

2018 CV: Stanley J. Brodsky

- Professor, Particle Physics and Astrophysics
- SLAC National Accelerator Laboratory, Stanford University
- Group: Theoretical Physics
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1 Major Physics Awards

- I was awarded the International Pomeranchuk Prize for 2015.
<https://www.dropbox.com/s/k57gv3gl11x761r/Awards.pdf?dl=0>
The Pomeranchuk Prize is a major international award for theoretical physics, awarded annually since 1998 by the Institute for Theoretical and Experimental Physics (ITEP) from Moscow to one international scientist and one Russian scientist, It is named after Russian physicist Isaak Yakovlevich Pomeranchuk, who together with Lev Landau, established the Theoretical Physics Department of the Institute.
The Laureates for 2015 were Professor Victor Fadin and myself.
- I was the Recipient of the 2007 J. J. Sakurai Prize in Theoretical Physics, awarded by the American Physical Society.
- I was honored in October 2016 to receive the honorary degree of *doctor scientiarum honoris causa* (dr.scient.h.c.) from Southern Denmark University
- Alexander von Humboldt Distinguished U.S. Senior Scientist Award, 1987
- Fellow, American Physical Society;
- Elected Chair of the Hadron Physics Topical Physics Group (GHP) of the American Physical Society, 2010.

2 Stanford Faculty Committee

I am currently the SLAC Representative to the Stanford University Faculty Committee: C-ACIS Committee on Academic Computing and Information Systems, 2014-present

3 Education

B.S., 1961, Physics; Ph.D., 1964, University of Minnesota.

4 Professional Academic History

- Research Associate, Columbia University, 1964-1966;
- Research Associate, SLAC, Stanford, 1966-1968;
- Permanent Staff, Theoretical Physics, SLAC, Stanford, 1968-1975;
- Associate Professor, SLAC, Stanford, 1975-1976;
- Professor, SLAC, Stanford, 1976-present;
- Head, Theoretical Physics Group, SLAC, 1996-2002.

5 Visiting Professorships and Lecturer

- Principal Lecturer, Galileo Galilei Institute in Florence for the PhD school in Nuclear and Hadronic physics. February 19-23, 2019
- GIAN Lecturer (Global Initiative for Academic Networks) University of Mumbai, 2017
- Visiting Professor, Natural Sciences, Institute for Advanced Study, Princeton University, 1982;
- Visiting Professor, Physics Department, College of William and Mary, 2003;
- First Nathan Isgur Distinguished Fellow at the Thomas Jefferson Laboratory, 2003.
- Sackler Lecturer, Tel Aviv University, 2006.
- Appointed the Hans Christian Andersen Academy Visiting Professor, Southern Denmark University and CP3-Origins, Center for Particle Physics and Phenomenology , 2010-2011
- Appointed Schrödinger Professor, City of Vienna and the University of Vienna, 2012
- Visiting Professor and Lecturer, Instituto de Fisica Seminar Universidad Auto'noma de San Luis Potos, Mexico, in 2014
- Visiting Professor and Lecturer, University of Kansas, Lawrence, Kansas, in 2014
- AVCO Professorship at Cornell University in 1970
- Visiting Professorship, DAMTP, Cambridge University, Cambridge England 1974,
- Visiting Professor, Weizmann Institute in 1978 and 1994,
- Visiting Professor, University of California at Santa Barbara in 1978 and 1981
- Visiting Professor, University of Melbourne in 1987,
- Visiting Professor, University of Heidelberg and the Max Planck Institute for Nuclear Physics in Heidelberg in 1987 as a Recipient of the U.S. Humboldt Distinguished Scientist Award
- Visiting Professor, University of Helsinki in 1992,
- Visiting Professor, University of Federico Santa Maria, Valparaiso, Chile in 1994
- First Distinguished Isgur Fellow at the Thomas Jefferson Laboratory and the College of William and Mary in 2003
- Sackler Lecturer at Tel Aviv University in 2006
- Visiting Professor at the Yang Institute of Theoretical Physics at the State University of New York at Stony Brook in 2007
- Visiting Scientist, Brookhaven National Laboratory 2007
- Visiting Professor, Institute for Particle Physics Phenomenology, University of Durham, Durham, England in 2008
- Principal Lecturer at the GIAN School: Global Initiative for Academic Networks, University of Mumbai, 2017

6 New SLAC Program

Collaboration with Professors David Reis and Phil Bucksbaum on a new possible new interdisciplinary institute in photon science and hadron physics.

7 Statistics

- I have contributed to 657 scientific articles and books with over 46,600 citations. I have published 37 papers since January 1, 2016, according to InSpire.
- My H-ranking is 108 - i.e., more than 108 papers with over 103 citations. I have published 16 papers with over 500 citations, 5 papers with over 1000 citations, and 1 paper with over 3300 citations.
- I presented more than 26 invited seminars, colloquia, and plenary talks in 2017.
- I gave more than 25 invited seminars, colloquia, and plenary talks in 2016.

8 Supervisor of Stanford University Graduate Student

Kelly Chiu, Ph. D. Candidate, Stanford University/SLAC

9 Supervision of International Graduate Students

- Joseph Day, Ph. D. Candidate, University of Graz
- Arkadiusz P. Trawinski, Ph. D. Candidate, University of Warsaw
- Matin Mojaza, Ph. D. Candidate, University of Southern University
- Rafael Delgado, Ph. D. Candidate, University of Madrid

10 Ph.D. Students

- I have supervised a number of outstanding Ph. D. students at Stanford who now have academic positions, including G. Peter Lepage (Cornell), Jonathan Sapirstein (Notre Dame), Kent Hornbostel (Southern Methodist University), and Joseph Kiskis (University of California at Davis). Other Ph.D. recipients include Hung Jung Lu and Michael Binger.
- His current Stanford Ph.D. graduate student is Kelly Y. J. Chiu.
I also counsel several visiting students, postdocs and visiting faculty at SLAC, including Rafael Delgado, Arek Trawinski, Marina Nielsen, and Qin Chang.

11 Advisor of International Senior Visitors

1. Dr. Xing Gang Wu, Chongqing University
2. Dr. Gang Li, Hefei University
3. Dr. Leonardo Di Giustino, University of Padua
4. Dr. Alinaghi Khorramian, Semnan University (Guest of Professor Leonard Susskind at Stanford University)
5. Dr. Qin Chang, Institute of Particle and Nuclear Physics, Henan Normal University, Henan 453007, China
6. Dr. Peter Lowdon, Recipient of Swiss National Science Foundation Fellowship

12 Grants

- FSCIS (France-Stanford Center for Interdisciplinary Studies): a grant awarded to Dr. Jean-Phillipe Lansberg (Orsay) and myself to develop plans for a high energy fixed target program at the LHC. This grant supported my trip to Orsay as well as a conference devoted to the EIC and AFTER.
- CRDF (Cooperative Research Develop Fund): A grant awarded to Professor Boris Ioffe (ITEP) and myself to foster US-Russian collaborations. This grant supported my December 8-16, 2011 trip to Moscow, including invited talks at the Lebedev Institute in Moscow, INR in Troitsk, and JINR at Dubna.

13 News Articles

- *SLACs Stanley Brodsky Shares Pomeranchuk Prize for Theoretical Physics*
SLAC Today: <https://www6.slac.stanford.edu/news/2016-01-08-stanley-brodsky-shares-pomeranchuk-prize-theoretical-physics.aspx>
Science 20
http://www.science20.com/a_quantum_diaries_survivor/\stan_brodsky_wins_pomeranchuk_prize-163179
- *SLAC Today:*
<http://www6.slac.stanford.edu/news/2013-08-07-renorm2.aspx>
- *SLAC Theorist Helps Sharpen Tests of Fundamental Theory in High Energy Experiments* In a paper published in Physical Review Letters, Brodsky and his colleagues Matin Mojaza of CP3-Origins at the University of Southern Denmark and Xing-Gang Wu of Chongqing University in China have presented a method that will help theorists to automatically eliminate an important theoretical ambiguity of QCD predictions.
- *Science Nordic:* <http://sciencenordic.com/effective-method-quest-new-physics>
- *Effective method in quest for new physics* CERNs Large Hadron Collider particle accelerator smashes protons together with such great force that it can give birth to hitherto unknown particles. A new method makes it easier to recognize the new particles.
- *CP3 Newsletter:* <http://cp3-origins.dk/a/11340>
Together with colleagues Stanley J. Brodsky from Stanford University (U.S.) and Xing-Gang Wu from Chongqing University (China), Matin Mojaza has succeeded in creating a new method that makes it easier to search for new physics in the universe.
- *University of Vienna Newsletter*
http://particle.univie.ac.at/news/singleview/\article/erwin-schroedinger-visiting-scientist-2012/?tx_ttnews5BbackPid5D=157866&cHash=d88bef8c9cad2e1505939c2acdde6bb3
Prof. Stanley Brodsky, SLAC, is this year's Erwin-Schrödinger guest professor
- *RedOrbit: Your Universe Online* url <http://www.redorbit.com/news/science/1112939025/research-expose-aspects-of-universe-090413/>
New Research May Expose New Aspects Of The Universe, September 4, 2013
<http://www.redorbit.com/news/science/1112939025/research-expose-aspects-of-universe-090413/#WodPOEifWe5c784Y.99>
- *Theorists reveal path to "true muonium"* Symmetry magazine-May 29, 2009
<https://www.symmetrymagazine.org/breaking/2009/05/29/theorists-reveal-path-to-true-muonium>

14 Advisory Committees and Editorial Appointments

- Foreign Scientific Member and External Scientific Director, Max Planck Institute for Nuclear Physics, Heidelberg, 1989-present;
- President and Co-Founder of ILCAC, the International Light-Cone Advisory Committee;
- Permanent Member, International Light-Cone Advisory Committee;
- International Advisory Committee, International Workshops on Photon-Photon Collisions;
- Member, Program Advisory Committee, Brookhaven National Laboratory, 2003-2006.
- Member, Executive Committee (Past Chair, and Chair of Nominating Committee) Topical Group on Hadronic Physics, American Physical Society. I was also Chair of the Nominating Committee for new officers of the GHP.
- Member, Program Advisory Committee, Gesellschaft für Schwerionenforschung mbH (GSI), Darmstadt, Germany 2004-present.
- Member, Scientific Advisory Board of the Hadron Physics Integrated Infrastructure Initiative of the European Commission, 2006-present.
- Member, Evaluation Panel for the “Excellence Initiative” of the Deutsche Forschungsgemeinschaft (DFG)
- Member of the Science Review Committee of Physics Institutes in Vienna by the Austrian Academy of Sciences .
- Member of the PANDA GSI Experiment and Theory Advisory Panel
- Member of the International LHeC Development Committee to develop an electron-proton and electron-nucleus collider at the LHC.
- Member of the International Advisory Committee of the LHeC
- Associate and Member of the Board for CP3-Origins, Center for Particle Physics and Phenomenology , 2010-present
- Member of the International Advisory Committee, International Conference on Nuclear Physics will be held in Adelaide, South Australia, from September 11-16, 2016.
- Member of the Baryons10 International Advisory Committee
- Member International Advisory Committee for the Fourth Workshop on Hadron Physics in China and Opportunities in US, KITPC, Beijing China
- Member International Advisory Committee for the second International conference on QCD and Hadron Physics.
- Member of the International Advisory Committee for the 13th International Conference on Meson-Nucleon Physics and the Structure of the Nucleon, Rome (Italy) September 30 - October 4, 2013.
- Member International Advisory Committee for the Sixth Workshop on ”Hadron Physics in China and Opportunities in US” will be held at the Institute of Modern Physics (IMP), Lanzhou, China
- Member of the International Advisory Committee of the Workshop ”DIFFRACTION 2014”.
- Member of the Scientific Advisory Committee for the International Conference on Nuclear Theory in the Supercomputing Era, Iowa State University, May 13-17, 2013.
- Member of the International Advisory Committee Member for “The 7th Workshop on Hadron Physics in China and Opportunities Worldwide” August 3 - 7, 2015 at the Duke Kunshan University, Kunshan, China.

- Member of the International Advisory Committee Member for NSTAR 2013 Workshop Peniscola, Valencia Community (Spain), May 27-30, 2013
- Member of the International Advisory Board of the International Nuclear Physics Conference, INPC 2013.
- Member of the International Advisory Board, International Conference on Nuclear Physics , Adelaide, South Australia, September 11-16, 2016.
- Member of the International Advisory Board, Baryons10 Glasgow, Scotland, June 2013
- International Review Committee, Justin-Liebig University of Giessen
- Member of the International Advisory Board, International Conference Photon 2015, Novosibirsk, Russia
- Member, Advisory Committee of the XXXth International Workshop on High Energy Physics, “Particle and Astroparticle Physics, Gravitation and Cosmology: Predictions, Observations and New Projects June 2014, Protvino, Moscow region, Russian Federation
- Member, International Advisory Committee of the 4th International Workshop on Transverse Polarization Phenomena in Hard Scattering (Transversity 2014), June 2014, Cagliari, Italy.
- Member, Programme Committee for the QCD-Hadron Town Meeting, Temple University, 2014
- Member, International Advisory Committee for the Quarks and Nuclear Physics Conference. QNP2015, UTSM, Valpariso, Chile
- Member, International Advisory Committee for RADCOR 2011-present
- Member, International Advisory Committee of the XXX-th Int. Workshop on High Energy Particle and Astroparticle Physics, Gravitation and Cosmology: Predictions, Observations and New Projects Institute for High Energy Physics Protvino, Russian Federation, 23-27 June, 2014.
- Member, LHC Forward Physics Working Group
- Member, International Advisory Committee, Workshops on Hadron physics in China and Opportunities Worldwide, 2012-2017
- Member of the Scientific Council of the Max Planck Society
- International Advisory Committee, DIFFRACTION 2012: International Workshop on Diffraction in High-Energy Physics”, Lanzarote (Canary islands), Spain
- International Advisory Committee, 8th Workshop on Hadron Physics in China and Opportunities Worldwide 2016, College of Physical Sciences and Technology of Central China Normal University, Wuhan, China.
- International Advisory Committee, International Conference on Nuclear Physics Adelaide, South Australia, 2016.
- International Advisory Committee, Baryons 2016, Florida State University
- International Advisory Committee, Diffraction 2014-2016.
- Member, ECT* Scientific Board
- International Advisory Board of the International Nuclear Physics Conference (INPC) 2013.
- Scientific Advisory Committee for the International Conference on Nuclear Theory in the Supercomputing Era, Iowa State University, 2013.
- International Advisory Committee, International Conference on Meson-Nucleon Physics and the Structure of the Nucleon (Menu) 2013-2016
- International Advisory Committee, NSTAR 2013.

- Scientific Advisory Committee for the International Conference on Nuclear Theory in the Supercomputing Era (NTSE)
- Science advisory panel for the PANDA collaboration at GSI.
- International Advisory Committee for Photon 2013-2016
- International Advisory Committee of the XXX-th Int. Workshop on High Energy Physics.
- International Advisory Committee of the International Workshop on Transverse Polarization Phenomena in Hard Scattering (Transversity), 2014-2016
- International Advisory Committee of the 9th Workshop on Hadron physics in China and Opportunities Worldwide
- International Advisory Committee for the 2019 International Nuclear Physics Conference (INPC2019) in Glasgow.
- International Advisory Committee for the 2019 International Workshop on the Physics of Excited Nucleons

15 Editorial Boards

- Editorial Member of the journal “Advances in Sciences and Humanities”
- Member, Editorial Board of “Nuclear Physics Proceedings Supplement”
- Associate Editor, Nuclear Physics B and Nuclear Physics B Proceedings Supplements
- Member, Editorial Board of “Progress in Particle and Nuclear Physics”

16 Physics Biography

Stan Brodsky received his Bachelor of Physics degree in 1961 and his Ph.D. in 1964 from the University of Minnesota. His Ph.D. advisor was Professor Donald Yennie, one of the leading theorists in precision atomic physics and quantum electrodynamics. Brodsky’s thesis was on the higher-order QED radiative corrections to the hyperfine splitting of hydrogenic atoms. His first academic position was a research associateship in theoretical physics with Professor T.D. Lee at Columbia University in 1964-1966. In 1966 he joined the Stanford Linear Accelerator Center as a research associate in Professor Sidney Drell’s theoretical physics group. Brodsky became a permanent staff member in 1968, and in 1976 he was promoted to Professor at the Stanford Linear Accelerator Center, Stanford University. He was head of the SLAC theory group from 1996-2002.

Brodsky has held a number of visiting faculty positions, including the AVCO Professorship at Cornell University in 1970, Visiting Professorships in Cambridge University in 1974, the Weizmann Institute in 1978 and 1994, the Institute of Advanced Study in 1980, the University of California at Santa Barbara in 1978 and 1981, the University of Melbourne in 1987, the University of Heidelberg and the Max Planck Institute for Nuclear Physics in Heidelberg in 1987, the University of Helsinki in 1992, the University of Federico Santa Maria, Valparaiso, Chile. in 1994, In 2003 he was appointed to be the first Distinguished Fellow at the Thomas Jefferson Laboratory and the College of William and Mary. He had a visiting appointment as a Sackler Lecturer at Tel Aviv University in 2006. He spent his sabbatical in 2007-2008 as a visiting professor at the Yang Institute of Theoretical Physics at the State University of New York in Stony Brook, Brookhaven National Laboratory, and the Institute for Particle Physics Phenomenology in Durham, England. He has had an appointment as the Hans Christian Anderson Academy visiting professor at Southern Denmark University and CP3-Origins, the Center of Particle Physics and Phenomenology.

Brodsky is a Foreign Scientific Member and External Scientific Director of the Max Planck Institute for Nuclear Physics, Heidelberg.

In 1987, Brodsky was awarded the Senior U.S. Distinguished Scientist Award from the Alexander von Humboldt Foundation.

He is a Fellow of the American Physical Society. He has also been named an Outstanding Referee of the APS.

In 2007 Brodsky was awarded the J. J. Sakurai Prize in high energy theoretical physics by the American Physical Society for his work in hard exclusive processes in QED.

Brodsky has been on the scientific and program advisory committees for Argonne National Laboratory, MIT Bates Laboratory, Lawrence Berkeley Laboratory, Cornell Laboratory of Nuclear Science, Fermilab, Brookhaven, SLAC, the Max Planck Institute for Nuclear Physics in Heidelberg, and the Gesellschaft für Schwerionenforschung mbH (GSI), Darmstadt, Germany. He was a member of the Committee on Fundamental Constants of the National Research Council and the National Academy of Sciences in 1972-1975, the HEPAP Subpanel on Future Facilities in 1984, the Nuclear Science Advisory Committee Subcommittee on Electromagnetic Interactions, 1981-1982, the Scientific Advisory Panel of the Southeastern University Research Association, Inc., 1981-1983, and the DOE Nuclear Science Review Board of the Jefferson Laboratory 12 GeV Upgrade in 2005. He was a member of the Editorial Board of the Physical Review D 1985-1988, and since 1987 he has been a Member of the Board of Associate Editors of Nuclear Physics B. He is also a member of the Scientific Advisory Board of the Hadron Physics Integrated Infrastructure Initiative of the European Commission, the Advisory Committee for the Nuclear Theory Center at Indiana University, and the Scientific Advisory Board for the proposed electron-proton collider (LHeC) at CERN. He has recently been named as member of the science advisory panel for the PANDA collaboration at GSI. He is a co-founder and former president of the International Light-Cone Advisory Committee (ILCAC). In 2010 he became Chair of the Hadron Physics Group of the American Physical Society. He has received three Cooperative Grants by the CRDF-Global cooperative development research foundation with Professor Boris Ioffe to support their joint U.S. and foreign research teams in basic and research in the natural sciences.

He was awarded a grant with Dr. J. P. Lansberg by the France-Stanford Center for Interdisciplinary Studies for initiating and developing a novel LHC fixed target research program: AFTER@LHC.

Brodsky's research areas span many areas of high-energy and nuclear theoretical physics, especially the quark-gluon structure of hadrons and novel effects in quantum chromodynamics. He also has worked on fundamental problems in atomic, nuclear, and high energy physics, including precision tests of quantum electrodynamics, light-front quantization; nonperturbative and perturbative methods in quantum field theory.

In 1970 Brodsky and his collaborators, Tom Kinoshita and Hidezumi Terazawa, initiated the field of two-photon processes. In 1973 Brodsky and G. Farrar developed dimensional counting rules for hard exclusive processes, extending earlier work on the quark interchange model by Brodsky, Richard Blankenbecler, and John Gunion. In 1979, Brodsky and G. P. Lepage derived the theory of hard exclusive processes in QCD, including factorization theorems and evolution equations for meson and baryon distribution amplitudes. They also invented the concept of distribution amplitudes, the fundamental gauge and frame-independent wavefunctions of hadrons. In 1985 Brodsky and H. C. Pauli developed the discretized light-cone quantization (DLCQ) method for solving quantum field theories, a rigorous and frame-independent nonperturbative procedure for solving QCD. Brodsky has also contributed to precision tests of quantum electrodynamics and novel effects in atomic physics, including and true-muonium and anti-hydrogen production, and novel effects such as radiation amplitude null zones.

Brodsky and his collaborators have also developed the theory underlying novel QCD properties such as color transparency, hidden color of nuclei, reduced nuclear amplitudes, and intrinsic heavy quarks; theoretical tools such as light-front wavefunctions, commensurate scale relations, scheme-independent renormalization scale-setting, jet measures; hadronization at the amplitude level, and applications of QCD to deeply virtual Compton scattering, diffractive deep inelastic scattering and other hard diffractive phenomena, shadowing and non-universal antishadowing of nuclear reactions, high energy photon-photon collisions, leading-twist single-spin asymmetries, and higher twist reactions. His work has led to a new understanding of the limitations of factorization theorems due to initial and final state interactions and was the first with Ivan Schmidt and Dae Sung Hwang to show the existence of a nonzero leading-twist Sivers effect in polarized deep inelastic lepton scattering.

Brodsky and his collaborators, Robert Shrock, Craig Robert, and Peter Tandy, have shown that phenomena conventionally identified as vacuum condensates in quantum chromodynamics are actually properties of the hadron wavefunctions themselves, thus removing a 45 orders of magnitude conflict with the measured cosmological constant. Brodsky and Prem Srivastava showed that the usual Higgs VEV is replaced by a zero-mode scalar background field using light-front quantization of the Standard Model.

A key problem in making precise perturbative QCD predictions is the uncertainty in determining the renormalization scale μ of the running coupling $\alpha_s(\mu^2)$. The purpose of the running coupling in any gauge theory is to sum all terms involving the β function; in fact, when the renormalization scale is set properly, all non-conformal $\beta \neq 0$ terms in a perturbative expansion arising from renormalization are summed

into the running coupling. The remaining terms in the perturbative series are then identical to that of a conformal theory; i.e., the corresponding theory with $\beta = 0$. The resulting scale-fixed predictions using the "principle of maximum conformality" (PMC) are independent of the choice of renormalization scheme – a key requirement of renormalization group invariance. The results avoid renormalon resummation and agree with QED scale-setting in the Abelian limit. The PMC, developed with Leonardo di Giustino, is also the theoretical principle underlying the BLM (Brodsky, Lepage, Mackenzie) procedure, commensurate scale relations between observables, and the scale-setting method used in lattice gauge theory. The number of active flavors n_f in the QCD β function is also correctly determined. We discuss several methods for determining the PMC/BLM scale for QCD processes. We show that a single global PMC scale, valid at leading order, can be derived from basic properties of the perturbative QCD cross section. The elimination of the renormalization scale ambiguity and the scheme dependence using the PMC will not only increase the precision of QCD tests, but it will also increase the sensitivity of collider experiments to new physics beyond the Standard Model. A method for calculating the PMC scales at NNLO has also been developed. Brodsky and Xing-Gang Wu have recently applied the PMC methods to top production at the LHC and Tevatron, removing a key conflict with the Tevatron $t - \bar{t}$ asymmetry. A new method for automating the PMC procedure using a generalization of dimensional regularization has been developed with Martin Mojaza and Xing-Gang Wu.

Brodsky in collaboration with Guy F. de Te'ramond has developed new insights into the QCD spectra and hadron light-front wavefunctions which can be obtained from the AdS/CFT correspondence. A key advance is "light-front holography" which provides an exact correspondence between variables in the AdS fifth dimension and physical space time at fixed front-front time $\tau = t + z/c$.

Guy F. de Te'ramond, Hans Guenter Dosch, and I have shown that the confinement potential in the QCD light-front Hamiltonian is unique if one requires that the chiral QCD action remain conformally invariant. The application of superconformal algebra leads to new supersymmetric relations between mesons and baryons.

A remarkable feature of QCD is that the mass scale which controls color confinement and hadron mass scales does not appear explicitly in the QCD Lagrangian. However, de Alfaro, Fubini, and Furlan have shown that a mass scale can appear in the equations of motion without affecting the conformal invariance of the action if one adds a term to the Hamiltonian proportional to the dilatation operator or the special conformal operator. Applying the same procedure to the light-front Hamiltonian leads to a unique confinement potential $\kappa^4 \zeta^2$ for mesons, where ζ is the LF radial variable conjugate to the invariant mass. The same result, including spin terms, is obtained using light-front holography, the duality between the front form and AdS5, if one modifies the action by the dilaton $e^{\kappa^2 z^2}$ in the fifth dimension z . Generalizing this procedure using superconformal algebra, leads to a unified Regge spectroscopy of meson, baryon, and tetraquarks, including remarkable supersymmetric relations between the masses of mesons and baryons of the same parity. One also predicts observables such as hadron structure functions, transverse momentum distributions, and the distribution amplitudes defined from the hadronic light-front wavefunctions. The mass scale underlying confinement and hadron masses can be connected to the mass parameter in the QCD running coupling by matching the nonperturbative dynamics to the perturbative QCD regime. The result is an effective coupling defined at all momenta and the determination of a momentum scale which sets the interface between perturbative and nonperturbative hadron dynamics.

Brodsky, in collaboration with Alexandre Deur and Guy de Te'ramond, has applied "Light-Front Holography" to determine the analytic behavior of the QCD running coupling in the nonperturbative domain. The analysis allows one to compute the ratio of $\Lambda_{\overline{MS}}$ to the proton mass.

Stan Brodsky is married to Judith Ellen Brodsky. They have three children, Stephen, David, and Jyoti and four grandchildren, Ryan, Ethan, Alicia, and Alex.

17 Recent Research Areas

- High-energy theoretical physics, especially the quark-gluon structure of hadrons and novel effects in quantum chromodynamics
- Exclusive processes in QCD; evolution equations; scaling laws
- Fundamental problems in atomic physics
- Fundamental problems in nuclear physics

- Precision tests of quantum electrodynamics
- Two-Photon Physics
- Light-front quantization, discretized light-cone quantization
- Nonperturbative and perturbative methods in quantum field theory
- Renormalization theory
- Applications of AdS/CFT to quantum chromodynamics;
- Light-Front Holography
- Superconformal Algebra
- Cosmological Applications of Light-Front Theory
- Heavy Quark Phenomenology
- AdS/QCD
- Intersection of Hadron Physics and Photon Science
- Tests of QCD using Relativistic Atomic Beams
- Principle of Maximum Conformality
- Hadronization at the Amplitude Level
- Novel LHC Physics
- Basis Light-Front Quantization
- Fixed Target Programs at the LHC
- The Cosmological Constant and Gravitational Interactions in Light-Front Theory

18 Recent Collaborative Physics Accomplishments

- Applied the methods of de Alfaro, Furlan and Fubini and Fubini and Rabinovici to show that the form of the QCD confinement interaction is uniquely determined by the conformal action. This result also uniquely determines the modification of the maximal conformal symmetry of Anti-De Sitter space in holographic QCD, leading to a specific form of the dilaton for the soft-wall model. Our light-front holographic model explains many dynamical and spectroscopic features of hadron phenomenology.
- Showed that the light-front Hamiltonian of QCD has a unique confinement potential $\kappa^4 \zeta^2$ for mesons, where ζ is the LF radial variable conjugate to the invariant mass. The same result, including spin terms, is obtained using light-front holography, the duality between the front form and AdS₅, if one modifies the action by the dilaton $e^{\kappa^2 z^2}$ in the fifth dimension z .
- The generalization of this procedure using superconformal algebra, leads to a unified Regge spectroscopy of meson, baryon, and tetraquarks, including remarkable supersymmetric relations between the masses of mesons and baryons of the same parity. One also predicts observables such as hadron structure functions, transverse momentum distributions, and the distribution amplitudes defined from the hadronic light-front wavefunctions.
- The mass scale underlying confinement and hadron masses can be connected to the mass parameter in the QCD running coupling by matching the nonperturbative dynamics to the perturbative QCD regime. The result is an effective coupling defined at all momenta and the determination of a momentum scale which sets the interface between perturbative and nonperturbative hadron dynamics.
- Applied Superconformal Algebra and Light-Front Holography to reveal new supersymmetric relations between meson and baryon spectra in QCD including hadrons containing heavy quarks.

- Applied Superconformal Algebra and Light-Front Holography to predict masses of tetraquarks
- Developed the “Principle of Maximum Conformality” (PMC) for setting the renormalization scale in perturbative QCD calculations. The PMC eliminates a major uncertainty in pQCD predictions, providing improved sensitivity to new physics beyond the Standard Model
- Applied the ‘Principle of Maximum Conformality’ (PMC) for setting the renormalization scale for Higgs production at the LHC The PMC eliminates a major uncertainty in pQCD predictions, providing improved sensitivity to new physics beyond the Standard Model
- Applied the “Principle of Maximum Conformality” to eliminate the renormalization scale ambiguity for QCD in many other processes, including B decay.
- Developed the R_δ scheme extension of dimensional regularization to unambiguously identify the β terms in a pQCD prediction. This method allows one to automate the PMC procedure.
- Showed that the $t - \bar{t}$ asymmetry measured in $p\bar{p}$ collisions at the Tevatron is predicted correctly in perturbative QCD if one applies the PMC. Previous predictions implying a 3σ discrepancy between pQCD and experiment were due to an improper choice of the renormalization scale.
- Developed the principle of “light-front holography”, the duality between anti-de Sitter space and LF Hamiltonian theory in 3+1 spacetime dimensions.
- Applied “Light-Front Holography” to determine the analytic behavior of the QCD running coupling in the nonperturbative domain.
- Established an analytic connection between hadron masses and the value of $\Lambda_{\overline{MS}}$
- Showed how the decay pattern of “pentaquarks” such as the Z_c reveals its diquark-diquark structure
- Explored a new field of “hexaquark” and “octoquark” hadronic states.
- Showed that the “ridge phenomena” observed at RHIC in pp collisions can be accounted for by the collision of “flux tubes” related to the color confining interactions within hadrons. Developed new predictions of ridge phenomena at an electron-ion collider.
- Predict Novel Ridge phenomena for photon-photon ultra-peripheral collisions at the LHC
- Developed new novel tests of heavy quark distributions for the LHC
- Showed that the “baryon anomaly” in central heavy ion collisions at RHIC is due to color transparent direct production of baryons.
- Showed that the causal, frame-independent vacuum of the LF Hamiltonian predicts zero contribution to the cosmological constant from quantum field theory.
- Co-Initiated the international proposal for AFTER (a Fixed Target Program at the LHC)
- Developed new applications of Light-Front Methods to Atomic Physics including experiments involving atomic beams
- Showed that the lensing effects which create diffractive deep inelastic processes and the Sivers spin correlation are leading twist. These effects are counter-examples to the usual pQCD factorization theorems.
- Developed tests of the Boer-Mülder Function in Drell-Yan lepton pair reactions and showed that the Lam-Tung Relation is violated at leading twist.
Developed new applications to double initial-state interactions
- Co-Initiated a new research program to produce and measure the spectroscopy of the true muonium atom $\mu^+\mu^-$ at JLab
- Developed a new program to produce a beam of relativistic positronium beams and collide positronium with protons to measure double virtual Compton scattering for spacelike photons
- Developed new tests of QCD in Exclusive Vector Boson Reactions produced through Double-Photon Annihilation

19 Invited conference talks and seminars in 2017

- *Supersymmetric Properties of Hadron Physics from Light-Front Holography and Superconformal Algebra*
Seminar, University of Rome December 18, 2017
- *Novel Transversity Phenomena and Properties of Hadron Physics from Light-Front Holography and Superconformal Algebra*
Invited Talk at Conference Transversity 2017 5th International Workshop on Transverse Polarization Phenomena in Hard Processes INFN Frascati December 15, 2017
- *Supersymmetric Properties of Hadron Physics from Light-Front Holography and Superconformal Algebra*
Seminar, LBNL Dec 6, 2017
- *Physics on the Light Front: A Novel Approach to Quark Confinement and QCD Phenomena*
Colloquium, University of Minnesota, November 9, 2017
- *Supersymmetric Properties of Hadron Physics from Light-Front Holography and Superconformal Algebra*
Seminar, University of Minnesota, November 10, 2017
- *Advances in Light-Front QCD: Supersymmetric Properties of Hadron Physics from Light-Front Holography and Superconformal Algebra*
Seminar Chongqing University Oct 23, 2017
- *Advances in Light-Front QCD: Supersymmetric Properties of Hadron Physics from Light-Front Holography and Superconformal Algebra*
Invited Talk Third Sino-Americas Workshop and School on the Bound-State Problem in Continuum QCD Nankai University October 16, 2017
- *Supersymmetric Features of Hadron Physics*
Invited Talk at the Conference Hadrons and Their Properties as a Problem in Strong QCD Peking University October 13, 2017
- *Supersymmetric features of Hadron Physics and other Novel Properties of QCD from Light-Front Holography and Superconformal Quantum Mechanics*
Seminar University of Mumbai September 12, 2017
- *Supersymmetric features of Hadron Physics and other Novel Properties of QCD from Light-Front Holography and Superconformal Quantum Mechanics*
Invited Talk at Conference Light-Cone 2017 University of Mumbai September 7, 2017
- *Light-Front Quantization and New Perspectives for Hadron Physics, QCD and the Standard-Model Vacuum on the Light Front*
Six Lectures at the GIAN School: Global Initiative for Academic Networks University of Mumbai September 14-16, 2017
- *How are Quarks Confined in Hadrons? A Novel Approach to the Structure and Masses of Hadrons*
Colloquium, University of Bombay Institute of Technology September 25, 2017
- *Supersymmetric features of Hadron Physics and other Novel Properties of QCD from Light-Front Holography and Superconformal Quantum Mechanics*
Invited Talk presented at the Conference NSTAR 2017 The 11th International Workshop on the Physics of Excited Nucleons Aug 22, 2017
- *Novel QCD Features of Hadrons and Nuclei*
IPN Institut de Physique Nucleaire Invited Talk presented at Workshop CDR QCD: Partons and Nuclei June 1, 2017

- *Supersymmetric Properties of Hadron Physics and Predictions for Exclusive Processes from Light-Front Holography and Superconformal Algebra*
IPN Institut de Physique Nucleaire Invited Talk Presented at the Conference: Nucleon and Resonance Structure with Hard Exclusive Processes May 29, 2017
- *Ridge phenomena in photon-photon collisions*
Invited Talk presented at the 2017 International Conference on the Structure and Interactions of the Photon, The 22th International Workshop on Photon-Photon Collisions, and International Workshop on High Energy Photon Colliders CERN May 18, 2017
- *The Structure of Hadrons using Light-Front Holography and Superconformal Algebra*
Invited Talk presented at the Topical Conference on QCD Structure of Nucleons in the Modern Era UCLA May 6, 2017
- *Supersymmetric features of hadron physics and other novel properties of QCD from Light-Front Holography and Superconformal Quantum Mechanics* Invited Talk presented at the conference: The Proton Mass: At the Heart of Most Visible Matter ECT* April 30, 2017
- *Hadronization at the Amplitude Level from Light-Front Holography*
Invited Talk presented at the conference: Parton Showers, Event Generators and Resummation 2017 Emmanuel College, Cambridge March 29, 2017
- *Elimination of QCD Scale Ambiguities: The Principle of Maximum Conformality (PMC), BLM/PMC scale setting and its applications to collider physics*
Invited talk presented at the conference: Taming Unphysical Scales for Physical Predictions Emmanuel College, Cambridge March 29, 2017
- *Supersymmetric features of hadron physics and other novel properties of QCD from Light-Front Holography and Superconformal Quantum Mechanics* Invited talk presented at the conference 5th Winter Workshop on Non-Perturbative Quantum Field Theory University of Nice 23 March 2017
- *Supersymmetric features of hadron physics and other novel properties of QCD from Light-Front Holography and Superconformal Algebra*
Invited talk presented at the conference Understanding the LHC WE-Heraeus-Seminar Bad Honnef February 12, 2017
- *Elimination of QCD Scale Ambiguities The Principle of Maximum Conformality (PMC) Applications of PMC renormalization-scale-setting for top, Higgs production, and other processes at the LHC*
Seminar, INFN University of Genova, February 10, 2017
- *Supersymmetric Meson-Baryon Properties of QCD from Light-Front Holography and Superconformal Algebra*
Seminar INFN University of Genova, February 8, 2017
- *Supersymmetric Meson-Baryon Properties of QCD from Light-Front Holography and Superconformal Algebra*
Invited Talk presented at the 7th Workshop of the APS Topical Group on Hadronic Physics Washington D.C., February 3, 2017
- *Novel Features of Heavy Quark Phenomenology at the LHC*
Invited Talk presented at the Workshop on LHCb Heavy Ion and Fixed Target Physics, CERN January 9, 2017

20 Invited conference talks and seminars in 2016

- *New insights into hadron spectroscopy and color confinement from AdS/QCD, light-front holography, and superconformal quantum mechanics*
INT Workshop: Spectrum and Structure of Excited Nucleons from Exclusive Electroproduction November 14, 2016

- *Supersymmetric features of hadron physics and other novel properties of QCD from light-front holography and superconformal algebra*
CP3 Origins, SDU November 2, 2016
- *Novel Features of Hadron Physics Revealed in Di-Lepton Production and Deeply Virtual Compton Scattering*
Nuclear and Nucleon Structure Through Di-Lepton Production Trento ECT*, October 24, 2016
- *Supersymmetric features of hadron physics and other novel properties of QCD from light-front holography and superconformal algebra*
SLAC, September 28, 2016
- *Supersymmetric Aspects of Hadron Physics and Novel QCD Phenomena*
Colloquium, University of Edinburgh, September 16, 2016
- *Elimination of QCD Scale Ambiguities The Principle of Maximum Conformality (PMC)*
Applications of PMC renormalization-scale-setting for top, Higgs production, and other processes at the LHC University of Edinburgh, September 14, 2016
- *Supersymmetric features of hadron physics and other novel properties of QCD from light-front holography and superconformal algebra*
Imperial College, London September 13, 2016
- *Elimination of QCD Scale Ambiguities The Principle of Maximum Conformality (PMC)*
Imperial College, London September 12, 2016
- *Supersymmetric features of hadron physics and other novel properties of QCD from light-front holography and superconformal algebra*
Light Cone 2016, Lisbon September 8, 2016
- *Supersymmetric Features of Hadrons and The Remarkable Connections between Atomic, Nuclear, and Hadronic Physics*
International Symposium on the Interplay between Hadronic, Nuclear, and Atomic Physics The 71st Fujihara Seminar, Shimoda, Japan July 7, 2016
- *Application of the Principle of Maximum Conformality to Top Quark Production at Colliders*
Workshop on Top Production at Lepton Colliders KEK, Japan, July 6, 2016,
- *The QCD Vacuum, Color Confinement, and Superconformal Properties of Hadron Physics*
Humboldt Kolleg on Particle Physics From the Vacuum to the Universe Kitzbühel Austria, June 29, 2016
- *Elimination of QCD Scale Ambiguities The Principle of Maximum Conformality (PMC) Applications of PMC renormalization-scale-setting for top, Higgs production, and other processes at the LHC*
SLAC/Stanford ATLAS/Theory Jamboree, June 7, 2016
- *Novel Features of Quarkonium and Tetraquark Physics* PNNL, QWG2016, June 8, 2016
- *New Insights into Color Confinement and Hadron Dynamics from Light-Front Holography and Superconformal Algebra*
Tomsk State University (via SKYPE) June 7, 2016
- *Supersymmetric features of hadron physics and other novel properties of QCD from light-front holography and superconformal algebra* MIT, May 17, 2016
- *Elimination of QCD Scale Ambiguities The Principle of Maximum Conformality (PMC)*
MIT, May 16, 2016
- *Novel QCD Phenomena in Nuclear Photo- and Electroproduction*
Nuclear Photoproduction with GlueX Jefferson Lab April 29, 2016
- *Novel QCD Phenomena at an Electron-Ion Collider*
Stony Brook University Colloquium April 19, 2016

- *Elimination of QCD Scale Ambiguities The Principle of Maximum Conformality (PMC) and Novel QCD Effects Applications of PMC renormalization-scale-setting for top, Higgs production, and other processes at the LHC*
11th International Workshop on High PT in the RHIC and LHC Era BNL, April 12, 2016
- *The mass decomposition of hadrons from AdS/QCD and light-front holography*
The Proton Mass At the heart of most visible matter Temple University March 28, 2016
- *Supersymmetric Features of Hadron Physics and Other Novel Properties of QCD*
New Directions in Subatomic Physics in honor of Tony Williams Special Research Centre for the Subatomic Structure of Matter March 9, 2016
- *Light-Front Holography and Supersymmetric Aspects of Hadron Physics*
Conference on New Physics at the Large Hadron Collider Nanyang Technological University Singapore March 1, 2016
- *Light-Front QCD*
Student Lecture 4th Chilean School of High Energy Physics Universidad Te'cnica Federico Santa Mara Valparaiso, Chile Jan 13, 2016
- *New Insights into Color Confinement and Hadron Dynamics from Light-Front Holography and Superconformal Quantum Mechanics*
High Energy Physics in the LHC Era Universidad Tcnica Federico Santa Mara UTFSM, Valparaiso, Chile Jan 7, 2016

21 Invited conference talks and seminars in 2015

- *Light-Front Holographic QCD, Color Confinement, and Supersymmetric Features of QCD Second Sino-America Workshop and School*
on the Bound-State Problem in Continuum QCD Central China Normal University (CCNU), Wuhan, China, 16-20 November, 2015.
- *Novel Hadron Dynamics from Light-Front Holographic, Superconformal QCD*
Joint Institute for Nuclear Research, Dubna, Russian Federation November 6, 2015
- *Novel Approaches to Hadron Physics, Color Confinement, and Supersymmetric Features of QCD*
Pomeranchuk Award Ceremony Presidium, Academy of Sciences Moscow, Russian Federation November 2, 2015
- *Light-Front Holographic QCD, Color Confinement, and Supersymmetric Features of QCD*
The Standard Theory and Beyond Albufeira, Portugal October 24-31, 2015
- *Intrinsic Heavy Quarks and other Novel QCD Phenomena*
Intersections of BSM Phenomenology and QCD for New Physics Searches Institute for Nuclear Theory University of Washington October 20, 2015
- *Novel Hadron Spin Dynamics from Light-Front Holographic, Superconformal QCD*
The 10th Circum-Pan-Pacific Symposium on High-Energy Spin Physics Institute of Physics, Academia Sinica, Taipei, Taiwan October 5-8, 2015
- *Light-Front Holographic QCD, Color Confinement, and Supersymmetric Features of QCD*
Invited Talk Light-Cone 2015 INFN Frascati National Laboratory September 25, 2015
- *Light-Front Holographic QCD, Color Confinement, and Supersymmetric Features of QCD*
QCD-TNT4 Unraveling the Organization of the Tapestry of QCD IhaBela, Sao Paulo, Brazil August 31, 2015
- *New Perspectives for Hadron Physics*
Kunshan, China 7th Workshop on Hadron Physics in China and Opportunities Worldwide Duke Kunshan University August 3, 2015

- *Elimination of the Renormalization Scale Ambiguity: The Principle of Maximum Conformality*
Invited Lecture, Hadron Structure '15 Horny Smokovec, Slovak Republic July 2, 2015
- *Light-Front Holography and Superconformal Quantum-Mechanics: A New Approach to Hadron Structure and Color Confinement*
Invited Lecture, Hadron Structure '15 Horny Smokovec, Slovak Republic June 29, 2015
- *New Perspectives for Hadron Physics*
Invited Talk, Kunshan, China 7th Workshop on Hadron Physics in China and Opportunities Worldwide August 3, 2015
- *Novel LHeC Physics*
Invited Talk LHeC Workshop Physics Highlights Novel LHeC Physics Chavannes-de-Bogis, Switzerland June 25, 2015
- *New Advances in Nonperturbative QCD: Light-Front Holography and Superconformal Algebra*
Invited Seminar Hebrew University May 11, 2015
- *Novel QCD Phenomena*
Invited Talk Marek Fest, Karliner Symposium Tel Aviv May 10, 2015
- *Light-Front Holography and New Advances in Nonperturbative QCD* Invited Lecture, The Galileo Galilei Institute in Theoretical Physics, Florence, Italy April 13, 2015
- *New Perspectives for Hadron Physics and the Cosmological Constant Problem*
Invited Talk Conference: What Comes Beyond the Standard Model? Bled, Slovenia July 17, 2015
- *Scattering Theory and Light Front QCD*
2015 International Summer Workshop on Reaction Theory Invited Lectures. University of Indiana June 11, 2015
- *Novel World of Hadron Physics*
Invited Colloquium University of Virginia April 27, 2015
- *Tests of Novel QCD Phenomena at JLab*
Invited Talk, Evolution 2015 May 26, 2015
- *Light-Front Holography - A Novel Approach to Non-Perturbative QCD*
Seminar, Argonne National Laboratory March 30, 2015
- *Light-Front Holography and New Advances in Nonperturbative QCD*
QCD2015 7th International Conference on Quarks and Nuclear Physics UTSM, Valpariso, Chile March 5, 2015
- *Light-Front Holography - A New Approach to Color Confinement and Non-Perturbative QCD*
Seminar, Kavli Institute for Theoretical Physics China at the Chinese Academy of Sciences January 21, 2015
- *Applications of the Principle of Maximum Conformality*
Institute Of High Energy Physics Seminar, Chinese Academy of Science January 20, 2015 Beijing, China
- *Light-Front Holography of the Hadronic World*
Seminar, Peking University Beijing, China January 19, 2015
- *Advances in Particle Physics and the Remarkable Connections between Atomic and Hadronic Physics*
International Workshop on Physics at Future High Intensity Collider @ 2-7GeV in China Anhui University Hefei, China January 17, 2015
- *The dynamics of charm at threshold and the physics of the XYZ states*
Seminar, Anhui University Hefei, China January 14, 2015
- *Light-Front Holography and QCD*
Seminar, University of Science and Technology Hefei, China January 13, 2015

My other talks are listed in detail at the end of this CV.

Here is a link to the slides of my talks since 2013:

https://www.dropbox.com/sh/o568a161fh0is9b/AACnNqCX1YAog-_DGf9SgJT0a?dl=0

22 List of Publications (643)

For further details on my publications including abstracts and a citation summary, see

http://inspirehep.net/search?ln=en&ln=en&p=f+a+brodsky%2C+s&of=hd&action_search=Search&sf=earliestdate&so=d&rm=&rg=25&sc=0

http://inspirehep.net/search?ln=en&ln=en&p=f+a+brodsky%2C+s&of=hcs&action_search=Search&sf=earliestdate&so=d&rm=&rg=25&sc=0

<http://inspirehep.net/author/profile/S.J.Brodsky.1>

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- [2] S. J. Brodsky, R. F. Lebed and V. E. Lyubovitskij, QCD Constituent Counting Rules for Neutral Vector Mesons,” arXiv:1712.08853 [hep-ph].
- [3] I. V. Anikin *et al.*, Nucleon and nuclear structure through dilepton production,” arXiv:1712.04198 [nucl-ex].
- [4] L. Massacrier *et al.*, Physics perspectives with AFTER@LHC (A Fixed Target Experiment at LHC),” arXiv:1712.01740 [hep-ex].
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- [6] S. J. Brodsky, Color Confinement, Hadron Dynamics, and Hadron Spectroscopy from Light-Front Holography and Superconformal Algebra,” arXiv:1709.01191 [hep-ph].
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- [58] **“Applications of Basis Light-Front Quantization to QED”**
J. P. Vary, X. Zhao, A. Ilderton, H. Honkanen, P. Maris and S. J. Brodsky.
arXiv:1406.1838 [nucl-th]
10.1016/j.nuclphysbps.2014.04.002
Nucl. Phys. Proc. Suppl. **251-252**, 10 (2014)
- [59] **“Reanalysis of the Higher Order Perturbative QCD corrections to Hadronic Z Decays using the Principle of Maximum Conformality”**
S. Q. Wang, X. G. Wu and S. J. Brodsky.
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T. Behnke *et al.* [ILC Collaboration]
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J. Brau *et al.* [ILC Collaboration]
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- [194] **“Illuminating the $1/x$ moment of parton distribution functions”**
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- [195] **“Novel QCD Effects from Initial and Final State Interactions”**
S. J. Brodsky
arXiv:0709.2229 [hep-ph]
SLAC-PUB-12805(2007)
- [196] **“AdS/CFT and Exclusive Processes in QCD”**
S. J. Brodsky and G. F. de Te'ramond
arXiv:0709.2072 [hep-ph]
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- [197] **“Higgs Hadroproduction at Large Feynman x ”**
S. J. Brodsky, A. S. Goldhaber, B. Z. Kopeliovich and I. Schmidt
Nucl. Phys. B **807**, 334 (2009) [arXiv:0707.4658 [hep-ph]]
- [198] **“Light-Front Dynamics and AdS/QCD Correspondence: The Pion Form Factor in the Space- and Time-Like Regions”**
S. J. Brodsky and G. F. de Te'ramond
Phys. Rev. D **77**, 056007 (2008) [arXiv:0707.3859 [hep-ph]]
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S. J. Brodsky
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Invited talk at Workshop on High $P(T)$ Physics at LHC (LHC07), Jyvaskyla, Finland, 23-27 Mar 2007
- [200] **“Hadron production in $e^+ e^-$ collisions - one- and two-photon processes”**
S. J. Brodsky
eConf **C720906V2**, 19 (1972)
- [201] **“Inclusive processes at high transverse momentum”**
R. Blankenbecler, S. J. Brodsky and J. F. Gunion
eConf **C720906V1**, 504 (1972)
- [202] **“Novel Tests of QCD at SuperB”**
S. Brodsky
Slides presented at 3rd Workshop on Super Flavor Factory based on Linear Collider Technology (Super B III), Menlo Park, California, 14- 16 Jun 2006
- [203] **“The renormalization scale problem”**
S. Brodsky
Presented at LoopFest V: Radiative Corrections for the International Linear Collider: Multi-loops and Multi-legs, SLAC, Menlo Park, California, 19-21 Jun 2006
- [204] **“SuperB: A High-Luminosity Asymmetric $e^+ e^-$ Super Flavor Factory. Conceptual Design Report”**
M. Bona *et al.*
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H. Avakian, S. J. Brodsky, A. Deur and F. Yuan
Phys. Rev. Lett. **99**, 082001 (2007) [arXiv:0705.1553 [hep-ph]]
- [206] **“The Conformal Template and New Perspectives for Quantum Chromodynamics”**
S. J. Brodsky
arXiv:hep-ph/0703109
SLAC-PUB-12381(2007)
Invited talk at International Symposium on the Jubilee of the Sakata Models (pnLambda50), Nagoya, Japan, 25-26 Nov 2006
- [207] **“AdS/CFT and QCD”**
S. J. Brodsky and G. F. de Te'ramond
arXiv:hep-th/0702205
SLAC-PUB-12361(2007)
Invited talk at 2006 International Workshop on the Origin of Mass and Strong Coupling Gauge Theories (SCGT 06), Nagoya, Japan, 21-24 Nov 2006
- [208] **“Photoproduction at collider energies: From RHIC and HERA to the LHC”**
A. Baltz *et al.*
arXiv:hep-ph/0702212
- [209] **“Hadron optics in three-dimensional invariant coordinate space from deeply virtual Compton scattering”**
S. J. Brodsky, D. Chakrabarti, A. Harindranath, A. Mukherjee and J. P. Vary
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- [210] **“Single transverse-spin asymmetries at large-x”**
S. J. Brodsky and F. Yuan
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- [211] **“Hadron Spectroscopy and Structure from AdS/CFT”**
S. J. Brodsky
Eur. Phys. J. A **31**, 638 (2007) [arXiv:hep-ph/0610115]
- [212] **“Evidence for the absence of gluon orbital angular momentum in the nucleon”**
S. J. Brodsky and S. Gardner
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- [213] **“New perspectives for QCD from AdS/CFT”**
S. J. Brodsky
arXiv:hep-ph/0608005
SLAC-PUB-11976(2006)
Presented at 7th Workshop on Continuous Advances in QCD, Minneapolis, Minnesota, 11-14 May 2006
- [214] **“Hadron optics: Diffraction patterns in deeply virtual Compton scattering”**
S. J. Brodsky, D. Chakrabarti, A. Harindranath, A. Mukherjee and J. P. Vary
Phys. Lett. B **641**, 440 (2006) [arXiv:hep-ph/0604262]
- [215] **“Diffractive Higgs production from intrinsic heavy flavors in the proton”**
S. J. Brodsky, B. Kopeliovich, I. Schmidt and J. Soffer
Phys. Rev. D **73**, 113005 (2006) [arXiv:hep-ph/0603238]
- [216] **“Orbital Angular Momentum on the Light-Front and QCD Observables”**
S. J. Brodsky
SLAC-WP-069(2006)
Talk Given at Joint UNM/RBRC Workshop on Parton Orbital Angular Momentum, Albuquerque, New Mexico, 24-26 Feb 2006
- [217] **“Hadronic spectra and light-front wavefunctions in holographic QCD”**
S. J. Brodsky and G. F. de Te'ramond
Phys. Rev. Lett. **96**, 201601 (2006) [arXiv:hep-ph/0602252]

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M. Binger and S. J. Brodsky
Phys. Rev. D **74**, 054016 (2006) [arXiv:hep-ph/0602199]
- [219] **“Discrete symmetries on the light front and a general relation connecting nucleon electric dipole and anomalous magnetic moments”**
S. J. Brodsky, S. Gardner and D. S. Hwang
Phys. Rev. D **73**, 036007 (2006) [arXiv:hep-ph/0601037]
- [220] **“Single-spin asymmetries and transversity in QCD”**
S. J. Brodsky
SLAC-PUB-11568(2005)
Prepared for International Workshop on Transverse Polarization Phenomena in Hard Processes (Transversity 2005), Villa Olmo, Como, Italy, 7-10 Sep 2005
- [221] **“Renormalization scale-fixing for complex scattering amplitudes”**
S. J. Brodsky and F. J. Llanes-Estrada
Eur. Phys. J. C **46**, 751 (2006) [arXiv:hep-ph/0512247]
- [222] **“Exclusive two-photon processes in QCD”**
S. J. Brodsky
Acta Phys. Polon. B **37**, 905 (2006)
Invited talk at Photon: Its First Hundred Years and the Future. Includes PHOTON2005 and PLC2005, Warsaw and Kazimierz, Poland, 30 Aug - 8 Sep 2005
- [223] **“Photon photon collisions: Past and future”**
S. J. Brodsky
Acta Phys. Polon. B **37**, 619 (2006)
Presented at Photon: Its First Hundred Years and the Future. Includes PHOTON2005 and PLC2005, Warsaw and Kazimierz, Poland, 30 Aug - 8 Sep 2005
- [224] **“XIth conference on elastic and diffractive scattering 2005: Conference summary”**
S. J. Brodsky and M. Rijssenbeek
arXiv:hep-ph/0511178
SLAC-PUB-11553(2005)
Invited talk at 11th International Conference on Elastic and Diffractive Scattering: Towards High Energy Frontiers: The 20th Anniversary of the Blois Workshops, Chateau de Blois, Blois, France, 15-20 May 2005
- [225] **“Advances in light-front quantization and new perspectives for QCD from AdS/CFT”**
S. J. Brodsky and G. F. de Te'ramond
Nucl. Phys. Proc. Suppl. **161**, 34 (2006)
Invited talk at Workshop on Light-Cone QCD and Nonperturbative Hadron Physics 2005 (LC 2005), Cairns, Queensland, Australia, 7-15 Jul 2005
- [226] **“Scaling properties of high p(T) inclusive hadron production”**
S. J. Brodsky, H. J. Pirner and J. Raufeisen
Phys. Lett. B **637**, 58 (2006) [arXiv:hep-ph/0510315]
- [227] **“Hadron spectroscopy and wavefunctions in QCD and the AdS/CFT correspondence”**
S. J. Brodsky and G. F. de Te'ramond
AIP Conf. Proc. **814**, 108 (2006) [arXiv:hep-ph/0510240]
Invited talk at 11th International Conference on Hadron Spectroscopy (Hadron05), Rio de Janeiro, Brazil, 21-26 Aug 2005
- [228] **“Applications of AdS/CFT duality to QCD”**
S. J. Brodsky and G. F. de Te'ramond
Int. J. Mod. Phys. A **21**, 762 (2006) [arXiv:hep-ph/0509269]
Invited talk at International Conference on QCD and Hadronic Physics, Beijing, China, 16-20 Jun 2005

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S. J. Brodsky, C. E. Carlson, J. R. Hiller and D. S. Hwang
Phys. Rev. Lett. **95**, 049102 (2005)
- [230] **“Novel aspects of hard diffraction in QCD”**
S. J. Brodsky
arXiv:hep-ph/0509222
SLAC-PUB-11486(2005)
Invited talk at 11th International Conference on Elastic and Diffractive Scattering: Towards High Energy Frontiers: The 20th Anniversary of the Blois Workshops, Chateau de Blois, Blois, France, 15-20 May 2005
- [231] **“Two-boson truncation of Pauli-Villars regulated Yukawa theory”**
S. J. Brodsky, J. R. Hiller and G. McCartor
Annals Phys. **321**, 1240 (2006) [arXiv:hep-ph/0508295]
- [232] **“Deep inelastic scattering at the amplitude level”**
S. J. Brodsky
AIP Conf. Proc. **792**, 1084 (2005)
Invited talk presented at 13th International Workshop on Deep Inelastic Scattering - DIS05, , 4/27/2005-5/1/2005
- [233] **“Large x physics”**
S. J. Brodsky
AIP Conf. Proc. **792**, 977 (2005)
Invited talk at 13th International Workshop on Deep Inelastic Scattering (DIS 05), Madison, Wisconsin, 27 Apr - 1 May 2005
- [234] **“Novel nuclear effects in QCD: The non-universality of nuclear antishadowing and the implications of hidden color”**
S. J. Brodsky
AIP Conf. Proc. **792**, 279 (2005)
13th International Workshop on Deep Inelastic Scattering (DIS 05), Madison, Wisconsin, 27 Apr - 1 May 2005
- [235] **“Hard diffraction in QCD”**
S. J. Brodsky
AIP Conf. Proc. **792**, 519 (2005)
Invited talk at 13th International Workshop on Deep Inelastic Scattering (DIS 05), Madison, Wisconsin, 27 Apr - 1 May 2005
- [236] **“Nearly conformal QCD and AdS/CFT”**
G. F. de Te'ramond and S. J. Brodsky
arXiv:hep-ph/0507273
SLAC-PUB-11375(2005)
Presented at 1st Workshop on Quark-Hadron Duality and the Transition to pQCD, Frascati, Rome, Italy, 6-8 Jun 2005
- [237] **“The two-photon exchange contribution to elastic electron nucleon scattering at large momentum transfer”**
A. V. Afanasev, S. J. Brodsky, C. E. Carlson, Y. C. Chen and M. Vanderhaeghen
Phys. Rev. D **72**, 013008 (2005) [arXiv:hep-ph/0502013]
- [238] **“The hadronic spectrum of a holographic dual of QCD”**
G. F. de Te'ramond and S. J. Brodsky
Phys. Rev. Lett. **94**, 201601 (2005) [arXiv:hep-th/0501022]
- [239] **“Light-front QCD”**
S. J. Brodsky
arXiv:hep-ph/0412101
SLAC-PUB-10871(2004)

Invited lectures and talk presented at the 58th Scottish University Summer School in Physics: A NATO Advanced Study Institute and EU Hadronic Physics 13 Summer Institute (SUSSP58), St. Andrews, Scotland, 30 Aug - 1 Sep 2004

- [240] **“New results in light-front phenomenology”**
S. J. Brodsky
Few Body Syst. **36**, 35 (2005) [arXiv:hep-ph/0411056]
Presented at LightCone 2004, Amsterdam, The Netherlands, 16-20 Aug 2004
- [241] **“Testing quantum chromodynamics with antiprotons”**
S. J. Brodsky
Riv. Nuovo Cim. **29N9**, 1 (2006) [arXiv:hep-ph/0411046]
Presented at International School of Physics ‘Enrico Fermi’: Summer Course on Hadronic Physics, Varenna, Lake Como, Italy, 22 Jun - 2 Jul 2004
- [242] **“Novel aspects of QCD in leptonproduction”**
S. J. Brodsky
Eur. Phys. J. A **24S1**, 129 (2005) [arXiv:hep-ph/0411029]
Presented at 8th Workshop on Electron Nucleus Scattering, Elba, Italy, 21-25 Jun 2004
- [243] **“Novel QCD aspects of hard diffraction, antishadowing, and single-spin asymmetries”**
S. J. Brodsky
Acta Phys. Polon. B **36**, 635 (2005) [arXiv:hep-ph/0411028]
Presented at 34th International Symposium on Multiparticle Dynamics (ISMD 2004), Rohnert Park, California, 26 Jul - 1 Aug 2004
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J. Raufeisen and S. J. Brodsky
arXiv:hep-th/0409157
SLAC-PUB-10714(2004) (Submitted to Few Body Syst.)
Invited talk at LightCone 2004, Amsterdam, The Netherlands, 16-20 Aug 2004
- [245] **“Hard diffraction from parton rescattering in QCD”**
S. J. Brodsky, R. Enberg, P. Hoyer and G. Ingelman
Phys. Rev. D **71**, 074020 (2005) [arXiv:hep-ph/0409119]
- [246] **“Baryonic states in QCD from gauge / string duality at large $N(c)$ ”**
G. F. de Te’ramond and S. J. Brodsky
arXiv:hep-th/0409074
SLAC-PUB-10693(2004)
Presented at ECT Workshop on Large N_c QCD 2004, Trento, Italy, 5-9 Jul 2004*
- [247] **“Nuclear antishadowing in neutrino deep inelastic scattering”**
S. J. Brodsky, I. Schmidt and J. J. Yang
Phys. Rev. D **70**, 116003 (2004) [arXiv:hep-ph/0409279]
- [248] **“Statistical physics and light-front quantization”**
J. Raufeisen and S. J. Brodsky
Phys. Rev. D **70**, 085017 (2004) [arXiv:hep-th/0408108]
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S. J. Brodsky, C. E. Carlson, J. R. Hiller and D. S. Hwang
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- [250] **“Applications of light-front QCD”**
S. J. Brodsky
Nucl. Phys. Proc. Suppl. **141**, 77 (2005) [arXiv:hep-ph/0408071]
Presented at Workshop on QCD Down Under, Barossa Valley and Adelaide, Australia, 10-19 Mar 2004
- [251] **“Conformal symmetry as a template for QCD”**
S. J. Brodsky

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Invited talk given at Workshop on Continuous Advances in QCD 2004, Minneapolis, Minnesota, 13-16 May 2004

- [252] **“A nonperturbative calculation of the electron’s magnetic moment”**
S. J. Brodsky, V. A. Franke, J. R. Hiller, G. McCartor, S. A. Paston and E. V. Prokhorov
Nucl. Phys. B **703**, 333 (2004) [arXiv:hep-ph/0406325]
- [253] **“High energy photon photon collisions at a linear collider”**
S. J. Brodsky
Int. J. Mod. Phys. A **20**, 7306 (2005) [arXiv:hep-ph/0404186]
Invited talk at 5th International Workshop on Electron-Electron Interactions at TeV Energies, Santa Cruz, California, 12-14 Dec 2003
- [254] **“Partonic calculation of the two-photon exchange contribution to elastic electron proton scattering at large momentum transfer”**
Y. C. Chen, A. Afanasev, S. J. Brodsky, C. E. Carlson and M. Vanderhaeghen
Phys. Rev. Lett. **93**, 122301 (2004) [arXiv:hep-ph/0403058]
- [255] **“Novel Spin Effects In QCD”**
S. J. Brodsky
SLAC-WP-042(2004)
Presented at the Workshop on High-p(T) physics at RHIC, Upton, NY, USA, 2-6 Dec 2003
- [256] **“Outlook”**
S. J. Brodsky
SLAC-WP-041(2003)
Presented at the Workshop on High-p(T) physics at RHIC, Upton, NY, USA, 2-6 Dec 2003
- [257] **“QCD physics opportunities in low-energy electron positron annihilation”**
S. J. Brodsky
In the Proceedings of Workshop on $e^+ e^-$ in the 1-GeV to 2-GeV Range: Physics and Accelerator Prospects - ICFA Mini-workshop - Working Group on High Luminosity $e^+ e^-$ Colliders, Alghero, Sardinia, Italy, 10-13 Sep 2003, pp WEPL001 [arXiv:hep-ph/0311355]
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Presented at Workshop on $e^+ e^-$ in the 1-GeV to 2-GeV Range: Physics and Accelerator Prospects - ICFA Mini-workshop - Working Group on High Luminosity $e^+ e^-$ Colliders, Alghero, Sardinia, Italy, 10-13 Sep 2003
- [258] **“Conformal aspects of QCD”**
S. J. Brodsky
SLAC-PUB-10206(2003)
Invited talk at International Conference on Color Confinement and Hadrons in Quantum Chromodynamics - Confinement 2003, Wako, Japan, 21- 24 Jul 2003
- [259] **“The covariant structure of light-front wave functions and the behavior of hadronic form factors”**
S. J. Brodsky, J. R. Hiller, D. S. Hwang and V. A. Karmanov
Phys. Rev. D **69**, 076001 (2004) [arXiv:hep-ph/0311218]
- [260] **“Light-front quantization and QCD phenomena”**
S. J. Brodsky
arXiv:hep-ph/0311057
SLAC-PUB-10233(2003)
Presented at Light-Cone Workshop: Hadrons and Beyond (LC 03), Durham, England, 5-9 Aug 2003
- [261] **“Physical renormalization schemes and grand unification”**
M. Binger and S. J. Brodsky
Phys. Rev. D **69**, 095007 (2004) [arXiv:hep-ph/0310322]

- [262] **“New perspectives for QCD: The novel effects of final-state interactions and near-conformal effective couplings”**
 S. J. Brodsky
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Invited talk at 2nd Conference on Nuclear and Particle Physics with CEBAF at Jlab (NAPP 2003), Dubrovnik, Croatia, 26-31 May 2003
- [263] **“Light-front hadron dynamics and AdS/CFT correspondence”**
 S. J. Brodsky and G. F. de Teramond
 Phys. Lett. B **582**, 211 (2004) [arXiv:hep-th/0310227]
- [264] **“Single-spin polarization effects and the determination of timelike proton form factors”**
 S. J. Brodsky, C. E. Carlson, J. R. Hiller and D. S. Hwang
 Phys. Rev. D **69**, 054022 (2004) [arXiv:hep-ph/0310277]
- [265] **“Hard probes in heavy ion collisions at the LHC: PDFs, shadowing and p A collisions”**
 A. Accardi *et al.*
 arXiv:hep-ph/0308248
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Subgroup report 3rd Workshop on Hard Probes in Heavy Ion Collisions: 3rd Plenary Meeting, Geneva, Switzerland, 7-11 Oct 2002
- [266] **“Hard photodisintegration of a proton pair in He-3”**
 S. J. Brodsky *et al.*
 Phys. Lett. B **578**, 69 (2004) [arXiv:nucl-th/0305068]
- [267] **“Hunting for glueballs in electron positron annihilation”**
 S. J. Brodsky, A. S. Goldhaber and J. Lee
 Phys. Rev. Lett. **91**, 112001 (2003) [arXiv:hep-ph/0305269]
- [268] **“Light-front quantization of gauge theories”**
 S. J. Brodsky
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 SLAC-PUB-9689(2003)
Invited talk at 2002 International Workshop on Strong Coupling Gauge Theories and Effective Field Theories (SCGT 02), Nagoya, Japan, 10- 13 Dec 2002
- [269] **“Final-state interactions and single-spin asymmetries in semi-inclusive deep inelastic scattering”**
 S. J. Brodsky, D. S. Hwang and I. Schmidt
 Int. J. Mod. Phys. A **18**, 1327 (2003)
Prepared for 3rd Circum-Pan-Pacific Symposium on High Energy Spin Physics (SPIN 2001), Beijing, China, 8-13 Oct 2001
- [270] **“Gauge theories on the light-front”**
 S. J. Brodsky
 Braz. J. Phys. **34**, 157 (2004) [arXiv:hep-th/0302121]
Invited talk at 23rd Brazilian National Meeting on Particle and Fields, Aguas de Lin
- [271] **“On the Behavior of the Effective QCD Coupling $\alpha_\tau(s)$ at Low Scales”**
 S. J. Brodsky, S. Menke, C. Merino and J. Rathsmann
 Phys. Rev. D **67**, 055008 (2003) [arXiv:hep-ph/0212078]
- [272] **“Spontaneously broken chiral symmetry and hard QCD phenomena”**
 M. J. Amarian *et al.*
 arXiv:hep-ph/0211291
Mini-proceedings of Workshop on Spontaneously Broken Chiral Symmetry and Hard QCD Phenomena, Bad Honnef, Germany, 15-19 Jul 2002
- [273] **“Single hadronic-spin asymmetries in weak interaction processes. ((V))”**
 S. J. Brodsky, D. S. Hwang and I. Schmidt
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- [274] **“Initial state interactions in the unpolarized Drell-Yan process”**
D. Boer, S. J. Brodsky and D. S. Hwang
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- [275] **“Two-particle truncation of Pauli-Villars-regulated Yukawa theory”**
S. J. Brodsky, J. R. Hiller and G. McCartor
Annals Phys. **305**, 266 (2003) [*arXiv:hep-th/0209028*]
- [276] **“High-energy QCD asymptotics of photon photon collisions”**
S. J. Brodsky, V. S. Fadin, V. T. Kim, L. N. Lipatov and G. B. Pivovarov
JETP Lett. **76**, 249 (2002) [*Pisma Zh. Eksp. Teor. Fiz.* **76**, 306 (2002)] [*arXiv:hep-ph/0207297*]
- [277] **“Perspectives on exclusive processes in QCD”**
S. J. Brodsky
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Prepared for Exclusive Processes at High Momentum Transfer, Newport News, Virginia, 15-18 May 2002
- [278] **“Commensurate Scale Relations In Quantum Chromodynamics”**
H. J. Lu and S. J. Brodsky
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Prepared for High-energy Physics: QCD Workshop 94, Montpellier, France, 7-13 Jul 1994
- [279] **“Initial-state interactions and single-spin asymmetries in Drell-Yan processes”**
S. J. Brodsky, D. S. Hwang and I. Schmidt
Nucl. Phys. B **642**, 344 (2002) [*arXiv:hep-ph/0206259*]
- [280] **“New directions in QCD and the electron-ion collider”**
S. J. Brodsky
SLAC-PUB-9195(2002)
Invited talk at Electron Ion Collider Workshop, Upton, New York, 28 Feb - 2 Mar 2002
- [281] **“Physics opportunities at a photon photon collider”**
S. J. Brodsky
Int. J. Mod. Phys. A **18**, 2871 (2003) [*arXiv:hep-ph/0204197*]
Invited talk at 4th International Workshop on Electron-Electron Interactions at TeV Energies (e- e- 01), Santa Cruz, California, 7-9 Dec 2001
- [282] **“Light-front methods and non-perturbative QCD”**
S. J. Brodsky
SLAC-PUB-9187(2002)
Invited talk at Workshop on Hadron Structure from Lattice QCD, Upton, New York, 18-22 Mar 2002
- [283] **“A unitary and renormalizable theory of the standard model in ghost-free light-cone gauge”**
P. P. Srivastava and S. J. Brodsky
Phys. Rev. D **66**, 045019 (2002) [*arXiv:hep-ph/0202141*]
- [284] **“Final-state interactions and single-spin asymmetries in semi-inclusive deep inelastic scattering”**
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Phys. Lett. B **530**, 99 (2002) [*arXiv:hep-ph/0201296*]
- [285] **“Hadron spin dynamics”**
S. J. Brodsky
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Talk given at 3rd Circum-Pan-Pacific Symposium on High Energy Spin Physics (SPIN 2001), Beijing, China, 8-13 Oct 2001

- [286] **“Physics at the light-front”**
S. J. Brodsky
Nucl. Phys. Proc. Suppl. **108**, 327 (2002) [arXiv:hep-ph/0112309]
Presented at ECT* International Conference on Light-Cone Physics: Particles and Strings (TRENTO 2001), 3-11 Sep 2001, Trento, Italy
- [287] **“High-energy asymptotics of photon photon collisions in QCD”**
S. J. Brodsky, V. S. Fadin, V. T. Kim, L. N. Lipatov and G. B. Pivovarov
arXiv:hep-ph/0111390
SLAC-PUB-9069(2001)
Presented at International Conference on the Structure and Interactions of the Photon and 14th International Workshop on Photon-Photon Collisions (Photon 2001), Ascona, Switzerland, 2-7 Sep 2001
- [288] **“QCD phenomenology and light-front wavefunctions”**
S. J. Brodsky
Acta Phys. Polon. B **32**, 4013 (2001) [arXiv:hep-ph/0111340]
Invited talk at Cracow School of Theoretical Physics: 41st Course: Fundamental Interactions, Zakopane, Poland, 2-11 Jun 2001q
- [289] **“The Heisenberg matrix formulation of quantum field theory”**
S. J. Brodsky
Fortsch. Phys. **50**, 503 (2002) [arXiv:hep-th/0111241]
Presented at Symposium on 100 Years Werner Heisenberg: Works and Impact, Bamberg, Germany, 26-30 Sep 2001
- [290] **“Perspectives and challenges for QCD phenomenology”**
S. J. Brodsky
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Prepared for APS / DPF / DPB Summer Study on the Future of Particle Physics (Snowmass 2001), Snowmass, Colorado, 30 Jun - 21 Jul 2001
- [291] **“Diffraction dissociation in QCD and light-cone wavefunctions”**
S. J. Brodsky
arXiv:hep-ph/0109205
SLAC-PUB-8998(2001)
Presented at 9th Blois Workshop on Elastic and Diffractive Scattering, Pruhonice, Prague, Czech Republic, 9-15 Jun 2001
- [292] **“Evading the CKM hierarchy”**
S. J. Brodsky and S. Gardner
Phys. Rev. D **65**, 054016 (2002) [arXiv:hep-ph/0108121]
- [293] **“Exact solutions to Pauli-Villars regulated field theories”**
S. J. Brodsky, J. R. Hiller and G. McCartor
Annals Phys. **296**, 406 (2002) [arXiv:hep-th/0107246]
- [294] **“Application of Pauli-Villars regularization and discretized light-cone quantization to a single-fermion truncation of Yukawa theory”**
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- [295] **“The generalized Crewther relation in QCD and its experimental consequences: The preliminary consideration”**
S. J. Brodsky, G. T. Gabadadze, A. L. Kataev and H. J. Lu
SLAC-REPRINT-1995-004(1995)
Prepared for 18th International Workshop on High-energy Physics and Field Theory: Relativity, Gravity, Quantum Mechanics and Contemporary Fundamental Physics, Protvino, Russia, 26-30 Jun 1995

- [296] **“Two-photon processes at intermediate energies”**
S. J. Brodsky
in *Proc. of the e^+e^- Physics at Intermediate Energies Conference* ed. Diego Bettoni,
In the Proceedings of e^+e^- Physics at Intermediate Energies, SLAC, Stanford, California, 30 Apr - 2
May 2001, pp W01 [arXiv:hep-ph/0106294]
SLAC-PUB-8883(2001)
Invited talk at e^+e^- Physics at Intermediate Energies, SLAC, Stanford, California, 30 Apr - 2 May
2001
- [297] **“Linear collider physics resource book for Snowmass 2001”**
T. Abe et al. [American Linear Collider Working Group]
in *Proc. of the APS/DPF/DPB Summer Study on the Future of Particle Physics (Snowmass 2001)* ed.
N. Graf,
SLAC-R-570(2001)
Resource book for Snowmass 2001, 30 Jun - 21 Jul 2001, Snowmass, Colorado
- [298] **“Linear collider physics resource book for Snowmass 2001. 4: Theoretical, accelerator,
and experimental options”**
T. Abe et al. [American Linear Collider Working Group]
in *Proc. of the APS/DPF/DPB Summer Study on the Future of Particle Physics (Snowmass 2001)* ed.
N. Graf,
arXiv:hep-ex/0106058
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Resource Book APS / DPF / DPB Summer Study on the Future of Particle Physics (Snowmass 2001),
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- [299] **“Linear collider physics resource book for Snowmass 2001. 3: Studies of exotic and
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in *Proc. of the APS/DPF/DPB Summer Study on the Future of Particle Physics (Snowmass 2001)* ed.
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- [300] **“Linear collider physics resource book for Snowmass 2001. 2: Higgs and supersymmetry
studies”**
T. Abe et al. [American Linear Collider Working Group]
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- [301] **“Linear collider physics resource book for Snowmass 2001. 1: Introduction”**
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- [302] **“Perturbative QCD and factorization of coherent pion photoproduction on the deuteron”**
S. J. Brodsky, J. R. Hiller, C. R. Ji and G. A. Miller
Phys. Rev. C **64**, 055204 (2001) [arXiv:hep-ph/0105259]

- [303] **“Structure functions are not parton probabilities”**
S. J. Brodsky, P. Hoyer, N. Marchal, S. Peigne and F. Sannino
Phys. Rev. D **65**, 114025 (2002) [*arXiv:hep-ph/0104291*]
- [304] **“QCD aspects of exclusive B decays”**
S. J. Brodsky
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SLAC-PUB-8809(2001)
Invited talk presented at 4th International Conference on B Physics and CP Violation (BCP4), Ago Town, Mie Prefecture, Japan, 19-23 February 2001
- [305] **“Hadronic light-front wavefunctions and QCD phenomenology”**
S. J. Brodsky
arXiv:hep-ph/0102051
SLAC-PUB-8770(2001)
Invited talk at 5th International Workshop on Particle Physics Phenomenology, Chi-Pen, Taitung, Taiwan, 8-11 Nov 2000
- [306] **“Key issues in hadronic physics”**
S. Capstick et al.
arXiv:hep-ph/0012238
SLAC-REPRINT-2000-051(2000)
Presented at APS Division of Nuclear Physics Town Meeting on Electromagnetic and Hadronic Physics, Newport News, Virginia, 1-4 Dec 2000
- [307] **“Exclusive processes in quantum chromodynamics and the light-cone Fock representation”**
S. J. Brodsky
SLAC-PUB-8649(2000)
In *Shifman, M. (ed.): *At the frontier of particle physics*, vol. 2* 1343-1444
- [308] **“Light-front quantized QCD in light-cone gauge”**
P. P. Srivastava and S. J. Brodsky
Phys. Rev. D **64**, 045006 (2001) [*arXiv:hep-ph/0011372*]
- [309] **“Photoproduction of charm near threshold”**
S. J. Brodsky, E. Chudakov, P. Hoyer and J. M. Laget
Phys. Lett. B **498**, 23 (2001) [*arXiv:hep-ph/0010343*]
- [310] **“Two-photon exclusive processes in QCD”**
S. J. Brodsky
arXiv:hep-ph/0010176
SLAC-PUB-8663(2000)
Invited talk at PHOTON 2000: International Workshop on Structure and Interactions of the Photon (Including 13th International Workshop on Photon-Photon Collisions), Ambleside, Lake District, England, 26-31 Aug 2000
- [311] **“Light-front-quantized QCD in light-cone gauge”**
P. P. Srivastava and S. J. Brodsky
SLAC-PUB-8631(2000)
Presented at 30th International Conference on High-Energy Physics (ICHEP 2000), Osaka, Japan, 27 Jul - 2 Aug 2000
- [312] **“Light-cone wavefunction representation of deeply virtual Compton scattering”**
S. J. Brodsky, M. Diehl and D. S. Hwang
Nucl. Phys. B **596**, 99 (2001) [*arXiv:hep-ph/0009254*]
- [313] **“The light-cone Fock representation in QCD”**
S. J. Brodsky
Nucl. Phys. Proc. Suppl. **90**, 3 (2000) [*arXiv:hep-ph/0009229*]
Invited talk at 10th International Light Cone Meeting on Nonperturbative QCD and Hadrons: From Hadrons to Strings (HD 2000), Heidelberg, Germany, 13-17 Jun 2000

- [314] **“The light-cone Fock expansion in quantum chromodynamics”**
S. J. Brodsky
arXiv:hep-ph/0009228
SLAC-PUB-8627(2000)
Presented at 7th Hadron Physics 2000, Caraguatatuba, Sao Paulo, Brazil, 10-15 Apr 2000
- [315] **“Jet asymmetry in high energy diffractive production”**
C. Merino, S. J. Brodsky and J. Rathsman
Nucl. Phys. Proc. Suppl. **96**, 141 (2001) [*arXiv:hep-ph/0009194*]
Contributed to International Euroconference in Quantum Chromodynamics: 15 Years of the QCD - Montpellier Conference (QCD 00), Montpellier, France, 6-13 Jul 2000
- [316] **“Light-front-quantized QCD in light-cone gauge”**
P. P. Srivastava and S. J. Brodsky
arXiv:hep-ph/0008293
SLAC-PUB-8591(2000)
Presented at 7th Hadron Physics 2000, Caraguatatuba, Sao Paulo, Brazil, 10-15 Apr 2000
- [317] **“Dynamical higher-twist and high x phenomena: A window to quark quark correlations in QCD”**
S. J. Brodsky
arXiv:hep-ph/0006310
SLAC-PUB-8474(2000)
Invited talk at the Workshop on Nuclear Structure in High X-Bjorken Region (HIX2000), Philadelphia, Pennsylvania, 30 Mar - 1 Apr 2000
- [318] **“Light-cone wavefunctions and the intrinsic structure of hadrons”**
S. J. Brodsky
arXiv:hep-ph/0004211
SLAC-PUB-8427(2000)
Presented at the Workshop on Light-Cone QCD and NonPerturbative Hadron Physics, Adelaide, Australia, 13-22 Dec 1999
- [319] **“Light-cone representation of the spin and orbital angular momentum of relativistic composite systems”**
S. J. Brodsky, D. S. Hwang, B. Q. Ma and I. Schmidt
Nucl. Phys. B **593**, 311 (2001) [*arXiv:hep-th/0003082*]
- [320] **“Coherent contributions of nuclear mesons to electroproduction and the HERMES effect”**
G. A. Miller, S. J. Brodsky and M. Karliner
Phys. Lett. B **481**, 245 (2000) [*arXiv:hep-ph/0002156*]
- [321] **“Disentangling running coupling and conformal effects in QCD”**
S. J. Brodsky, E. Gardi, G. Grunberg and J. Rathsman
Phys. Rev. D **63**, 094017 (2001) [*arXiv:hep-ph/0002065*]
- [322] **“Hadronic light-cone wavefunctions and the unification of QCD bound-state phenomena”**
S. J. Brodsky
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Invited talk at Circum-Pan-Pacific RIKEN Symposium on High Energy Spin Physics (Pacific Spin 99), Wako, Japan, 4-6 Nov 1999
- [323] **“New directions in quantum chromodynamics”**
S. J. Brodsky
arXiv:hep-ph/9912340
SLAC-PUB-8315(1999)
Invited talk at NATO Advanced Study Institute on Particle Production Spanning MeV and TeV Energies (Nijmegen 99), Nijmegen, Netherlands, 8-20 Aug 1999

- [324] **“QCD processes at the amplitude level”**
S. J. Brodsky
arXiv:hep-ph/9911368
SLAC-PUB-8295(1999)
Presented at Workshop on the Transition from Low to High Q Form-factors (To Honor the Occasion of the 60th Birthday of Stanley Brodsky), Athens, Georgia, 17 Sep 1999
- [325] **“Higher twist effects in the Drell-Yan process”**
A. Brandenburg, S. J. Brodsky, V. V. Khoze and D. Mueller
SLAC-REPRINT-1994-029()
Prepared for 11th International Symposium on High-energy Spin Physics and the 8th International Symposium on Polarization Phenomena in Nuclear Physics (SPIN 94), Bloomington, Indiana, 15-22 Sep 1994
- [326] **“Jet asymmetry and the detection of odderon exchange in DIS”**
C. Merino, S. J. Brodsky and J. Rathsman
Nucl. Phys. Proc. Suppl. **86**, 183 (2000)
Talk given at the High-Energy Physics International Euroconference on Quantum Chromo Dynamics - QCD '99, Montpellier, France, 7-13 Jul 1999
- [327] **“Looking for the odderon”**
C. Merino, S. J. Brodsky and J. Rathsman
SLAC-PUB-8272(1999)
Contributed to 29th International Symposium on Multiparticle Dynamics (ISMD 99), Providence, RI, 8-13 Aug 1999
- [328] **“Perturbative QCD relations inspired by hypothetical tau leptons”**
J. R. Pelaez, S. J. Brodsky, C. Merino and N. Toumbas
Nucl. Phys. Proc. Suppl. **86**, 216 (2000) [*arXiv:hep-ph/9909311*]
Talk given at the High-Energy Physics International EuroConference on Quantum Chromo Dynamics - QCD '99, Montpellier, France, 7-13 Jul 1999
- [329] **“QCD technology: Light-cone quantization and commensurate scale relations”**
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AIP Conf. Proc. **494**, 3 (1999) [*arXiv:hep-ph/9909234*]
Lectures given at 11th International Light-Cone School and Workshop: New Directions in Quantum Chromodynamics and 12th Nuclear Physics Summer School and Symposium (NuSS 99), Seoul, Korea, 26 May - 26 Jun 1999
- [330] **“Hard exclusive and diffractive processes in QCD”**
S. J. Brodsky
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SLAC-PUB-8235(1999)
Presented at 6th INT / Jlab Workshop on Exclusive and Semiexclusive Processes at High Momentum Transfer, Newport News, VA, 19-23 May 1999
- [331] **“Perspectives on EPIC physics”**
S. J. Brodsky
arXiv:hep-ph/9907346
SLAC-PUB-8198(1999)
Talk given at the Workshop on Physics with Electron Polarized Ion Collider - EPIC '99, Bloomington, IN, 8-11 Apr 1999
- [332] **“Light-front-quantized QCD in covariant gauge”**
P. P. Srivastava and S. J. Brodsky
Phys. Rev. D **61**, 025013 (2000) [*arXiv:hep-ph/9906423*]
- [333] **“Measuring the QCD Gell-Mann low psi-function”**
S. J. Brodsky, C. Merino and J. R. Pelaez
Phys. Rev. D **60**, 114007 (1999) [*arXiv:hep-ph/9906382*]

- [334] **“Conformal symmetry as a template: Commensurate scale relations and physical renormalization schemes”**
S. J. Brodsky and J. Rathsmann
arXiv:hep-ph/9906339
SLAC-PUB-8176(1999)
Invited talk at 13th Les Rencontres de Physique de la Valle d’Aoste: Results and Perspectives in Particle Physics, La Thuile, Valle d’Aoste, Italy, 28 Feb - 6 Mar 1999
- [335] **“The two-loop scale dependence of the static QCD potential including quark masses”**
S. J. Brodsky, M. Melles and J. Rathsmann
Phys. Rev. D **60**, 096006 (1999) [*arXiv:hep-ph/9906324*]
- [336] **“New tests of perturbative QCD inspired by hypothetical tau leptons”**
J. R. Pelaez, S. J. Brodsky and N. Toumbas
arXiv:hep-ph/9905435
SLAC-PUB-8147(1999)
Talk given at 34th Rencontres de Moriond: QCD and Hadronic Interactions, Les Arcs, France, 20-27 Mar 1999
- [337] **“Odderon-pomeron interference”**
S. J. Brodsky, J. Rathsmann and C. Merino
Phys. Lett. B **461**, 114 (1999) [*arXiv:hep-ph/9904280*]
- [338] **“The Physics case for a forward detector upgrade”**
H. Abramowicz et al.
SLAC-REPRINT-1996-020()
Prepared for Workshop on Future Physics at HERA (Preceded by meetings 25-26 Sep 1995 and 7-9 Feb 1996 at DESY), Hamburg, Germany, 30-31 May 1996
- [339] **“Application of Pauli-Villars regularization and discretized light-cone quantization to a (3+1)-dimensional model”**
S. J. Brodsky, J. R. Hiller and G. McCartor
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S. D. Bass, S. J. Brodsky and I. Schmidt
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- [341] **“The QCD pomeron with optimal renormalization”**
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Phys. Lett. B **449**, 306 (1999) [*arXiv:hep-ph/9812277*]
- [343] **“Scheme-independent predictions in QCD: Commensurate scale relations and physical renormalization schemes”**
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- [344] **“Testing QCD with hypothetical tau leptons”**
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- [345] **“QCD phenomena and the light-cone wavefunctions of hadrons”**
S. J. Brodsky
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SLAC-PUB-7870(1998)
Talk given at 3rd Workshop on Continuous Advances in QCD (QCD 98), Minneapolis, MN, 16-19 Apr 1998
- [346] **“Commensurate scale relations and the Abelian correspondence principle”**
S. J. Brodsky
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SLAC-PUB-7861(1998)
Invited talk at Workshop on Future Directions in Quark Nuclear Physics, Adelaide, Australia, 9-20 Mar 1998
- [347] **“Exact light-cone wavefunction representation of matrix elements of electroweak currents”**
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- [348] **“Nonperturbative renormalization and the electron’s anomalous moment in large-alpha QED”**
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- [349] **“The spin structure of a polarized photon”**
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- [350] **“Pauli-Villars as a nonperturbative ultraviolet regulator in discretized light-cone quantization”**
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- [351] **“An analytic extension of the $\overline{\text{MS}}$ renormalization scheme”**
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- [352] **“High energy photon photon and electron photon collisions”**
S. J. Brodsky
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- [353] **“Polarization asymmetry zero in heavy quark photoproduction and lepton production”**
S. J. Brodsky and I. Schmidt
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- [354] **“Light-cone quantized QCD and novel hadron phenomenology”**
S. J. Brodsky
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SLAC-PUB-7645(1997)
Given at 10th Summer School and Symposium on Nuclear Physics: QCD, Light cone Physics and Hadron Phenomenology (*NuSS 97*), Seoul, Korea, 23-28 Jun 1997
- [355] **“Exclusive photon photon processes”**
S. J. Brodsky
arXiv:hep-ph/9708345
SLAC-PUB-7604(1997)
Invited talk at International Conference on the Structure and the Interactions of the Photon (*Photon 97*) including the 11th International Workshop on Photon-Photon Collisions, Egmond aan Zee, Netherlands, 10-15 May 1997

- [356] **“Aspects of SU(N(c)) gauge theories in the limit of small number of colors”**
S. J. Brodsky and P. Huet
Phys. Lett. B **417**, 145 (1998) [[arXiv:hep-ph/9707543](#)]
- [357] **“BFKL scattering at LEP II and a next e+ e- collider”**
S. J. Brodsky, F. Hautmann and D. E. Soper
[arXiv:hep-ph/9707444](#)
SLAC-PUB-7601(1997)
Talks given at 5th International Workshop on Deep Inelastic Scattering and QCD (DIS 97), Chicago, IL, 14-18 Apr 1997 and at International Conference on the Structure and the Interactions of the Photon (Photon 97) including the 11th International Workshop on Photon-Photon Collisions, Egmond aan Zee, Netherlands, 10-15 May 1997
- [358] **“The spin and flavor content of intrinsic sea quarks”**
B. Q. Ma and S. J. Brodsky
[arXiv:hep-ph/9707408](#)
SLAC-PUB-7501(1997)
Talk given at ICTP Conference on Perspectives in Hadronic Physics, Trieste, Italy, 12-16 May 1997
- [359] **“Is J/psi nucleon scattering dominated by the gluonic van der Waals interaction?”**
S. J. Brodsky and G. A. Miller
Phys. Lett. B **412**, 125 (1997) [[arXiv:hep-ph/9707382](#)]
- [360] **“Pade approximants, optimal renormalization scales, and momentum flow in Feynman diagrams”**
S. J. Brodsky, J. R. Ellis, E. Gardi, M. Karliner and M. A. Samuel
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- [361] **“Virtual photon scattering at high energies as a probe of the short distance pomeron”**
S. J. Brodsky, F. Hautmann and D. E. Soper
Phys. Rev. D **56**, 6957 (1997) [[arXiv:hep-ph/9706427](#)]
- [362] **“The light-cone Fock state expansion and QCD phenomenology”**
S. J. Brodsky
[arXiv:hep-ph/9706236](#)
SLAC-PUB-7542(1997)
Invited talk at New Nonperturbative Methods and Quantization of the Light Cone, Les Houches, France, 24 Feb - 7 Mar 1997
- [363] **“Quantum Chromodynamics and Other Field Theories on the Light Cone”**
S. J. Brodsky, H. C. Pauli and S. S. Pinsky
Phys. Rept. **301**, 299 (1998) [[arXiv:hep-ph/9705477](#)]
- [364] **“Light-cone wavefunctions at small x”**
F. Antonuccio, S. J. Brodsky and S. Dalley
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- [365] **“Optimal renormalization scale and scheme for exclusive processes”**
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- [366] **“Intrinsic charm of vector mesons: A possible solution of the *rho pi puzzle*”**
S. J. Brodsky and M. Karliner
Phys. Rev. Lett. **78**, 4682 (1997) [[arXiv:hep-ph/9704379](#)]
- [367] **“Looking for exotic multiquark states in nonleptonic B decays”**
S. J. Brodsky and F. S. Navarra
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- [368] **“Rapidity gaps in perturbative QCD”**
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- [369] **“Asymmetric quark/antiquark hadronization in $e^+ e^-$ annihilation”**
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- [370] **“Probing the QCD pomeron in $e^+ e^-$ collisions”**
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- [371] **“Novel QCD effects in the production and decay of quarkonium”**
S. J. Brodsky
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- [372] **“The Drell-Yan process and factorization in impact parameter space”**
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- [373] **“Nonperturbative renormalization of QED in light-cone quantization”**
J. R. Hiller and S. J. Brodsky
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- [374] **“The strong interactions”**
R. Blankenbecler and S. J. Brodsky
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- [375] **“Nuclear effects at HERA”**
S. J. Brodsky
SLAC-PUB-7212(1996)
To be published in the proceedings of Workshop on Future Physics at HERA, Hamburg, Germany, 30-31 May 1996
- [376] **“Light-cone quantization and hadron structure”**
S. J. Brodsky
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SLAC-PUB-7152(1996)
Presented at *Orbis Scientiae: Neutrino Mass, Dark Matter, Gravitational Waves, Condensation of Atoms and Monopoles, Light-Cone Quantization*, Miami Beach, FL, 25-28 Jan 1996
- [377] **“The Quark/Antiquark Asymmetry of the Nucleon Sea”**
S. J. Brodsky and B. Q. Ma
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- [378] **“Optimal renormalization scales and commensurate scale relations”**
S. J. Brodsky and H. J. Lu
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Talk given at *International Symposium on Heavy Flavor and Electroweak Theory*, Beijing, P.R. China, 16-19 Aug 1995
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- [381] **“Light-cone quantization and QCD phenomenology”**
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- [382] **“The structure functions of the photon”**
S. J. Brodsky, M. Kramer and P. M. Zerwas
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- [383] **“Angular distributions of massive quarks and leptons close to threshold”**
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- [384] **“Systematics of heavy quark production at HERA”**
S. J. Brodsky, W. K. Tang and P. Hoyer
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- [385] **“Precision tests of quantum chromodynamics and the standard model”**
S. J. Brodsky and H. J. Lu
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Invited talk at PASCOS / Hopkins 1995, Baltimore, MD, Mar 22-25, 1995
- [386] **“W Anomalous moments and the polarization asymmetry zero in gamma $e \rightarrow W$ neutrino”**
S. J. Brodsky, T. G. Rizzo and I. Schmidt
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- [387] **“Relativistic corrections to the electromagnetic and axial moments of nuclei and other composite systems”**
F. Schlumpf and S. J. Brodsky
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- [388] **“Beyond standard quantum chromodynamics”**
S. J. Brodsky
arXiv:hep-ph/9503391
SLAC-PUB-6781(1994)
Talk given at 4th International Conference on Physics Beyond the Standard Model, Lake Tahoe, CA, 13-18 Dec 1994
- [389] **“Classical photoabsorption sum rules”**
S. J. Brodsky and I. Schmidt
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- [390] **“Polarization as a probe to the production mechanisms of charmonium in pi N collisions”**
W. K. Tang, S. J. Brodsky, M. Vanttinen and P. Hoyer
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SLAC-PUB-6576(1994)
Presented at Workshop on the Future of High Sensitivity Charm Experiments: CHARM2000, Batavia, IL, 7-9 Jun 1994
- [391] **“Intrinsic charm contribution to double quarkonium hadroproduction”**
R. Vogt and S. J. Brodsky
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- [392] **“The Impact of QCD and light cone quantum mechanics on nuclear physics”**
S. J. Brodsky and F. Schlumpf
Prog. Part. Nucl. Phys. **34**, 69 (1995) [*arXiv:hep-ph/9412221*]
Talk given at International School of Nuclear Physics: 16th Course: Electromagnetic Probes and the Structure of Hadrons and Nuclei (Euroconference), Erice, Italy, 15 - 23 Sep 1994

- [393] **“Hadroproduction And Polarization Of Charmonium”**
M. Vanttinen, P. Hoyer, S. J. Brodsky and W. K. Tang
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- [394] **“Commensurate scale relations: Precise tests of quantum chromodynamics without scale or scheme ambiguity”**
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arXiv:hep-ph/9409462
SLAC-PUB-6683(1994)
Invited talk at Tennessee International Symposium on Radiative Corrections: Status and Outlook, Gatlinburg, TN, 27 Jun - 1 Jul 1994
- [395] **“High-energy photon-photon collisions”**
S. J. Brodsky and P. M. Zerwas
Nucl. Instrum. Meth. A **355**, 19 (1995) [*arXiv:hep-ph/9407362*]
Presented at Workshop on Gamma-Gamma Colliders, Berkeley, CA, 28-31 Mar 1994
- [396] **“Exclusive processes: Tests of coherent QCD phenomena and nucleon substructure at CEBAF”**
S. J. Brodsky
arXiv:hep-ph/9407361
SLAC-PUB-6570(1994)
Invited talk at Workshop on CEBAF at Higher Energies, Newport News, VA, 14-16 Apr 1994
- [397] **“Atomic alchemy”**
C. Greub, D. Wyler, S. J. Brodsky and C. T. Munger
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- [398] **“Commensurate scale relations in quantum chromodynamics”**
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- [399] **“QCD and intrinsic heavy quark predictions for leading charm and beauty hadroproduction”**
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Nucl. Phys. B **438**, 261 (1995) [*arXiv:hep-ph/9405236*]
- [400] **“Polarization phenomena in quantum chromodynamics”**
S. J. Brodsky
SLAC-PUB-6450(1994)
Lectures given at 21st Annual SLAC Summer Institute on Particle Physics: Spin Structure in High Energy Processes (School: 26 Jul - 3 Aug, Topical Conference: 4-6 Aug), Stanford, CA, 26 Jul - 6 Aug 1993
- [401] **“Angular distributions in the Drell-Yan process: A Closer look at higher twist effects”**
A. Brandenburg, S. J. Brodsky, V. V. Khoze and D. Mueller
Phys. Rev. Lett. **73**, 939 (1994) [*arXiv:hep-ph/9403361*]
- [402] **“Wave function independent relations between the nucleon axial coupling $g(A)$ and the nucleon magnetic moments”**
S. J. Brodsky and F. Schlumpf
Phys. Lett. B **329**, 111 (1994) [*arXiv:hep-ph/9402214*]
- [403] **“Perturbative QCD constraints on the shape of polarized quark and gluon distributions”**
S. J. Brodsky, M. Burkardt and I. Schmidt
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- [404] **“Diffractive leptonproduction of vector mesons in QCD”**
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- [405] **“Light cone approach”**
S. J. Brodsky
CERN Cour. **33**, 14 (1993)
- [406] **“Commensurate scale relations: Relating observables in QCD without renormalization scale or scheme ambiguity”**
S. J. Brodsky and H. J. Lu
SLAC-PUB-6389(1993)
Invited talk presented at Leipzig Workshop on Quantum Field Theoretical Aspects of High Energy Physics, Bad Frankenhausen, Germany, Sep 20-24,1993
- [407] **“The Challenges of exclusive processes in QCD”**
S. J. Brodsky
SLAC-PUB-6356(1993)
Invited overview talk at International Workshop on Exclusive Reactions at High Momentum Transfer (Precedes the PANIC Conference, Perugia, Italy, 29 Jun - 3 Jul 1993), Elba, Italy, 24-26 Jun 1993
- [408] **“The reggeon trajectory in exclusive and inclusive large momentum transfer reactions”**
S. J. Brodsky, W. K. Tang and C. B. Thorn
Phys. Lett. B **318**, 203 (1993)
- [409] **“Photon-photon collisions at the next linear collider: Theory”**
S. J. Brodsky
SLAC-PUB-6314(1993)
Presented at 2nd International Workshop on Physics and Experiments with Linear $e^+ e^-$ Colliders, Waikoloa, HI, 26-30 Apr 1993
- [410] **“New Perspectives in quantum chromodynamics”**
S. J. Brodsky
SLAC-PUB-6304(1993)
Lectures given at CCAST Symposium on Particle Physics at the Fermi Scale, Beijing, China, 27 May - 4 Jun 1993
- [411] **“Production of relativistic anti-hydrogen atoms by pair production with positron capture”**
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- [412] **“QED Induced Rapidity Gap Events At The Z Peak”**
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- [413] **“QCD Without Scale Scheme Ambiguity”**
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In *Batavia 1992, Proceedings, The Fermilab meeting DPF 92, vol. 2* 917-919. and Preprint - Lu, H.J. (rec.Dec.92) 3 p
- [414] **“Novel spin effects in quantum chromodynamics”**
S. J. Brodsky
SLAC-PUB-6068(1993)
Invited talk given at 10th International Symposium on High-Energy Spin Physics (SPIN 92 - 35th Yamada Conference), Nagoya, Japan, 9-14 Nov 1992
- [415] **“Quantum chromodynamics on the light cone”**
S. J. Brodsky
SLAC-PUB-6029(1992) (Submitted to CERN Courier)
- [416] **“QCD prospects in anti-proton proton annihilation at SuperLEAR”**
J. M. Brom, S. J. Brodsky, L. Montanet, S. Narison and M. Poulet
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S. J. Brodsky and H. J. Lu
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SLAC-PUB-6000(1992) (Submitted to *Phys.Lett.B*)
- [418] **“Relating physical observables in QCD without scale - scheme ambiguity”**
H. J. Lu and S. J. Brodsky
Phys. Rev. D **48**, 3310 (1993) [*arXiv:hep-ph/9211254*]
- [419] **“A Bound on the energy loss of partons in nuclei”**
S. J. Brodsky and P. Hoyer
Phys. Lett. B **298**, 165 (1993) [*arXiv:hep-ph/9210262*]
- [420] **“Production of relativistic anti-hydrogen atoms by pair production with positron capture and measurement of the Lamb shift”**
C. T. Munger, S. J. Brodsky and I. Schmidt
SLAC-PUB-5939(1992)
Presented at *Anti-hydrogen Workshop, Munich, Germany, 30-31 Jul 1992*
- [421] **“QCD on the light cone”**
S. J. Brodsky
SLAC-PUB-5917(1992)
Talk given at *Workshop on QCD: 20 Years Later, Aachen, Germany, 9-13 Jun 1992*
- [422] **“Review of ‘Quantum Electrodynamics’ by T. Kinoshita, World Scientific”**
S. J. Brodsky
SLAC-PUB-5838(1992) (Submitted to *Phys. Today*)
- [423] **“Exclusive two photon processes: Tests of QCD at the amplitude level”**
S. J. Brodsky
SLAC-PUB-5849(1992)
Presented at *9th Int. Workshop on Photon-Photon Collisions, San Diego, CA, Mar 22-26, 1992*
- [424] **“The Challenge Of Light Cone Quantization Of Gauge Field Theory”**
S. J. Brodsky, G. McCartor, H. C. Pauli and S. S. Pinsky
Part. World **3**, 109 (1993)
- [425] **“Systematics Of Charm Production In Hadronic Collisions”**
R. Vogt, S. J. Brodsky and P. Hoyer
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- [426] **“Rapidity Gap Events In $E^+ E^-$ Annihilation”**
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- [427] **“Universal Properties Of The Electromagnetic Interactions Of Spin One Systems”**
S. J. Brodsky and J. R. Hiller
Phys. Rev. D **46**, 2141 (1992)
- [428] **“The Space-time structure of deep inelastic lepton - hadron scattering”**
V. Del Duca, S. J. Brodsky and P. Hoyer
Phys. Rev. D **46**, 931 (1992)
- [429] **“Novel QCD effects in nuclear collisions”**
S. J. Brodsky
Nucl. Phys. A **544**, 223C (1992)
Invited talk given at *Quark Matter '91: The 9th Int. Conf. on ultrarelativistic Nucleus-Nucleus Collisions, Gatlinburg, TN, Nov 11-15, 1991*
- [430] **“Perturbation theory in light cone quantization”**
A. Langnau and S. J. Brodsky
J. Comput. Phys. **109**, 84 (1993)

- [431] **“New QCD production mechanisms for hard processes at large x ”**
S. J. Brodsky, P. Hoyer, A. H. Mueller and W. K. Tang
Nucl. Phys. B **369**, 519 (1992)
- [432] **“Light cone quantization of quantum chromodynamics”**
S. J. Brodsky and H. C. Pauli
Lect. Notes Phys. **396**, 51 (1991)
Invited lectures given at 30th Schladming Winter School in Particle Physics: Field Theory, Schladming, Austria, Feb 27 - Mar 8, 1991
- [433] **“Heavy quark physics in quantum chromodynamics”**
S. J. Brodsky
SLAC-PUB-5529(1991)
Invited lectures presented at the Lake Louise Winter Institute: Particle Physics - The Factory Era, Lake Louise, Canada, Feb 17-23, 1991
- [434] **“Discretized Light Cone Quantization: Formalism For Quantum Electrodynamics”**
A. C. Tang, S. J. Brodsky and H. C. Pauli
Phys. Rev. D **44**, 1842 (1991)
- [435] **“Systematics of J/ψ production in nuclear collisions”**
R. Vogt, S. J. Brodsky and P. Hoyer
Nucl. Phys. B **360**, 67 (1991)
- [436] **“Novel tests of quantum chromodynamics in electroproduction”**
S. J. Brodsky and P. Hoyer
Nucl. Phys. A **532**, 79C (1991)
Invited talk at European Workshop on Hadronic Physics with Electrons Beyond 10 GeV, Dourdan, France, Oct 8-12, 1990
- [437] **“The Intrinsic short distance structure of hadrons in QCD”**
S. J. Brodsky
SLAC-PUB-5382(1990)
Invited lectures given at 28th Int. School of Subnuclear Physics: Physics up to 200-TeV, Erice, Italy, Jul 16-24, 1990
- [438] **“Short range structure of hadron and nuclear wave functions at high X ”**
P. Hoyer and S. J. Brodsky
SLAC-PUB-5374(1990)
Invited talk given at Topical Conf. on Particle Production near Threshold, Nashville, IN, Sep 30 - Oct 3, 1990
- [439] **“Novel nuclear and heavy quark phenomena in QCD”**
S. J. Brodsky
Nucl. Phys. Proc. Suppl. **23B**, 157 (1991)
Invited talk given at QCD Workshop 1990: Montpellier, France, Jul 8-13, 1990
- [440] **“Anti-proton annihilation in nuclei as a probe of QCD”**
S. J. Brodsky
SLAC-PUB-5343(1990)
Invited talk given at 1st Biennial Conf. on Low-Energy Antiproton Physics, Stockholm, Sweden, Jul 2-6, 1990
- [441] **“Bound state quark and gluon contributions to structure functions in QCD”**
S. J. Brodsky
Nucl. Phys. Proc. Suppl. **18C**, 196 (1990)
Invited talk given at DESY Topical Mtg.: Small x Behavior of Deep Inelastic Structure Functions in QCD, Hamburg, Germany, May 14-16, 1990
- [442] **“Quantum chromodynamics at small x : Conference summary of DESY topical meeting”**
S. J. Brodsky

Nucl. Phys. Proc. Suppl. **18C**, 226 (1991)

Summary talk fo DESY Topical Mtg.: Small x behavior of Deep Inelastic Structure Functions in QCD, Hamburg, Germany, May 14-16, 1990

- [443] **“Theoretical Results For Sixth Order Contributions To The Anomalous Magnetic Moment Of The Muon And Electron”**
S. J. Brodsky and T. Kinoshita
CLNS-116(1970)
- [444] **“Parton Model And Inelastic Processes With Two Photons”**
S. J. Brodsky and P. Roy
Phys. Rev. D **3**, 2914 (1971)
- [445] **“Radiative Level Shifts. 3. Hyperfine Structure In Hydrogenic Atoms”**
S. J. Brodsky and G. W. Erickson
Phys. Rev. **148**, 26 (1966)
- [446] **“Deep Inelastic Scattering Of Electrons On A Photon Target”**
S. J. Brodsky, T. Kinoshita and H. Terazawa
Phys. Rev. Lett. **27**, 280 (1971)
- [447] **“Dominant Colliding Beam Cross-Sections At High-Energies”**
S. J. Brodsky, T. Kinoshita and H. Terazawa
Phys. Rev. Lett. **25**, 972 (1970)
- [448] **“Effects Of Polarization On The Detection Of The Intermediate Boson”**
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- [469] **“NUCLEAR EFFECTS IN J / ψ AND LEPTON PAIR PRODUCTION”**
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Invited talk given at 3rd Int. Conf. on Physics in Collision, Como, Italy, Aug 31 - Sep 2, 1983
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S. J. Brodsky
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- [531] **“Breakdown Of QCD Factorization Theorems For Inclusive Reactions”**
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S. J. Brodsky, Y. Frishman, G. P. Lepage and C. T. Sachrajda
Phys. Lett. B **91**, 239 (1980)
- [561] **“Tests Of Perturbative Quantum Chromodynamics In Photon - Photon Collisions”**
S. J. Brodsky
SLAC-PUB-2464(1980)
Invited talk given at 1979 Int. Conf. on Two Photon Interactions, Lake Tahoe, Calif., Aug 30 - Sep 1, 1979
- [562] **“Perturbative Quantum Chromodynamics”**
S. J. Brodsky and G. P. Lepage
SLAC-PUB-2447(1979)
Presented at Summer Inst. on Particle Physics, SLAC, Stanford, Calif., Jul 9-20, 1979
- [563] **“Quantum Electrodynamics And The Theory Of The Hydrogen Atom”**
S. J. Brodsky
*In *Brandeis Univ 1969, Proceedings, Atomic Physics and Astrophysics, Vol.1*, New York 1971, 91-169*
- [564] **“International Colloquium On Photon - Photon Collisions In Electron - Positron Storage Rings, Paris, College De France, 3-4 September 1973”**
S. J. Brodsky et al.
J.Physique **35 Suppl.3 (1974) C2-1 - C2-125**
- [565] **“Nuclear Phenomena And The Short Distance Structure Of Hadrons”**
S. J. Brodsky
SLAC-PUB-2395(1979)
Invited talk given at 1st Workshop on Ultra-Relativistic Nuclear Collisions, Berkeley, Calif., May 21-24, 1979
- [566] **“Perturbative Contributions To Quark Masses”**
S. J. Brodsky, G. F. de Te'ramond and I. A. Schmidt
Phys. Rev. Lett. **44**, 557 (1980)

- [567] **“Exclusive Processes In Quantum Chromodynamics: Evolution Equations For Hadronic Wave Functions And The Form-Factors Of Mesons”**
G. P. Lepage and S. J. Brodsky
Phys. Lett. B **87**, 359 (1979)
- [568] **“Exclusive Processes In Quantum Chromodynamics: The Form-Factors Of Baryons At Large Momentum Transfer”**
G. P. Lepage and S. J. Brodsky
Phys. Rev. Lett. **43**, 545 (1979) [Erratum-*ibid.* **43**, 1625 (1979)]
- [569] **“Spin Effects In Large Transverse Momentum Exclusive Scattering Processes”**
S. J. Brodsky, C. E. Carlson and H. J. Lipkin
Phys. Rev. D **20**, 2278 (1979)
- [570] **“Quantum Chromodynamics And The Dynamics Of Hadrons”**
S. J. Brodsky
SLAC-PUB-2298(1979)
Lectures given at La Jolla Inst. Summer Workshop on QCD, La Jolla, Calif., Jul 31 - Aug 18, 1978
- [571] **“Exclusive Processes And The Exclusive Inclusive Connection In Quantum Chromodynamics”**
S. J. Brodsky and G. P. Lepage
SLAC-PUB-2294(1979)
Presented at Workshop on Current Topics in High Energy Physics, Cal Tech., Pasadena, Calif., Feb 13-17, 1979
- [572] **“Quark Structure Functions Of Mesons And The Drell-Yan Process”**
E. L. Berger and S. J. Brodsky
Phys. Rev. Lett. **42**, 940 (1979)
- [573] **“Two Photon Collisions And Short Distance Tests Of Quantum Chromodynamics”**
S. J. Brodsky
SLAC-PUB-2240(1978)
Presented at Joseph M. Weis Memorial Symp. on Strong Interactions, Seattle, Wash., Nov 30, 1978
- [574] **“Hadron And Photon Production At Large Transverse Momentum And The Dynamics Of QCD Jets”**
S. J. Brodsky
Phys. Scripta **19**, 154 (1979)
Invited talk given at Symp. on Jets in High Energy Collisions, Copenhagen, Denmark, Jul 10-14, 1978
- [575] **“Production Of Jets And Single Particles At Large Transverse Momentum In Photon-Photon Collisions”**
S. J. Brodsky, T. A. DeGrand, J. F. Gunion and J. H. Weis
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- [576] **“The Gluon Distribution In Hadrons”**
S. J. Brodsky and J. F. Gunion
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- [577] **“Are Gluon Jets Oblate?”**
S. J. Brodsky, T. A. DeGrand and R. Schwitters
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- [578] **“The Production Of Real Photons At Large Transverse Momentum In P P Collisions”**
R. Ruckl, S. J. Brodsky and J. F. Gunion
Phys. Rev. D **18**, 2469 (1978)
- [579] **“Constituent Transverse Momentum Fluctuations And The Hard Scattering Expansion”**
W. E. Caswell, R. R. Horgan and S. J. Brodsky
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S. J. Brodsky, T. A. DeGrand, J. F. Gunion and J. H. Weis
Phys. Rev. Lett. **41**, 672 (1978)
- [581] **“The Magnitude Of Large Transverse Momentum Cross-Sections”**
R. Blankenbecler, S. J. Brodsky and J. F. Gunion
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- [582] **“The Decay Of The Upsilon Into Photons And Gluons”**
S. J. Brodsky, D. G. Coyne, T. A. DeGrand and R. R. Horgan
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- [583] **“Large Transverse Momentum Phenomena”**
S. J. Brodsky
SLAC-PUB-2009(1977)
Invited talk at VIII Int. Symp. on Multiparticle Dynamics, Kaysersberg, France, June 12-17, 1977
- [584] **“Quark Dynamics And Particle Production In High-Energy Collisions”**
S. J. Brodsky
SLAC-PUB-1982(1977)
Lecture at Int. Symposium on Hadron Structure and Multiparticle Production, Kazimierz Dolny, Poland, May 24-27, 1977
- [585] **“Recent Advances In Bound State Quantum Electrodynamics”**
S. J. Brodsky and G. P. Lepage
SLAC-PUB-1966(1977)
Invited talk at 4th Int. Colloq. on Adv. Computing Methods in Theoretical Phys., St. Maximin, France, Mar 21-23, 1977
- [586] **“Hadronic Fragmentation As A Probe Of The Underlying Dynamics Of Hadron Collisions”**
S. J. Brodsky and J. F. Gunion
Phys. Rev. D **17**, 848 (1978)
- [587] **“Large Transverse Momentum Processes And The Constituent Interchange Model”**
S. J. Brodsky, R. Blankenbecler and J. F. Gunion
SLAC-PUB-1938(1977)
Presented at 12th Rencontre de Moriond, Flaine, France, Mar 6-18, 1977
- [588] **“Jet Production And The Dynamical Role Of Color”**
S. J. Brodsky
SLAC-PUB-1937(1977)
Invited talk presented at 12th Rencontre de Moriond, Flaine, France, Mar 6-18, 1977
- [589] **“Quantum Electrodynamics In Strong And Supercritical Fields”**
S. J. Brodsky and P. J. Mohr
SLAC-PUB-1889(1977)
- [590] **“Hadron Production In Nuclear Collisions: A New Parton Model Approach”**
S. J. Brodsky, J. F. Gunion and J. H. Kuhn
Phys. Rev. Lett. **39**, 1120 (1977)
- [591] **“The Retention Of Quantum Numbers By Quark And Multi-Quark Jets”**
S. J. Brodsky and N. Weiss
Phys. Rev. D **16**, 2325 (1977)
- [592] **“Charge Asymmetry In $E^+ E^- \rightarrow$ Gamma Hadrons: New Tests Of The Quark-Parton Model And Fractional Charge”**
S. J. Brodsky, C. E. Carlson and R. Suaya
Phys. Rev. D **14**, 2264 (1976)

- [593] **“Radiative Processes In Electron-Proton Collisions At Pep”**
S. J. Brodsky
PEP-0015
- [594] **“Connections Between Lepton Induced And Hadron Induced Multiparticle Reactions”**
S. J. Brodsky and J. F. Gunion
SLAC-PUB-1820(1976)
Invited talk presented at 7th Int. Colloquium on Multiparticle Reactions, Munich, West Germany, Jun 21-25, 1976
- [595] **“Recent Developments In The Theory Of Large Transverse Momentum Processes”**
S. J. Brodsky and J. F. Gunion
SLAC-PUB-1806(1976)
Invited talks presented at 18th Int. Conf. on High Energy Physics, Tbilisi, USSR, Jul 15-21, 1976, and at 7th Int. Colloquium on Multiparticle Reactions, Munich, West Germany, Jun 21-25, 1976
- [596] **“The Asymptotic Form-Factors Of Hadrons And Nuclei And The Continuity Of Particle And Nuclear Dynamics”**
S. J. Brodsky and B. T. Chertok
Phys. Rev. D **14**, 3003 (1976)
- [597] **“The Deuteron Form-Factor And The Short Distance Behavior Of The Nuclear Force”**
S. J. Brodsky and B. T. Chertok
Phys. Rev. Lett. **37**, 269 (1976)
- [598] **“Hadron Multiplicity In Color Gauge Theory Models”**
S. J. Brodsky and J. F. Gunion
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- [599] **“Constituent Models And Large Transverse Momentum Reactions”**
S. J. Brodsky
SLAC-PUB-1733(1976)
SLAC Summer Inst.1975:353
- [600] **“The Impact Of Quantum Electrodynamics”**
S. J. Brodsky
SLAC-PUB-1699(1975)
Presented at Los Alamos Meson Physics Facility User’s Group, Los Alamos, N. Mex., Nov 10-11, 1975
- [601] **“Large Transverse Momentum Processes”**
D. W. Sivers, S. J. Brodsky and R. Blankenbecler
Phys. Rept. **23**, 1 (1976)
- [602] **“Analysis Of Particle Production At Large Transverse Momentum”**
R. Blankenbecler, S. J. Brodsky and J. F. Gunion
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- [603] **“Recent Progress In The Phenomenology Of Large Transverse Momentum Reactions”**
S. J. Brodsky
SLAC-PUB-1575(1975)
Proceedings of the SLAC Summer Inst., SLAC Report 179, Vol. 2, p. 259-277
- [604] **“Parity Violation In Atoms”**
S. J. Brodsky and G. Karl
Comments Atom. Mol. Phys. **5**, 63 (1976)
- [605] **“Notes From The Slac Theory Workshop On The Psi Concerning: Interference Effects, Angular Distributions, How To Extract Widths, Radiative Corrections”**
J. D. Bjorken et al.
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- [606] **“Composite Models Of Hadrons And Large Transverse Processes”**
S. J. Brodsky
SLAC-PUB-1497(1974)
Invited paper to the Int. Conf. on Few Body Problems in Nuclear and Particle Physics, Quebec, Canada, Aug 27-31, 1974
- [607] **“Scaling Laws For Large Momentum Transfer Processes”**
S. J. Brodsky and G. R. Farrar
Phys. Rev. D 11, 1309 (1975)
- [608] **“Unified Description Of Inclusive And Exclusive Reactions At All Momentum Transfers”**
R. Blankenbecler and S. J. Brodsky
Phys. Rev. D 10, 2973 (1974)
- [609] **“Physical Effects Of Hadronic Bremsstrahlung. Reactions At Large And Small Momentum Transfers”**
R. Blankenbecler, S. J. Brodsky, J. F. Gunion and R. Savit
Phys. Rev. D 10, 2153 (1974)
- [610] **“Quantum Electrodynamics And Exotic Atomic Phenomena Of High Z Elements”**
S. J. Brodsky
Comments Atom. Mol. Phys. 4, 93 (1973)
- [611] **“Hadronic And Electromagnetic Interactions At Large Transverse Momentum”**
S. J. Brodsky
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Invited talk presented at 5th Int. Conf. on High Energy Collisions, Stony Brook, N.Y., Aug 23-24, 1973
- [612] **“Application Of The Infinite Momentum Method To Quantum Electrodynamics And Bound State Problems”**
S. J. Brodsky
SLAC-PUB-1328(1973)
Invited talk presented to 3rd Colloquium on Advanced Computing Methods in Theoretical Physics, Marseille, France, Jun 25-29, 1973
- [613] **“The Hadronic Physics Of Photon - Photon Collisions”**
S. J. Brodsky
J. Phys. (France) 35, 69 (1973)
Invited talk presented at Int. Colloquium on Photon-Photon Collisions in Electron-Positron Storage Rings, College de France, Paris, Sep 3-4, 1973
- [614] **“The Connection Between Regge Behavior And Fixed Angle Scattering”**
R. Blankenbecler, S. J. Brodsky, J. F. Gunion and R. Savit
Phys. Rev. D 8, 4117 (1973)
- [615] **“Scaling Laws At Large Transverse Momentum”**
S. J. Brodsky and G. R. Farrar
Phys. Rev. Lett. 31, 1153 (1973)
Submitted to Int. Symposium on Electron and Photon Interactions at High Energies, Bonn, West Germany, Aug 27-31, 1973
- [616] **“Quantum Electrodynamics And Renormalization Theory In The Infinite Momentum Frame”**
S. J. Brodsky, R. Roskies and R. Suaya
Phys. Rev. D 8, 4574 (1973)
- [617] **“A Gauge - Invariant Scaling Model Of Current Interactions With Regge Behavior And Finite Fixed Pole Sum Rules”**
S. J. Brodsky, F. E. Close and J. F. Gunion
Phys. Rev. D 8, 3678 (1973)

- [618] **“Large Angle Scattering And The Interchange Force”**
J. F. Gunion, S. J. Brodsky and R. Blankenbecler
Phys. Rev. D **8**, 287 (1973)
- [619] **“Hadron Production In E+ E- Collisions - One And Two Photon Processes”**
S. J. Brodsky
SLAC-PUB-1162(1972)
Presented at 16th Int. Conf. on High Energy Physics, Batavia, Ill., Sep 6-13, 1972
- [620] **“Quantum Electrodynamics: Theory”**
S. D. Drell and S. J. Brodsky
SLAC-PUB-0454(1968)
Invited talk at Int. Conf. on Atomic Physics, N.Y.U., Jun 1968
- [621] **“Inclusive Processes At High Transverse Momentum”**
R. Blankenbecler, S. J. Brodsky and J. F. Gunion
Phys. Lett. B **42**, 461 (1972)
- [622] **“Atomic Physics And Quantum Electrodynamics In The Infinite Momentum Frame”**
S. J. Brodsky
SLAC-PUB-1118(1972)
Presented at 3rd Int. Conf. on Atomic Physics, Boulder, Colo., Aug 7-11, 1972
- [623] **“Quantum Electrodynamics And Renormalization Theory In The Infinite Momentum Frame”**
S. J. Brodsky and R. Roskies
Phys. Lett. B **41**, 517 (1972)
Submitted to XVI Int. Conf. on High Energy Physics, Sep 6-13, Batavia, Ill.
- [624] **“Algebraic Computation Techniques In Quantum Electrodynamics”**
S. J. Brodsky
SLAC-PUB-1061(1972)
Proc. of the 2nd Colloquium on Advanced Computing Methods in Theoretical Physics, Marseille, France, Jun 1971, Vol. 2, P. IV-1 - IV- 27.
- [625] **“A Test For Fractionally Charged Partons From Deep Inelastic Bremsstrahlung In The Scaling Region”**
S. J. Brodsky, J. F. Gunion and R. L. Jaffe
Phys. Rev. D **6**, 2487 (1972)
- [626] **“The Present Status Of Quantum Electrodynamics”**
S. J. Brodsky and S. D. Drell
Ann. Rev. Nucl. Part. Sci. **20**, 147 (1970)
- [627] **“Phenomenology Of Photon Processes, Vector Dominance And Crucial Tests For Parton Models”**
S. J. Brodsky, F. E. Close and J. F. Gunion
Phys. Rev. D **6**, 177 (1972)
- [628] **“Two Photon Mechanism Of Particle Production By High-Energy Colliding Beams”**
S. J. Brodsky, T. Kinoshita and H. Terazawa
Phys. Rev. D **4**, 1532 (1971)
- [629] **“Quantum Electrodynamics Theory: Its Relation To Precision Low-Energy Experiments”**
S. J. Brodsky
SLAC-PUB-0795(1970)
Portions of this paper were also presented at the 2nd Int. Conf. on Atomic Physics, Oxford, 1970
- [630] **“Composite Theory Of Inclusive Scattering At Large Transverse Momenta”**
J. F. Gunion, S. J. Brodsky and R. Blankenbecler
Phys. Rev. D **6**, 2652 (1972)

- [631] **“Interchange Description Of High Transverse Momentum Processes At N.A.L. Energies”**
J. F. Gunion, S. J. Brodsky and R. Blankenbecler
PITT-124(1974)
- [632] **“Radiative Problems And Quantum Electrodynamics”**
S. J. Brodsky
SLAC-PUB-0989(1971)
Presented at Int. Symposium on Electron and Photon Interactions at High Energies, Cornell Univ., Ithaca, N.Y., Aug 23-27, 1971.
- [633] **“Compton Scattering And Fixed Poles In Parton Field Theoretic Models”**
S. J. Brodsky, F. E. Close and J. F. Gunion
Phys. Rev. D **5**, 1384 (1972)
- [634] **“Suggested Boson - Lepton Pair Couplings And The Anomalous Magnetic Moment Of The Muon”**
S. J. Brodsky and E. De Rafael
Phys. Rev. **168**, 1620 (1968)
- [635] **“Fourth Order Electrodynamic Corrections To The Lamb Shift”**
T. Appelquist and S. J. Brodsky
Phys. Rev. A **2**, 2293 (1970)
- [636] **“Photon - Photon Scattering Contribution To The Sixth Order Magnetic Moment Of The Muon”**
J. Aldins, T. Kinoshita, S. J. Brodsky and A. J. Dufner
Phys. Rev. Lett. **23**, 441 (1969)
- [637] **“Determination Of The Real Part Of The Compton Amplitude At A Nucleon Resonance”**
S. J. Brodsky, A. C. Hearn and R. G. Parsons
Phys. Rev. **187**, 1899 (1969)
- [638] **“Photon-Nucleus Total Cross-Sections”**
S. J. Brodsky and J. Pumplin
Phys. Rev. **182**, 1794 (1969)
- [639] **“Photon - Photon Scattering Contribution To The Sixth Order Magnetic Moments Of The Muon And Electron”**
J. Aldins, T. Kinoshita, S. J. Brodsky and A. J. Dufner
Phys. Rev. D **1**, 2378 (1970)
- [640] **“The Order α^2 Electrodynamic Corrections To The Lamb Shift”**
T. Appelquist and S. J. Brodsky
Phys. Rev. Lett. **24**, 562 (1970)
- [641] **“Composite Theory Of Large Angle Scattering And New Tests Of Parton Concepts”**
J. F. Gunion, S. J. Brodsky and R. Blankenbecler
Phys. Lett. B **39**, 649 (1972)
- [642] **“The Electromagnetic Interactions Of Composite Systems”**
S. J. Brodsky and J. R. Primack
Annals Phys. **52**, 315 (1969)
- [643] **“Status Of Quantum Electrodynamics”**
S. J. Brodsky
In the Proceedings of 4th Int. Symposium on Electron and Photon Interactions at High Energies, Liverpool, England, Sep 14-20, 1969, pp 3-20
SLAC-PUB-0676(1969)
Invited talk presented at Int. Symposium on Electron and Photon Interactions at High Energies, Liverpool, England, Sep 14-20, 1969

- [644] **“The Electromagnetic Interactions Of Loosely Bound Composite Systems”**
S. J. Brodsky and J. R. Primack
Phys. Rev. **174**, 2071 (1968)
- [645] **“Statistical Model For Electron-Positron Annihilation Into Hadrons”**
J. D. Bjorken and S. J. Brodsky
Phys. Rev. D **1**, 1416 (1970)
- [646] **“Second Born Corrections To Wide Angle Electron Pair Production And Bremsstrahlung”**
S. J. Brodsky and J. Gillespie
Phys. Rev. **173**, 1011 (1968)
- [647] **“Corrections To Muonic X-Rays And A Possible Proton Halo”**
R. C. Barrett, S. J. Brodsky, M. H. Goldhaber and G. W. Erickson
Phys. Rev. **166**, 1589 (1968)
- [648] **“Precise Theory Of The Zeeman Spectrum For Atomic Hydrogen And Deuterium And The Lamb Shift”**
S. J. Brodsky and R. G. Parsons
Phys. Rev. **163**, 134 (1967)
- [649] **“W Boson Contribution To The Anomalous Magnetic Moment Of The Muon”**
S. J. Brodsky and J. D. Sullivan
Phys. Rev. **156**, 1644 (1967)
- [650] **“Electrodynamics At Very Low And Very High-Energies”**
S. J. Brodsky
SLAC-PUB-1010 Invited Lectures, University of Sussex. 1972
- [651] **The Radiative Corrections to the Hyperfine Structure in Hydrogen”**
Brodsky, Stanley J.
Thesis (PH.D.)—UNIVERSITY OF MINNESOTA, 1964.
Source: Dissertation Abstracts International, Volume: 26-02, page: 1094.

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23 Invited Plenary talks at International Conferences, Colloquia, and Seminars

Slides for these lectures are available <https://www.dropbox.com/sh/o568a161fh0is9b/RCySDLQ0Yh>
 at on my website:

<http://www.slac.stanford.edu/grp/th/Brodsky/BrodskyHome.html> http://www.slac.stanford.edu/grp/th/recentlectures.html#Stan_Brodsky

24 Invited conference talks and seminars in 2014

- *Novel QCD Phenomena and New Perspectives for Hadron Physics from Light-Front Holography*, Conference on High Energy Physics in the LHC Era, Fifth International Workshop, Universidad Tecnica Santa Maria, Department of Physics, Dec. 16-20, 2014, Valparaiso, Chile
- *The Light-Front Schrödinger Equation: A New Approach to Color Confinement and Non-Perturbative QCD*
 Strong Interactions in the LHC Era Bad Honnef, Germany November 13, 2014
- *Novel Tests of QCD at FAIR*
 International Conference on Science and Technology for FAIR in Europe October 13-17, 2014 Das Wormser, Germany

- *Novel Tests of Non-Perturbative and Perturbative QCD at an Electron-Ion Collider*
Poetic 2014 International Workshop on Physics Opportunities at an Electron-Ion Collider September 22-26, 2014, Yale University

item *The Remarkable Connections between Atomic and Hadronic Physics*
EXA 2104 International Conference on Exotic Atoms and Related Topics September 17, 2014 Vienna, Austria
- *New Perspectives for Hadron Physics*
Three lectures presented at the University of Kansas September 2-4, 2014 University of Kansas, Lawrence, Kansas
- *Breaking Conformal Invariance: AdS/QCD and the Principle of Maximum Conformality*
Conference: "New Physics Within and Beyond the Standard Model" Oberwölz, Austria September 10, 2014
- *Novel Tests of Non-Perturbative and Perturbative QCD at JLab*
Seminar, Thomas Jefferson Laboratory August 12, 2014
- *Novel QCD Physics*
The Sixth Workshop on Hadron Physics in China and Opportunities in the U.S. Lanzhou, China July 21-24, 2014
- *Precision Tests of QCD Physics at the LHC*
QCD 14 17th High Energy Physics International Conference in Quantum Chromodynamics Montpellier, France June 30, 2014
- *Introduction to Light Front Quantization*
Three Lectures 3rd International Symposium on Non-Equilibrium Dynamics and 4th Turic Workshop Crete, Greece June 9-14, 2014
- *The Light-Front Schrödinger Equation and Color Confinement*
Summary Talk, Light-Cone 2014: Theory and Experiment for Hadrons on the Light-Front North Carolina State University Raleigh, North Carolina May 26-30, 2014
- *AdS/QCD, Light-Front Holography, and the Light-Front Vacuum*
Ferrara International School Niccolo' Cabeo Vacuum and Broken Symmetries from the quantum to the Cosmos IUSS Ferrara, Italy May 19-23, 2014
- *New Perspectives for QCD from Light-Front Holography*
Instituto de Fisica Seminar Universidad Autnoma de San Luis Potos, Mexico April 10, 2014
- *The remarkable connections between Atomic and Hadronic physics and Exotic Atoms in Flight*
Instituto de Fisica Colloquium, Universidad Autnoma de San Luis Potos, Mexico April 9, 2014
- *The Structure of Matter at Very Short Distances*
General Talk Instituto de Fisica Universidad Autnoma de San Luis Potos, Mexico April 8, 2014
- *Exclusive Processes and New Perspectives for QCD*
Gunion Fest University of California, Davis March 28-29, 2014
- *Light-Front Holographic QCD and Confinement*
International Conference on Flavor Physics and QCD Mass Generation Nanyang Technological University Singapore February 10-14, 2014
- *Elimination of Scale Ambiguities for LHC Physics The Principle of Maximum Conformality (PMC), Intrinsic Charm and other Novel QCD Effects at the LHC*
CERN Experimental Seminar January 23-24, 2014
- *Novel Heavy-Quark Phenomena at Threshold,*
CERN Theory Seminar, January 22, 2014
- *LHeC Physics Highlights*
LHeC Workshop, CERN, January 21, 2014

- *Exploring Hadron Structure with Tagged Structure Functions*, Jefferson Laboratory, January 16-18, 2014

25 Invited conference talks and seminars 2013

- *New Perspectives for QCD: Light Front Holography and QCD Confinement*, Standard Model@the LHC and Hoyer Fest, 6th Odense Winter School on Theoretical Physics, University of Southern Denmark, CP3 Origins, November 21, 2013
- *Novel Heavy Quark Phenomena in QCD* Hadron 2013: XVth International Conference in Hadron Spectroscopy Nara, Japan November 4-8, 2013
- *Light-Front Holography and the Uniqueness of the QCD Confinement Potential* Holography and QCD Physics: Recent Progress and Challenges, Kavli IPM, The University of Tokyo, September 26, 2013
- *Light-Front Holography and the QCD Confinement Potential* The First Sino-Americas Workshop and School on the Bound-State Problem in Continuum QCD 22-26 October 2013 USTC, Hefei, China
- *Light-Front Holography and the Uniqueness of the QCD Confinement Potential* 24-28 September, 2013 Kavli IPM The University of Tokyo Holography and QCD Physics: Recent Progress and Challenges
- *Novel Perspectives for QCD* QCD Landscape of the Nucleon and Atomic Nuclei LBNL, August 14 2013
- *AdS/QCD and Light-Front Holography* International Institute of Physics Natal, Brazil Hadron Physics: A Challenge to Holography July 29-August 7, 2013
- Natal, Brazil July 2013, international Institute of Physics UFRN “AdS/QCD and Light-Front Holography” Hadron Physics: A Challenge to Holography
- China, July 2013 “AdS/QCD and Light-Front Holography” Chongqing University, Ninth Summer School on Theoretical Physics
- *Novel QCD Phenomena and New Perspectives for Hadron Physics from Light-Front Holography* Low X Conference: Weizmann Institute, Rehovot Israel May 30, 2013
- European Center for Theoretical Studies ECT* in Nuclear Physics and Related Areas, Feb., 2013 Physics Flagships for AFTER: Fixed Target Experiments @ the LHC “Heavy Quark Physics”
- UTSFM, Chile POETIC Physics Opportunities at an Electron-Ion Collider “Light-Front QCD, Conformal Invariance, and Electron-Ion Collisions” March 2013
- Institute for Nuclear Theory, Feb 12, 2013. ”Light-Front Hadronic and Nuclear Physics”
- Baryons 2013 University of Glasgow, Scotland, July 2013. International Conference on the Structure of Baryons “New Perspectives for QCD and Baryon Physics”
- University of Nottingham, England: Tales of Lambda, July 2013 “QCD and the Standard-Model Vacuum on the Light Front”
- Low x “Novel QCD Phenomena and New Perspectives for Hadron Physics from Light-Front Holography” 30 May, 2013 Weizmann Institute, Rehovot, Israel
- Iowa State University NTSE International Conference on Nuclear Theory in the Supercomputing Era “Light-Front Quantum Chromodynamics” May, 14, 2013
- “New Perspectives for QCD: Light-Front Holography and the Principle of Maximum Conformality” APS Meeting, Ohio State University March 28, 2013

- AdS/QCD and Light-Front Holography- LC 2013, Skiathos, Greece - May 21, 2013
- New Perspectives for Quantum Chromodynamics - U of Kentucky - April 19, 2013
- Conformal Invariance, Confinement and Light-Front Holographic QCD - Prof. Stanley Brodsky in collaboration with Guy Te'ramond - Peking University - April 5, 2013
- Higher spin states in Holographic QCD - Institut fur Theoretische Physik U of Heidelberg - Prof. Stanley Brodsky in Collaboration with Guy Te'ramond - March 30, 2013
- New Perspectives for QCD:Light-Front Holography and the Principle of Maximum Conformality - Ohio State - March 28, 2013
- The Physics Case for AFTER: "Heavy Quark Physics" - ECT Workshop - Trento, Italy - February 4-8, 2013
- The Physics Case for AFTER: Fixed Target Experiments @ the LHC - ECT workshop Trento, Italy - February 4-8, 2013
- Novel Hadron Physics at J-PARC and Light-Front Holography - KEK Theory Center - Japan - January 15, 2013

26 Invited conference talks and seminars 2012

- "True Muonium at JLab: Novel Leptonic QED Effects at the JLab Heavy-Photon Probe Experiment". Seminar, Jaros Group, SLAC, January 24, 2012
- University of Rochester Colloquium: "Atoms in Motion". February 8, 2012
- INT Workshop on Orbital Angular Momentum in QCD: "Light-Front Holography, Transversity and Quark Orbital Angular Momentum" - February 6 - 17, 2012
- JLAB Workshop on Confinement Physics; "AdS/QCD and Light-Front Holography: A Novel Approach to Confinement and Non Perturbative QCD" - March 12-15, 2012
- NPCFiQCD Workshop 2012: "Heavy Quarks at Threshold and Nuclear Bound Quarkonium" - Temple University - March 26, 2012
- JLab Users Town Meeting: "Novel QCD Physics Opportunities at JLab" - March 16, 2012
- "True Muonium at JLab: Novel Leptonic QED Effects at the JLab Heavy-Photon Probe Experiment". Seminar, Jaros Group, SLAC, January 24, 2012
- University of Rochester Colloquium: "Atoms in Motion". February 8, 2012
- INT Workshop on Orbital Angular Momentum in QCD: "Light-Front Holography, Transversity and Quark Orbital Angular Momentum" - February 6 - 17, 2012
- JLAB Workshop on Confinement Physics; "AdS/QCD and Light-Front Holography: A Novel Approach to Confinement and Non Perturbative QCD" - March 12-15, 2012
- NPCFiQCD Workshop 2012: "Heavy Quarks at Threshold and Nuclear Bound Quarkonium" - Temple University - March 26, 2012
- JLab Users Town Meeting: "Novel QCD Physics Opportunities at JLab" - March 16, 2012
- Light-Front QCD - LC2012, University of Delhi - Delhi, India - December 10, 2012
- Light-Front Holography - LC2012, - University of Delhi - Delhi, India - December 15, 2012
- Physics Opportunities on a fixed-target experiment - IPN Orsay - Prof. Brodsky in collaboration with Jean-Phillipe Lansberg - Dec. 3, 2012
- The Principle of Maximal Conformality - U of Wien, Vienna - Prof. Stanley Brodsky in collaboration with Leonardo Di Giustino, Dr. Xu Gang Wu, and Matin Mojaza - Nov. 8, 2012

- AdS/QCD, Light-Front Holography and Color Confinement - Uni Graz - November 7, 2012
- AdS/QCD, Light-Front Holography and Color Confinement - Vienna TU - November 6, 2012
- New insights for Hadron Physics from Light-Front Holography and the Principle of Maximum Conformality - Shanghai - Nov 2 - 4, 2012
- Novel QCD Phenomena - HEPHY-SMI seminar on fundamental interactions and symmetries - Vienna - November 2012
- New Perspective 40 Years of QCD - U del Pais Vasco - Bilbao, Spain - October 22 - 26, 2012
- The remarkable connections between atomic and hadronic physics and Exotic Atoms in Flight - Universitat Wien - Vienna - October 2012
- AdS/QCD Light-Front Holography, and Color Confinement - Garching campus Munich - October 8 - 12, 2012
- Light-Front Holography and Other Novel Approaches to Two-Photon QCD Processes - Academia Sinica - Taipei, Taiwan - October 3, 2012
- New Perspectives in Hadron and Atomic Physics - Nat'l Central University Chungli, Taiwan - October 2, 2012
- New Approaches to Hadron Physics: AdS/QCD, Light-Front Holography, and the Principle of Maximum Conformality - NIKHEF - Sept. 14, 2012
- AdS/QCD Light-Front Holography, and Color Confinement - U of Helsinki - September 18, 2012
- Exotic Atoms in Flight KVI - U of Groningen - September 11, 2012
- AdS/QCD and Light-Front Holography CTN - U of Groningen - September 11, 2012
- Light-Front Holography and Hadron Physics Oberwoelz Talk - September 6, 2012
- USC - "Baryon Dynamics and Spectroscopy from AdS/QCD and Light-Front Holography" -South Carolina - Aug. 13-15, 2012
- KITPC "Novel QCD Phenomena at JLab 12 GeV and the EIC" - Beijing, China - July 16, 2012
- "Light-Front Holography: A Novel Approach to Non-Perturbative QCD" Peking University - July 20, 2012
- Hadrons, AdS/QCD Duality, and the Physics of the Vacuum "Hot Topics in QCD Phenomenology" U. of Warsaw, July 3-6, 2012
- Hadrons, AdS/QCD Duality, and the Physics of the Vacuum "Novel Features of Hadron Dynamics and Light-Front Holography" U of Warsaw - July 3 - 6, 2012
- Polish Academy of Arts and Sciences "Light-Front Holography and the Light-Front Schrodinger Equation" Cracow, Poland July 8-13, 2012
- PANDA Collaboration Meeting "Novel QCD Physics at PANDA" Northwestern University - June 2012
- Nordita Conference on the Origin of Mass 2012 "AdS/QCD and Light-Front Holography: New Perspectives for QCD and the Light-Front Vacuum" - Sweden - June 11 - 17, 2012
- LBNL "Applications of the Principle of Maximum Conformality to Collider Physics" - Dr. Xing-Wang Wu in collaboration with Prof. Stan Brodsky - May 29, 2012
- Ferrara Int'l School Lectures - "Light-Front Quantization Approach to the Gauge/Gravity Correspondence and Applications to the Light Hadron Spectrum" - Guy T. de Te'ramond in collaboration with Prof. Stan Brodsky - Ferrara, Italy - May 21 - 26, 2012
- "Light-Front Holographic Approach to Nonperturbative QCD" - Imperial College - May 10, 2012
- QCD Evolution Workshop "JLab Evolution" Jefferson Lab, Newport News, VA - May 14 - 17, 2012
- QNP 2012 - "Light-Front Holography: a New Approach to Nonperturbative QCD" - Guy T. de Te'ramond in collaboration with Prof. Stan Brodsky - April 16 - 20, 2012

27 Invited talks and seminars 2011

- Seminar, Institute of High Energy Physics - Beijing, China “Outstanding Problems in Hadron Physics and New Approaches to QCD” - August 5, 2011
- 3rd Workshop on Hadron Physics in China and Opportunities in US - Weihai, Shangdong, China. “Recent Developments in QCD and Hadron Physics” - August 8 - 11, 2011
- Transversity 2011, Veli Losinj, Croatia - “Light-Front Holography and Proton Transversity” - August 29 - September 2, 2011
- ECT* , Trento, Italy: International Conference on QCD Green’s Functions, Confinement and Phenomenology “AdS/QCD and Light-Front Holography” A Novel Approach to Non-Perturbative QCD” - September 5 - 9, 2011
- EXA2011 (Exotic Atoms 2011), International Conference on Exotic Atoms and Related Topics, Vienna, Austria, “Exotic Atoms in Flight” - September 5 - 9, 2011
- CP3 - Origins, Southern Denmark University: “Light-Front Holography and QCD Myths” - September 16, 2011
- CP3 - Origins, Southern Denmark University: “New Approaches to QCD: Light-Front Holography and the Principle of Maximal Conformality” - October 3, 2011
- Stanford University 120th Anniversary Celebration – Stanford Club of European Leaders – At The Cutting Edge Of Thinking, “Quarks and Gluons- The Remarkable Impact of SLAC on Particle and Nuclear Physics” Paris, France - September 29, 2011
- PINAN 2011 (Partons in Nucleons and Nuclei) - Marrakech, Morocco: “Novel Perspectives for QCD from Light-Front-Holography” - September 26 - 30, 2011
- Galileo-Galilei Institute for Theoretical Physics - Arcetri, Florence, Italy: “Novel QCD Phenomena at the LHC” - October 14, 2011
- Fall meeting of the GDR PH-QCD - Orsay, France - “Intrinsic Heavy Quark Phenomena at the EIC and Fixed Target Facilities” - October 18, 2011
- Fall meeting of the GDR PH-QCD - Orsay, France - “The Physics Case for AFTER: Fixed Target Experiments at the LHC” - October 20, 2011
- The Pontifical Academy of Sciences, The Vatican: Symposium on Subnuclear Physics: Past, Present and Future - “Hot Topics in QCD” -October 30 - November 2, 2011
- “New Approaches to QCD: AdS/QCD and Light-Front-Holography” - Seminar, Lebedev Institute, Moscow - December 13, 2011
- Victor Matveev Celebration: “Exclusive Processes, MMT/BF Scaling Laws and AdS/QCD” - Troitsk, Russia - December 14, 2011
- HEP 2012: “Light-Front Holography and Novel QCD Phenomena” - Chile, December 2011
- “Precision Tests of QCD and Novel Hadronic Phenomena” - Seminar: Dubna JINR Russia, December 15, 2011
- Light Cone 2011, Southern Methodist University. Dallas, Texas, “Light-Front Holography and Novel QCD Phenomena”, May 22, 2011
- Valparaiso International Symposium on Particle Physics, Universidad Tecnica Federico Santa Maria. Valparaiso, Chile, “Novel QCD Phenomena” May 19, 2011
- Invited Plenary Talk, April Meeting 2011, American Physical Society. Anaheim, CA. “New Perspectives on QCD Condensates and the Cosmological Constant”. May 3, 2011.
- Colloquium Rolla, Missouri. Missouri SandT. “Novel Aspects of Hadron Physics”. February 24, 2011

- Max-Planck Institute of Physics. Workshop on Precision Measurements of α_s Munich, Germany. “The Principle of Maximal Conformality”. February 9 -11, 2011
- SLAC National Accelerator Laboratory. Novel Leptonic QED Effects at the JLab Heavy-Photon Probe Experiment. “Atoms in Flight” December 14, 2010
- Baryons 2010. Osaka, Japan. “Applications of AdS/QCD and Light-Front Holography to Baryon Physics”. December 7, 2010
- Stanford University. A Workshop sponsored by the France-Stanford Center for Interdisciplinary Studies. Experimental and Theoretical Challenges to Probing Dark Energy. “Applications of AdS/QCD and Light-Front Holography to Hadron Physics: New Perspectives on QCD Condensates and Dark Energy.” December 2 -3, 2010
- Lawrence Berkeley National Laboratory. “Novel QCD Phenomena, November 18, 2010
- Peking University, Beijing. “Applications of AdS/QCD and Light-Front Holography to Hadron Physics”, October 27, 2010
- KITPC, Beijing. “AdS/QCD and Applications of Light-Front Holography”. October 20, 2010
- Institute for High Energy Physics, Beijing. ”Novel QCD Phenomena” October 15, 2010
- 5th International Workshop on High- p_T Physics at LHC. UNAM, Mexico City, Mexico. “Novel QCD Phenomena at the LHC I”. September 30, 2010
- 5th International Workshop on High-PT Physics at LHC. UNAM, Mexico City, Mexico. “Novel QCD Phenomena at the LHC II”. October 1, 2010
- EIC-INT Workshop. “Novel QCD Phenomena at an Electron-Ion Collider”, September 17, 2010
- Institute for Physics, University of Graz. Theoretical Physics Seminar. Graz, Austria. “Light-Front QCD” , September 7, 2010
- Oberwölz Symposium 2010. QCD and Strings: Elements of a Universal Theory. Oberwölz, Austria. “AdS/QCD, Light-Front Holography, and Hadron Dynamics”. August 31, 2010
- SLAC National Accelerator Laboratory. Experimental Seminar. “QCD Physics left behind at BaBar” July 6, 2010
- Ruhr-University, Bochum Seminar, “AdS/QCD and Light-Front Holography: A New Approach to Nonperturbative QCD” June 22, 2010
- Ruhr-University, Bochum Colloquium, Faculty for Physics and Astronomy. “Novel Phenomena in Hadron Physics” June 21, 2010
- 50th Crakow School of Theoretical Physics. Zakopane, Poland. “QCD and Light-Front Holography” June 9-19, 2010
- LC 2010 University of Valencia. Valencia, Spain. “QCD at the Light-Front” , June 17, 2010
- Hans Christian Andersen Academy. Southern Denmark University. CP3-Origins. Odense, Denmark. “The Novel World of Quarks and Gluons”, June 7, 2010
- University of Oslo. Norway. “New Insights for Hadron Physics from AdS/QCD” May 21, 2010
- Gribov-80 Memorial Workshop on Quantum Chromodynamics and Beyond. The Abdus Salam International Centre for Theoretical Physics. Trieste, Italy. “New Insights into Hadron Physics from AdS/QCD and Light-Front Holography”, May 27, 2010
- The 4th Workshop on Exclusive Reactions at High Momentum Transfer. Thomas Jefferson National Accelerator Facility, Newport News, Virginia USA. “The AdS/QCD Correspondence and Exclusive Processes”. May 18-21, 2010

- CP 3 - Origins. Particle Physics and Origin of Mass Conference. University of Southern Denmark, Odense, Denmark. “AdS/QCD, Light-Front Holography, and the Chiral Condensate” May 3 to 7, 2010
- 18th International Workshop On Deep Inelastic Scattering And Related Subjects (DIS 2010), Florence, Italy. “Hard Reggeons and Other Novel Exclusive QCD Phenomena in Electroproduction” 19-23 April, 2010
- Kick-Off Event of the Helmholtz Institute Mainz. Johannes Gutenberg-University, Mainz, Germany. “The Novel World of Hadron Physics” April 16, 2010
- Electron-Ion Collider Workshop: Electron-Nucleon Exclusive Reactions. Rutgers University, Piscataway, NJ. “Novel Exclusive QCD Phenomena at an Electron-Ion Collider” March 14, 2010
- University of Arizona, Theoretical Physics Seminar. Tucson, Arizona. “Atoms in Motion”, February 26, 2010
- Colloquium, Physics Department. Florida International University. Miami, Florida. “AdS/QCD and Novel Effects in Hadron Dynamics”, February 5, 2010
- High Energy Nuclear Physics and QCD. Florida International University. Miami, Florida. “Non-Universal Anti-Shadowing”. February 5, 2010
- High Energy Nuclear Physics and QCD. Florida International University. Miami, Florida. “Hard Processes in QCD” February 4, 2010
- High Energy Physics in the LHC Era, Third International Workshop. Universidad Tecnica Federico Santa Maria. Valparaiso, Chile. “Light-Front Holography: New Approximation to QCD” January 4-8, 2010
- High Energy Physics in the LHC Era, Third International Workshop. Universidad Tecnica Federico Santa Maria. Valparaiso, Chile. “The Conformal Template for QCD”. January 4-8, 2010

28 Invited talks and seminars 2009

- 2009 Nagoya Global COE Workshop: “Strong Coupling Gauge Theories in LHC Era”. Nagoya, Japan. “Light-Front Holography and AdS/QCD: A New Approximation to QCD”, December 9, 2009
- C P 3-Origins: Origins of Dark and Bright Mass. University of Southern Denmark, Odense. “Light-Front Holography: A New Approximation to QCD”. November 24, 2009
- Quantum Field Theory and Beyond: Celebration of Mike Cornwall’s 75th Birthday. UCLA. “The Conformal Template for QCD” November 14-15, 2009
- SLAC, Experimental Seminars. “Novel Leptonic QED Effects at the Jefferson Lab Heavy Photon Probe Experiment”. November 12, 2009
- Institute for Nuclear Theory. University of Washington. Seattle, WA. Workshop on Hadron Phenomenology. “AdS/QCD and Novel QCD Phenomena” November 10, 2009
- Theory Seminar. Purdue University. West Lafayette, IN. “Heavy Quark Production at High x_F and other Novel QCD Effects at RHIC”, October 29, 2009
- Theoretical Physics Colloquium. Purdue University. West Lafayette, IN. “AdS/QCD and Novel Effects in Hadron Dynamics”, October 29, 2009
- Brookhaven National Laboratory, Heavy Quark Production at High x_F and other Novel QCD Effects at RHIC” October 27, 2009
- From Particles And Partons To Nuclei And Fields: An International Workshop And Symposium In Celebration Of Al Mueller’s 70th Birthday. Columbia University, New York SPIRES Conf Num: C09/10/23. “New Horizons in QCD” October 23, 2009

- GSI-FAIR Workshop, Prerow, Germany. “Novel QCD and Nuclear Physics at FAIR”. October 11, 2009
- QCD: The Modern View of the Strong Interactions Berlin – Brandenburgische Akademie der Wissenschaften. “Light-Front Holography and Non-Perturbative QCD”. October 8, 2009
- Fifth International Workshop on Quarks and Nuclear Physics (QNP09). IHEP Beijing. “AdS/QCD and Light-Front Holography: A New Approximation to QCD”. September 21-26, 2009
- European Science Foundation Exploratory Workshop on Applications of AdS/CFT to QCD. “AdS/QCD and Light-Front Holography” Porto, Portugal. September 9-11, 2009
- Light-Cone 2009: Relativistic Hadronic and Particle Physics. Instituto Tecnológico de Aeronáutica (ITA). So Jos dos Campos, Brazil. “Light-Front Holography and Non-Perturbative QCD” July 8-13, 2009
- Yerevan Transversity Workshop. Yerevan, Armenia. “New Perspectives for QCD Spin Phenomenology from Light Front Holography” June 24, 2009
- Panda Workshop. Turin, Italy. “Novel Anti-Proton QCD Physics and New Insights from AdS/QCD”. June 17, 2009
- 10th Workshop on Non-Perturbative QCD. Institut d’Astrophysique de Paris (IAP). “Light-Front Holography and Non-Perturbative QCD”, June 8-12, 2009
- LBNL Spin Workshop. “Novel QCD Spin Phenomenology and Light Front Holography”, June 5, 2009
- APS GHP Workshop. Denver, Co. “Novel QCD Phenomenology and Hadronization at the Amplitude Level”, April 29, 2009
- JTI Workshop on Dynamics of Symmetry Breaking. Argonne National Laboratory, IL. “AdS/QCD and Light-Front Holography”, April 16, 2009
- JTI Workshop on Dynamics of Symmetry Breaking. Argonne National Laboratory, IL. “Maximum Wavelength of Confined Quarks and Gluons and Properties of QCD” April 13-17, 2009
- LBNL, Heavy Ion Tea. “AdS/QCD, Light-Front Holography, and Hadronization in High Energy Collisions” April 7, 2009
- Universidad Técnica Federico Santa María. Valparaíso, Chile. “Light-Front Holography and Novel Effects in QCD” March 13, 2009
- 4th International Workshop On High- p_T Physics At LHC 09. Prague, Czech Republic. “Novel High Transverse Momentum Phenomena at the LHC”, Feb 4-7, 2009
- UC Davis, Particle Physics Seminar. “Novel Effects in QCD and Hadronization at the Amplitude Level” . January 14, 2009

29 Invited talks and seminars 2008

- SLAC, Exascale Workshop. “Exascale Computing and Light Front QCD” . December 9, 2008
- Weizmann Institute, Israel. “AdS/QCD and Novel Heavy-Ion Phenomena” . November 17, 2008
- PANIC 08, Eliat, Israel. “QCD and the Nucleon” . November 13, 2008
- PANIC 08, Eliat, Israel. “Hadronic Light-Front Wavefunctions from AdS/QCD” . November 10, 2008
- XIII Mexican School of Particles and Fields. San Carlos, Sonora, Mexico. “Light-Front Holography and Novel Effects in QCD” 2-11 October, 2008
- Imperial College. London. “Novel QCD Phenomenology” . . September 16, 2008
- Diffraction 2008: International Workshop On Diffraction In High Energy Physics. La Londe-les-Maures, France. “Novel Aspects of QCD in Diffractive Physics” . September 9-14, 2008

- ECFA-CERN LHeC Workshop. Divonne. “LHeC Physics Overview”, . September 1, 2008
- Edinburgh University. Edinburgh, UK. “AdS/QCD and Novel Effects in QCD”. August 16, 2008
- Manchester University. Manchester, UK. “Light-Front Holography:AdS/QCD and Novel Effects in QCD” August 5, 2008
- LIGHT CONE 2008. Mulhouse, France. “Light-Front Holography: The AdS/CFT Correspondence and Light-Front QCD”, July 8, 2008
- PKU-RBRC Workshop on Transverse Spin Physics. CHEP, Peking University. “Light-Front Holography and Novel QCD Phenomena” July 3, 2008
- Landau Centennial Memorial Meeting, Moscow. “AdS/CFT and Hadronic Physics on the Light Front.” June 20, 2008
- Fritzsche Symposium, Ludwig-Maximilians-Universitt Mnchen. “AdS/CFT and QCD” . June 6, 2008
- Rutherford Appleton Laboratory, UK. Rutherford Workshop: New Ideas on Hadronization. “Light-Front Holography::Hadronic Wavefunctions from AdS/QCD” May 20, 2008
- Rutherford Appleton Laboratory, UK. Rutherford Workshop: New Ideas on Hadronization. “Light-Front Holography and Hadronization at the Amplitude Level.” May 30, 2008
- The Abdus Salam International Center for Theoretical Physics. Trieste, Italy. “Light-Front Holography:Hadronic Wavefunctions from AdS/QCD” May 12, 2008
- University of Southern Denmark, Odense. “Can Extra Dimensions Be Used to Explain the Physical World ?” May 5, 2008
- University of Helsinki, Finland. “Light Front Holography and AdS/QCD”. April 29, 2008
- DIS2008, London, England “Wish List for HERA”. April 2008
- DIS2008, London, England “Novel QCD Phenomena at Electron-Proton Colliders”. April 9, 2008
- Institute for Nuclear Theory, University of Washington. “ AdS/QCD and Hadronic Phenomena”. March 28, 2008
- Brookhaven National Laboratory, Physics Seminar. “Hadronic Phenomenology from AdS/CFT for Experimentalists” . March 7, 2008
- Columbia University .“The AdS/CFT Correspondence and Light-Front QCD”. February 18, 2008.
- SUNY-Stony Brook-Brookhaven National Laboratory, Joint HET/RIKEN/YITP Seminar- “QCD on the Light-Front”. February 6, 2008.
- SUNY-Stony Brook Colloquium. “The AdS/CFT Correspondence and Novel Effects in Quantum Chromodynamics” February 5, 2008
- Brookhaven National Laboratory , Nuclear Physics Seminar- “New Perspectives on RHIC Physics”, January 29, 2008
- Massey University Auckland, New Zealand. QCD Down Under II. “New Perspectives for QCD from AdS/CFT, January 17-19, 2008
- Brookhaven National Lab. “Novel QCD Phenomena”, January 8, 2008

30 Invited talks and seminars 2007

- PHENIX Collaboration Meeting. "Novel QCD Opportunities at RHIC". Brookhaven National Lab. December 14, 2007
- New physics with EIC - Electron Ion Collider Meeting at Stony Brook. "Novel QCD Phenomena at an Electron-Ion Collider". December 8, 2007
- Low x Physics and Spin - Electron Ion Collider Meeting at Stony Brook. "Connections Between Low x Physics and Single Spin Asymmetries". December 7, 2007
- BNL-EIC. "Novel QCD Phenomena at an Electron-Ion Collider" November 27, 2007
- Brookhaven National Lab, Nuclear Physics Seminar. New Perspectives on QCD from AdS/CFT" November 20, 2007
- Columbia University, New York. "AdS/QCD and Hadronic Phenomena" November 16, 2007
- Second Workshop on Flavor Dynamics. Albufeira, Portugal. "AdS/QCD, Light-Front Wavefunctions, and Novel Heavy Quark Phenomena" November 3-11, 2007
- C.N. Yang Institute Seminar. SUNY Stony Brook. "AdS/QCD and Hadronic Phenomena" October 25, 2007
- Helmholtz Institut: Introduction to AdS/CFT in QCD. "Introduction to AdS/QCD and Light-Front Hadron Dynamics" . Guy F. de Tramond, Ecole Polytechnique, (in collaboration with Stan Brodsky). Bonn, Germany. October 15, 2007
- Ferrara Workshop on Electromagnetic Interactions at FAIR. Novel Anti-proton QCD Physics. "Novel Electromagnetic and QCD Physics at FAIR and New Insights from AdS/QCD" Ferrara, Italy. October 15-16, 2007
- University of Illinois Colloquium. "The AdS/CFT Correspondence and Quantum Chromodynamics" Urbana, Illinois. October 4, 2007
- International School of Subnuclear Physics. 45th Course: Search for the "Totally Unexpected" in the LHC Era. "AdS/QFT and QCD" Erice-Sicily, Italy. August 29 -September 7, 2007
- The 6th Circum-Pan-Pacific Symposium on High Energy Spin Physics. University of British Columbia. Vancouver BC, Canada. "Hadronic Spin Physics, New Insights from AdS/CFT" . July 30 - August 2, 2007
- TRIUMF Seminar. Vancouver BC, Canada. "New Developments on QCD. ". July 27, 2007
- SLAC Theoretical Physics Seminars. "The Renormalization Scale Problem". June 29, 2007
- 2007 JLab Users Group Meeting. Jefferson National Lab, Newport News, VA. "New Insights from AdS/CFT and JLab Tests of QCD" ". June 18-20, 2007
- 11th International Conference, Baryons'07. Seoul National University, Seoul, Korea. "Baryons and AdS/CFT. " June 15, 2007
- Istituto Nazionale di Fisica Nucleare (INFN). Frascati, Italy. "Hidden Color and Other Novel Effects in QCD" June 1, 2007
- Jefferson National Laboratory, Exclusive Reactions at High Momentum Transfer. Newport News, VA USA. "Novel Initial-State and Final-State Interactions in QCD" . May 24, 2007
- Jefferson National Laboratory. Newport News, VA. "Exclusive Processes and AdS/QCD" May 22, 2007
- Light Cone 2007: Relativistic Hadronic and Nuclear Physics. Ohio Center for Technology and Science, Ohio State University. Columbus, Ohio. USA. "Light Front QCD and AdS/CFT" . May 14, 2007

- University of Kentucky Lexington, Kentucky. K.F. Liu Colloquium. “AdS/CFT and Novel Effects in QCD” April 19, 2007
- APS Jacksonville, Florida. J.J. Sakurai Prize for Theoretical Particle Physics. “Applications of AdS/CFT to QCD” . April 16, 2007
- Institute for Nuclear Theory. Neutron Program AdS/QCD. University of Washington, Seattle. “The Conformal Template, AdS/CFT, and QCD Phenomenology - ”. April 11, 2007
- Small-x Diffraction Workshop - Fermilab. “AdS/CFT and QCD Phenomena ”. March 28 - 30, 2007
- High-pT Physics at the LHC. Physics Department, University of Jyväskylä, Finland. “Novel QCD Phenomena ”. March 23 - 27, 2007
- University of Helsinki. Helsinki, Finland. “The Conformal Template, AdS/CFT and the QCD Phenomena - ” March 22, 2007
- Particle Physics Seminars - University of California, Davis. “The Impact of AdS/CFT on QCD Phenomenology - March 13, 2007
- SLAC Experimental Seminars. “Novel Tests of QCD at BaBar.” SLAC, March 6, 2007
- TEP Seminar, UCLA. “Optimal Renormalization Scales and Schemes”, February 13, 2007
- Institute of Theoretical and Experimental Physics. “The Impact of AdS/CFT on QCD Phenomenology” - Moscow, Russia. January 10-17, 2007
- Workshop on Photoproduction at collider energies: from RHIC and HERA to LHC. “Photonic and Diffractive Phenomena in QCD - Summary”. European Centre for Theoretical Studies in Nuclear Physics and Related Areas - Trento, Italy. January 15-19, 2007
- Ringberg Workshop On Non-Perturbative QCD of Jets. Schloss Ringberg - Munich, Germany. “The Application of AdS/QCD to Hadronic Amplitudes and Jet Hadronization”. 8-10 January, 2007

31 Invited talks and seminars 2006

- International Workshop On High Energy Physics In The LHC Era. Summary Talk. Valparaiso, Chile. “QCD in the LHC Era” - Part 1a, Part 1b, Part 1c, . December 11-15, 2006
- International Workshop On High Energy Physics In The LHC Era. Valparaiso, Chile. “Diffractive, High-XF Phenomena and the Novel Effects of Initial - and Final - State of Interactions” December 11-15, 2006
- International Symposium pn⁵⁰. Sakata Model 50th Anniversary. “Novel Aspects of Quantum Chromodynamics”. Nagoya, Japan. 25-26 November, 2006
- 2006 International Workshop SCGT 06. “AdS/CFT and QCD Phenomena”. Nagoya, Japan. 21-24 November, 2006
- “Nuclear Chromodynamics: The Application of QCD to Hadrons and Nuclear Physics,” Lectures given at the European Graduate School, Complex Systems of Hadrons and Nuclei, at Hyttil, Finland, 25-30 September, 2006
- “Impact of AdS/CFT on QCD”. QCD: Facts and Prospects, Oberwllz Symposium 2006. Oberwllz, Austria. 10-16 September, 2006.
- “Applications of AdS/CFT to QCD Phenomenology,” Gordon Research Conference on Photonuclear Reactions, Tilton School, Tilton, NH, July 30 - August 4, 2006
- “QCD Phenomenology and Nucleon Structure” , 18th National Nuclear Physics Summer School. Indiana University, Bloomington, IN. July 23 - August 5, 2006
- “The Impact of AdS/CFT on QCD, presented at the meeting: QCD and String Theory at the Benasque Center for Science 2006. Benasque, Spain. July 2-July 14, 2006

- “Testing Novel Phenomena in QCD and AdS/CFT using Antiprotons”, Presented at the ECT* Workshop: Observables in Antiproton-Proton Interactions and their Relevance to QCD, Trento, Italy. 3-8 July 2006
- “The Renormalization Scale Problem,” LoopFest V, SLAC, June 21, 2006
- “Novel Tests of QCD at Super B”, Super B III SLAC, June 15, 2006
- “Hadron Spectroscopy and Structure from AdS/CFT”, QNP06. Madrid, Spain. June 8, 2006
- “Insights from AdS/CFT for Light-Front Wavefunctions and QCD Phenomena at the Amplitude Level,” LC2006, May 15, 2006
- “Light-Front Wavefunctions, QCD Phenomena at the Amplitude Level, and Insights for QCD from AdS/CFT”, CAQCD, May 12, 2006
- “Insights for QCD from AdS/CFT” , Newe Shalom Joint Seminar, May 9, 2006
- “Novel Diffractive Phenomena and New Insights into QCD Wavefunctions” , Ashery Colloquium, Tel Aviv, May 8, 2006
- “Nuclear Chromodynamics and Hadron Dynamics at the Amplitude Level”, Eisenberg Colloquium, Tel Aviv, May 7, 2006
- “Insights for QCD from AdS/CFT”, Technion, Israel, May 1, 2006
- “The World of Quarks and Gluons: A Contemporary View of the Structure of Matter, Universidad de Costa Rica”, April 6, 2006
- “Novel Diffractive Phenomena and New Insights Into QCD from AdS/CFT”, University of Connecticut, March 27, 2006
- “Orbital Angular Momentum in QCD”, presented at the Joint UNM/RBRC Workshop on Parton Orbital Angular Momentum, Albuquerque, New Mexico, February 24, 2006
- “Intrinsic Heavy Quarks and other Novel QCD Phenomena at the LHC”, presented at the West Coast LHC Theory Network, LBNL, February 3, 2006
- “Insights for QCD from AdS/CFT,” LBL-UCB Seminar, January 2006
- “Anti-Shadowing and Other Novel Effects in QCD”, Los Alamos National Laboratory, January 2006

32 Invited talks and seminars 2005

- “New Insights for QCD from AdS/CFT and Novel Tests of QCD at J-PARC”, Kyoto Seminar, December 2005
- “Novel Tests of QCD at J-PARC”, Workshop on Hadron Structure at J-PARC, Tsukuba, Japan, December 2005
- “Insights for QCD from AdS/CFT”, Rome Colloquium, October 2005
- “New perspectives on the structure and interactions of the nucleon in QCD,” Workshop On Nucleon Form Factors (N05), Frascati, Italy, October 2005
- “Novel Phenomena in QCD”, DESY, September 2005
- “The Renormalization Scale Problem”, DESY, September 2005
- “Hadron Dynamics at the Amplitude Level,” International Workshop on Transverse Polarisation
- “Phenomena of Hard Processes” (Transversity 2005), Como, Italy, September 2005
- “Photon-Photon Physics,” PHOTON 2005, Warsaw, Poland, August 2005

- “The Renormalization Scale Problem,” PHOTON2005, Warsaw, Poland, August 2005
- “Exclusive Photon-Induced Processes in QCD” PHOTON2005, Warsaw, Poland, August 2005
- “QCD Phenomena at the Amplitude Level and the AdS/CFT Correspondence”, XI International Conference on Hadron Spectroscopy, Rio de Janeiro, Brazil, August 2005
- “Advances in LF-QCD and New Perspectives on QCD from AdS/CFT,” Workshop on Light-Cone QCD and Nonperturbative Hadron Physics 2005, Cairns, Australia, July 2005
- “Hard Exclusive Processes and AdS/CFT”, International Conference on QCD and Hadronic Physics, Beijing, China, June 2005
- “Novel Aspects of Hard Diffraction”, XIth International Conference on Elastic and Diffractive Scattering, May 2005
- Summary Talk - Theory, XIth International Conference on Elastic and Diffractive Scattering, May 2005
- “Quantum Chromodynamics: A scientific revolution for hadron and nuclear physics”, CarlFest, May 7, 2005
- “New Perspectives on Hadron Dynamics using the AdS/CFT Correspondence”, ECT* Trento, May 2005
- “New Perspectives for Deep Inelastic Scattering and QCD”, DIS2005, Madison, April 30, 2005
- “Novel Aspects of High-x Phenomena in QCD”, DIS2005, Madison, April 29, 2005
- “Hard diffraction from parton rescattering in QCD”, DIS2005, Madison, April 29, 2005
- “Shadowing and antishadowing in neutrino-nucleus DIS”, DIS2005, Madison, April 28, 2005
- “Novel Aspects of QCD in Hard Diffraction”, Heidelberg, March 11, 2005

33 Partial List of Invited talks and seminars 1998-2003

- “Conformal Aspects of QCD,” presented at KITP Conference: QCD and String Theory, November 15-19, 2004
- “Nuclear Chromodynamics: Signals of QCD in Nuclear Processes”, Convener’s summary, presented at the workshop on the “The Physics of Nuclei with 12 GeV Electrons” . Jefferson Laboratory November 1-5, 2004
- “New Perspectives in QCD,” I3HP Topical Workshop ”Hadron Physics”, St. Andrews University, Scotland, 29 August- 2 September 2004
- “Novel QCD Aspects of Single-Spin Asymmetries and Hard Diffraction”, International Symposium on Multiparticle Dynamics, Sonoma, 7/2004
- “Novel QCD Phenomenology.” International School of Physics Enrico Fermi, Varenna, Italy, 6/2004
- “Light-Front Wave Functions in QCD and AdS/CFT Correspondence”, W. I. Fine Theoretical Physics Institute, University of Minnesota, 5/2004
- “Light-Front Quantization and Applications to QCD”, QCD Down Under, CSSM, Australia, 3/2004
- “Near-Conformal Aspects of QCD,” Weizmann Institute, 2/2004
- “High Energy Physics at a Photon Collider,” Fifth International Workshop on Electron-Electron Interactions at TeV Energies, UC, Santa Cruz, 12/2003
- Presentation, George Washington University Retreat at Gettysburg, 12/2003
- “Novel Spin Effects in QCD”, RIKEN BNL Research Center Workshop, 12/2003

- “Outlook, High pT Physics at RHIC”, RIKEN BNL Research Center Workshop, 12/2003
- “QCD Studies in Low Energy e^+e^- Annihilation”, Workshop on e^+e^- in the 1-2 GeV Range, Physics and Accelerator Issues, Alghero, Sardinia, Italy, September 2003
- “Light-Front Quantization and Novel Aspects of QCD,” Invited talk presented at International Conference on Color Confinement and Hadrons in Quantum Chromodynamics (Confinement 2003), RIKEN, Japan, July 2003
- “Light-Front Wavefunctions and QCD” given at the program “Generalized Parton Distributions and Exclusive Processes”, at the Institute for Nuclear Theory, Seattle, July 30, 2003
- “Novel Diffractive and Spin Effects of Final-State Interactions,” 10th Blois Workshop On Elastic And Diffractive Scattering. Hanasaari, Helsinki, Finland. 23-28 June, 2003
- “Unexpected Effects of Final-State Interactions in QCD,” 1st Urbana Study Group, Mini-Workshop on Single Spin Asymmetries, UIUC, 27/28 March 2003
- “QCD and String Theory”, INT Workshop, University of Washington, 2/2003
- “Hunting for Gluonia in e^+e^- Annihilation”, Cornell, 1/31/03
- 2002 International Workshop SCGT 02 “Strong Coupling Gauge Theories and Effective Field Theories”, Nagoya, Japan. “Light-Front Quantization and QCD”, December 10-13, 2002
- “Gauge Theories on the Light-Front,” XXIII Encontro Nacional de Fisica de Particulas e Campos, Brazil, October 18, 2002
- “New QCD Phenomena and QCD Light-Front Wavefunctions,” Light-Cone 2002, LANL, 8/2002
- “Exclusive Processes in QCD and Light-Front Wavefunctions,” International Workshop on Spontaneously Broken Chiral Symmetry and Hard QCD Phenomena, Bad Honnef, Germany, July 15-19, 2002
- “Novel QCD Phenomena in Anti-Proton Collisions,” International Workshop on Physics with Antiprotons at GSI, 6/2002
- “New Directions in QCD and the Electron-Ion Collider,” BNL-EIC Meeting, 3/2002
- “Ultra-Peripheral Collisions: A New Laboratory for High Energy Physics,” presented at Workshop at CERN, 3/2002
- “Overview of gamma gamma Physics at a Linear Collider” presented at the 4th International Workshop Electron-Electron Interactions at TEV Energies, University of California, Santa Cruz, 12/2001
- “QCD on the Light-Cone,” presented at the International Light-Cone Workshop, Trento 2001, 9/2001
- “Exotic Effects in QCD, and Structure Functions are Not Parton Probabilities”, Lectures presented at Snowmass 2001, 7/2001
- “Perturbative QCD, Light Cone Wavefunctions and Exclusive B Decays,” Lectures presented at Institute for Nuclear Theory, University of Washington, 4/2001
- Lectures presented at the Fifth International Workshop on Particle Physics Phenomenology, Taitung, Taiwan, 11/2000.
- “Novel QCD Features of Charm Production at Threshold”, JLab Workshop on Physics Opportunities with 12-GeV Electrons, Jefferson Laboratory, 1/2000
- eRHIC Workshop, “Parton Propagation in Dense Matter”, Rappateur Talk, BNL, 12/1999
- eRHIC Workshop, “Self-Resolving Jet Reactions”, BNL, 12/1999
- Jefferson Laboratory Workshop on Exclusive Processes from Low to High Q^2 , University of Georgia, Athens, 9/1999

- “Theoretical Status of Light-Cone Wavefunctions of Hadrons”, International Workshop Challenges in QCD, Kfar Giladi, Israel, 6/1999
- “Perspectives on EPIC Physics”, Indiana University, 4/1999
- “Commensurate Scale Relations and Optimal Renormalization”, La Thuile, Italy, 1999
- “Novel Peripheral Processes at RHIC, RHIC Winter Meeting”, LBL, 1/1999
- “Exclusive Processes – Fundamental Tests of Quantum Chromodynamics”, Quantum Field Theory at Work Symposium, Weizmann Institute, Israel, 12/1998
- “ $\gamma^*\gamma^*$ Collisions”, Linear Collider Workshop, Keystone, CO, 9/1998