GEORGE STERMAN

Curriculum Vitae

Address: C.N. Yang Institute for Theoretical Physics
State University of New York
Stony Brook, NY 11794-3840, USA

Education: A.B. University of Chicago, 1968
Ph.D. University of Maryland, 1974

Employment: C.N. Yang Institute for Theoretical Physics, Stony Brook
2001–present Director
2004 – Distinguished Professor
1989–2004, Professor
1985-1989, Associate Professor
1979-1984, Assistant Professor
1978-1979, Research Associate
Institute for Advanced Study, Princeton
1976-1978, Research Associate
Institute for Theoretical Physics, Stony Brook
1974-1976, Research Associate
Department of Physics, University of Illinois, Urbana

Recognition:

Erwin Schroedinger Guest Professor, U. of Vienna, 2018
Heinrich Hertz Lecturer, DESY, Hamburg 2018
Schroedinger Professor, Pauli Center for Theo. Phys., Zurich 2017
Distinguished Alumnus Award, Dept. of Physics, U. Maryland, 2004
J.J. Sakurai Prize for Elementary Particle Theory, 2003,
American Physical Society
Fellow, American Association for the Advancement of Science
Fellow, American Physical Society
John Simon Guggenheim Memorial Foundation Fellowship, 1985

Selected Professional Activities:

Member, International Advisory Committee, Higgs Centre,
University of Edinburgh
Trustee, Simons Center for Geometry and Physics
Stony Brook University
Member: Science and Technology Steering Committee
Brookhaven National Laboratory
Co-chair, Director search, Brookhaven National Laboratory, 2022
Lecturer, SLAC Summer Institute, 2018
Co-PI, LHC Theory Initiative 2014 - 2017
Lecturer, Theoretical Advanced Summer Institutes 1995, 2001, 2004
Organizer and lecturer of multiple CTEQ Schools, 1992 - 2022
Co-spokesman, CTEQ Collaboration, 1995 - 2000
Visitor, Brookhaven National Laboratory, 2000-2001
Author, *Introduction to Quantum Field Theory*, Cambridge, 1993
Member, Institute for Advanced Study, 1985-86
Panelist service, National Science Foundation
Committee of Visitor service, Department of Energy
Principal Investigator, National Science Foundation awards, 2006 - present

Editorial Service:

Divisional Editor, Physical Review D, editor, *JHEP*, 2006-2012
Divisional Associate Editor, *Physical Review Letters*, 1996-2001

Selected Recent Invited Presentations

- 06/27/2023 Loopfest XXI. SLAC, Stanford Univ. "Two adventures in four dimensions"
- 06/5-7/2023 CFNS/CTEQ summmer school CFNS Stony Brook, "Deep inelastic scattering and collinear factorization" (3 lectures)
- 6/9-10/2022 CTEQ Summer School. Univ. Pittsburgh. "Jet cross sections, shapes and substructure" (2 lectures)
- 3/8/2022 Workshop: precision QCD prdictions for ep physics at the EIC. CFNS, Stony Brook. "Power corrections to electroweak boson production from threshold resummation"

- 18/08/2021 DIS 2021 Closing talk (remote) "Vision for QCD to the 2030s and beyond"
- Hertz Lecture 2018, September 27, 2018. Deutsches Electron Synchrotron, Hamburg Germany. "Imaging fundamental processes: thought, experiment and the accessible universe"
- Schrodinger Lecture, 2017, October 23, 2017. Pauli Center for Theoretical Physics, Zurich Switzerland. "Imagining fundamental processes: the story of jets"

Representative recent publications

- C. Anastasiou and G. Sterman, "Locally finite two-loop QCD amplitudes from IR universality for electroweak production," JHEP **05**, 242 (2023) [arXiv:2212.12162 [hep-ph]].
- G. Sterman and W. Vogelsang, "Power corrections to electroweak boson production from threshold resummation," Phys. Rev. D **107**, no.1, 014009 (2023) [arXiv:2208.00937 [hep-ph]].
- G. Sterman, "Comments on collinear factorization," [arXiv:2207.06507 [hep-ph]]. Contribution to Snowmass Community Study.
- Y. T. Chien, A. Deshpande, M. M. Mondal and G. Sterman, "Probing hadronization with flavor correlations of leading particles in jets," Phys. Rev. D **105**, no.5, L051502 (2022) [arXiv:2109.15318 [hep-ph]].
- C. Anastasiou, R. Haindl, G. Sterman, Z. Yang and M. Zeng, "Locally finite two-loop amplitudes for off-shell multi-photon production in electron-positron annihilation," JHEP **04**, 222 (2021) [arXiv:2008.12293 [hep-ph]].
- R. Akhoury, R. Saotome and G. Sterman, "High Energy Scattering in Perturbative Quantum Gravity at Next to Leading Power," Phys. Rev. D **103**, no.6, 064036 (2021) [arXiv:1308.5204 [hep-th]].

Selected previous publications

- G. F. Sterman, "Leading Logarithmic Behavior of Electromagnetic Form-Factors in Bound State Models," Phys. Rev. D **9**, 3188 (1974)
- G. F. Sterman, "Jet Structure in e+ e- Annihilation with Massless Hadrons," ILL-TH-75-32 (unpublished report).

- G. F. Sterman and S. Weinberg, "Jets from Quantum Chromodynamics," Phys. Rev. Lett. **39**, 1436 (1977)
- S. B. Libby and G. F. Sterman, "Jet and Lepton Pair Production in High-Energy Lepton-Hadron and Hadron-Hadron Scattering," Phys. Rev. D **18**, 3252 (1978)
- G. F. Sterman, "Mass Divergences in Annihilation Processes. 1. Origin and Nature of Divergences in Cut Vacuum Polarization Diagrams," Phys. Rev. D **17**, 2773 (1978)
- G. F. Sterman, "Mass Divergences in Annihilation Processes. 2. Cancellation of Divergences in Cut Vacuum Polarization Diagrams," Phys. Rev. D **17**, 2789 (1978)
- S. B. Libby and G. F. Sterman, "Jet and Lepton Pair Production in High-Energy Lepton-Hadron and Hadron-Hadron Scattering," Phys. Rev. D **18**, 3252 (1978)
- G. F. Sterman, "Zero Mass Limit for a Class of Jet Related Cross-sections," Phys. Rev. D **19**, 3135 (1979)
- J. C. Collins, D. E. Soper and G. F. Sterman, "Transverse Momentum Distribution in Drell-Yan Pair and W and Z Boson Production," Nucl. Phys. B **250**, 199-224 (1985)
- G. F. Sterman, "Summation of Large Corrections to Short Distance Hadronic Cross-Sections," Nucl. Phys. B **281**, 310-364 (1987)
- J. C. Collins, D. E. Soper and G. F. Sterman, "Factorization of Hard Processes in QCD," Adv. Ser. Direct. High Energy Phys. **5**, 1-91 (1989) [arXiv:hep-ph/0409313 [hep-ph]].
- J. Botts and G. F. Sterman, "Hard Elastic Scattering in QCD: Leading Behavior," Nucl. Phys. B **325**, 62-100 (1989)
- L. Magnea and G. F. Sterman, "Analytic continuation of the Sudakov form-factor in QCD," Phys. Rev. D **42**, 4222-4227 (1990)
- J. W. Qiu and G. F. Sterman, "Power corrections to hadronic scattering. 2. Factorization," Nucl. Phys. B **353**, 137-164 (1991)
- H. n. Li and G. F. Sterman, "The Perturbative pion form-factor with Sudakov suppression," Nucl. Phys. B **381**, 129-140 (1992)

- G. P. Korchemsky and G. F. Sterman, "Nonperturbative corrections in resummed cross-sections," Nucl. Phys. B **437**, 415-432 (1995) [arXiv:hep-ph/9411211 [hep-ph]].
- H. Contopanagos, E. Laenen and G. F. Sterman, "Sudakov factorization and resummation," Nucl. Phys. B **484**, 303-330 (1997) [arXiv:hep-ph/9604313 [hep-ph]].
- N. Kidonakis and G. F. Sterman, "Resummation for QCD hard scattering," Nucl. Phys. B **505**, 321-348 (1997) [arXiv:hep-ph/9705234 [hep-ph]].
- N. Kidonakis, G. Oderda and G. F. Sterman, "Evolution of color exchange in QCD hard scattering," Nucl. Phys. B **531**, 365-402 (1998) [arXiv:hep-ph/9803241 [hep-ph]].
- J. W. Qiu and G. F. Sterman, "Single transverse spin asymmetries in hadronic pion production," Phys. Rev. D **59**, 014004 (1999) [arXiv:hep-ph/9806356 [hep-ph]].
- G. P. Korchemsky and G. F. Sterman, Nucl. Phys. B **555**, 335-351 (1999) [arXiv:hep-ph/9902341 [hep-ph]].
- G. F. Sterman and M. E. Tejeda-Yeomans, "Multiloop amplitudes and resummation," Phys. Lett. B **552**, 48-56 (2003) [arXiv:hep-ph/0210130 [hep-ph]].
- C. F. Berger, T. Kucs and G. F. Sterman, "Event shape / energy flow correlations," Phys. Rev. D **68**, 014012 (2003) [arXiv:hep-ph/0303051 [hep-ph]].
- C. Lee and G. F. Sterman, "Momentum Flow Correlations from Event Shapes: Factorized Soft Gluons and Soft-Collinear Effective Theory," Phys. Rev. D **75**, 014022 (2007) [arXiv:hep-ph/0611061 [hep-ph]].
- L. G. Almeida, S. J. Lee, G. Perez, G. F. Sterman, I. Sung and J. Virzi, "Substructure of high-p_T Jets at the LHC," Phys. Rev. D **79**, 074017 (2009) [arXiv:0807.0234 [hep-ph]].
- S. M. Aybat and G. F. Sterman, "Soft-Gluon Cancellation, Phases and Factorization with Initial-State Partons," Phys. Lett. B **671**, 46-50 (2009) [arXiv:0811.0246 [hep-ph]].