

## CONTENTS

Organizing Committee v

Preface vii

### SESSION PRESENTATIONS

Hard Exclusive Scattering at JLab 1

*P. Kroll*

AdS/CFT and Exclusive Processes in QCD 19

*S.J. Brodsky and G.F. de Téramond*

Hadron Structure Matters in Collisions at High  
Energy and Momentum 45

*A.W. Thomas*

Inclusive Perspectives 55

*P. Hoyer*

Fitting DVCS at NLO and Beyond 70

*K. Kumerički, D. Müller and K. Passek-Kumerički*

Spin-Orbit Correlations and Single-Spin Asymmetries 78

*M. Burkardt*

Electroproduction of Soft Pions at Large  
Momentum Transfers 87

*V.M. Braun, D. Yu. Ivanov and A. Peters*

Color Transparency: 33 Years and Still Running 95

*M. Strikman*

Meson Clouds and Nucleon Electromagnetic  
Form Factors 104

*G.A. Miller*

Covariance, Dynamics and Symmetries, and Hadron Form Factors	112
<i>M.S. Bhagwat, I.C. Cloët and C.D. Roberts</i>	
$N$ to $\Delta$ Electromagnetic and Axial Form Factors in Full QCD	121
<i>C. Alexandrou</i>	
Real and Virtual Compton Scattering in Perturbative QCD	130
<i>C.-R. Ji and R. Thomson</i>	
Deeply Virtual Compton Scattering at Jefferson Lab	138
<i>F. Sabatie</i>	
DVCS at HERMES: Recent Results	146
<i>F. Ellinghaus</i>	
Deeply Virtual Compton Scattering with CLAS	154
<i>F.X. Girod</i>	
Deeply Virtual Compton Scattering off the Neutron at JLab Hall A	159
<i>M. Mazouz</i>	
The Future DVCS Experiments in Hall A at JLab	163
<i>J. Roche</i>	
Deeply Virtual Compton Scattering with CLAS12	167
<i>L. Elouadrhiri</i>	
Quark Helicity Flip and the Transverse Spin Dependence of Inclusive DIS	173
<i>A. Afanasev, M. Strikman and C. Weiss</i>	
Deeply Virtual Pseudoscalar Meson Production	181
<i>V. Kubarovsky and P. Stoler</i>	
Exclusive $\rho^0$ Electroproduction on the Proton: GPDs or not GPDs?	190
<i>M. Guidal and S. Morrow</i>	

$\rho^0$ Transverse Target Spin Asymmetry at HERMES <i>A. Airapetian</i>	201
Electroproduction of $\phi(1020)$ Mesons <i>J.P. Santoro and E.S. Smith</i>	206
Generalized Parton Distributions from Hadronic Observables <i>S. Ahmad, H. Honkanen, S. Liuti and S.K. Taneja</i>	211
Imaging the Proton via Hard Exclusive Production in Diffractive $pp$ Scattering <i>C.E. Hyde, L. Frankfurt, M. Strikman and C. Weiss</i>	219
Regge Contributions to Exclusive Electro-Production <i>A.P. Szczepaniak and J.T. Londergan</i>	225
High Energy Break-up of Few-Nucleon Systems <i>M. Sargsian</i>	231
Photodisintegration of the Deuteron, and $^3\text{He}$ <i>R. Gilman</i>	239
A Review of the Few-Body Form Factors <i>G.G. Petratos</i>	247
Nucleon Form Factor Measurements and Interpretation <i>C.F. Perdrisat</i>	253
Implications of $G_E^p(Q^2)/G_M^p(Q^2)$ <i>S. Dubnička and A.Z. Dubničkova</i>	263
High $Q^2$ Large Acceptance $G_E^p/G_M^p$ Measurements Using Polarization Transfer <i>L. Pentchev, C.F. Perdrisat and B. Wojtsekhowski</i>	270
A Precise Measurement of the Neutron Magnetic Form Factor $G_M^n$ in the Few-GeV <sup>2</sup> Region <i>G.P. Gilfoyle et al. (the CLAS Collaboration)</i>	275
Magnetic Form Factor of the Neutron up to $8 (\text{GeV}/c)^2$ <i>B. Quinn</i>	279

Timelike Form Factors <i>K.K. Seth</i>	283
Polarization Phenomena in $e^+e^- \rightarrow p\bar{p}$ Revisited <i>A.Z. Dubničkova and S. Dubnička</i>	292
Light-Cone Sum Rules for Form Factors of the $N\gamma\Delta$ transition at $Q^2 = 0$ <i>J. Rohrwild</i>	298
Exclusive Electroproduction of $\pi^0$ Mesons <i>A.N. Villano (for the JLab E01-002 Collaboration)</i>	304
Exclusive Electroproduction of $\eta$ Mesons in the $S_{11}(1535)$ Resonance Region at High Momentum Transfer <i>M.M. Dalton (for the JLab E01-002 Collaboration)</i>	314
Two-Photon Exchange in Electron-Proton Elastic Scattering: Theory Update <i>A.V. Afanasev</i>	320
Two-photon Exchange Contributions to Elastic $ep$ Scattering in the Non-local Field Formalism <i>P. Jain, S.D. Joglekar and S. Mitra</i>	329
Beyond the Born Approximation: A Precise Comparison of Positron-Proton and Electron-Proton Elastic Scattering in CLAS <i>J. Lachniet et al.</i>	334
Meson Form Factors in the Space-Like Region <i>D. Gaskell</i>	342
Pion-Nucleon Distribution Amplitudes <i>A. Peters</i>	350
$\pi N \rightarrow$ Multi- $\pi n$ Scattering in the $1/N_c$ Expansion <i>H.J. Kwee</i>	356
$e^+e^-$ Annihilations into Quasi-Two-Body Final States at 10.58 GeV <i>Kai Yi</i>	360

Transition Distribution Amplitudes <i>J.P. Lansberg, B. Pire and L. Szymanowski</i>	367
Novel QCD Effects From Initial and Final State Interactions <i>S.J. Brodsky</i>	375
Parton Distributions and Spin-Orbital Correlations <i>F. Yuan</i>	388
Transverse Momentum Dependences of Distribution and Fragmentation Functions <i>D.S. Hwang and D.S. Kim</i>	394
Flavor Dependence of the Boer-Mulders Function and its Influence on Azimuthal and Single-Spin Asymmetries in Semi-Inclusive DIS <i>L.P. Gamberg, G.R. Goldstein and M. Schlegel</i>	401
Symmetric Spin-Dependent Structure Function in Deep Inelastic Processes <i>D.S. Hwang, J.H. Kim and S. Kim</i>	412
HERMES Recoil Detector <i>R. Perez-Benito</i>	417
Inner Calorimeter in CLAS/DVCS Experiment <i>R. Niyazov</i>	421
Frozen-Spin HD as a Possible Target for Electro-Production Experiments <i>A.M. Sandorfi et al.</i>	425
Participants List	431