at the SPASCHARM experiment at U70 accelerator](#) OPEN ACCESS V V Mochalov, V V Abramov, N A Bazhanov, N I Belikov, A A Borisov, N S Borisov, S I Bukreeva, Y M Goncharenko, A M Davidenko, A A Derevschikov, R M Fahrutdinov, A S Kozhin, A B Lazarev, Y M Melnik, A P Meschanin, N G Minaev, D A Morozov, A B Neganov, L V Nogach, S B Nurushev, V S Petrov, A F Prudkoglyad, A V Ryazantsev, V L Rykov, S V Ryzhikov, P A Semenov, V A Senko, N A Shalanda, O N Shchevelev, M M Soldatov, L F Soloviev, M N Strikhanov, A N Vasiliev, Y A Usov, V I Yakimchuk and A E Yakutin pg. 228

012049

[Fully gauge-invariant maximally path-dependent gluon TMD: Coordinate representation](#) OPEN ACCESS Igor O. Cherednikov pg. 234

012050

[Sivers Asymmetry in J/ \$\psi\$ Production in COMPASS 2010 Proton Data](#) OPEN ACCESS Jan Matoušek pg. 239

012051

[Recent results on TMDs from the HERMES experiment](#) OPEN ACCESS V A Korotkov pg. 243

012052

[Constituent quarks in the Standard Model](#) OPEN ACCESS Sergey Sukhoruchkin pg. 249

012053

[Use of the calorimeter to improve analyzing power of the reactions, investigating secondary proton polarization](#) OPEN ACCESS S N Basilev, Yu P Bushuev, V V Glagolev, D A Kirillov, N V Kostyaeva, A D Kovalenko, A N Livanov, D Marchand, G Martinska, J Musinsky, C F Perdrisat, N M Piskunov, P A Rukoyatkin, V Punjabi, R A Shindin, I M Sitnik, V. M Slepnev, I V Slepnev, E Tomasi-Gustafsson, J Urban and V Wang pg. 253

012054

[Current status of the muon g-2](#) OPEN ACCESS A. E. Dorokhov, A. E. Radzhabov and A. S. Zhevlakov pg. 257

012055

[The Gluon Contribution to the Sivers Effect COMPASS results](#) OPEN ACCESS Krzysztof Kurek and Adam Szabelski pg. 262

012056

[Novel effects in twist-three SSA](#) OPEN ACCESS I.V. Anikin and O. V. Teryaev pg. 268

012057

[Measurement of Collins asymmetry at BESIII](#) OPEN ACCESS Xiao-Rui Lyu pg. 274

012058

[Development of polarized ion source for the JINR accelerator complex](#) OPEN ACCESS V V Fimushkin, A D Kovalenko, L V Kutuzova, Yu V Prokofichev, B Shutov, A S Belov, V N Zubets and A V Turbabin pg. 280

012059

[The RHIC Spin Program Overview](#) OPEN ACCESS A. Bazilevsky pg. 285

012060

[The method for measuring of the characteristics of the cosmic ray dipole anisotropy in the PAMELA experiment](#) OPEN ACCESS S A Voronov and A V Kareljin pg. 293

012061

[Measurement conditions in the space experiment MONICA](#) OPEN ACCESS A.V. Bakaldin, A.V. Kareljin, S.V. Koldashov and S.A. Voronov pg. 297

012062

[The method of event selection for nuclei separation with the calorimeter in the PAMELA experiment](#) OPEN ACCESS A V Kareljin, V L Likhacheva and S A Voronov pg. 304

012063

[Azimuthal asymmetries of hadrons produced in muon SIDIS off longitudinally polarized deuterons](#) OPEN ACCESS I.A. Savin pg. 309