



Yuri V. Kovchegov

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EMPLOYMENT

Professor <i>Department of Physics, The Ohio State University</i>	September, 2012 – Present
Associate Professor <i>Department of Physics, The Ohio State University</i>	October, 2008 – August, 2012
Assistant Professor <i>Department of Physics, The Ohio State University</i>	September, 2004 – September, 2008
Research Assistant Professor <i>Department of Physics, University of Washington</i>	September, 2000 – August, 2004
Theoretical Research Associate <i>Physics Department, Brookhaven National Laboratory</i>	September, 1999 – August, 2000
Postdoctoral Research Associate <i>School of Physics and Astronomy, University of Minnesota</i>	August, 1998 – August, 1999

EDUCATION

Ph.D. <i>Department of Physics, Columbia University</i> Thesis adviser: Professor A.H. Mueller Thesis title: Weizsäcker-Williams Approximation in Quantum Chromodynamics	October, 1998
M.Phil. <i>Department of Physics, Columbia University</i>	February, 1996
M.A. <i>Department of Physics, Columbia University</i>	February, 1995
Undergraduate <i>Department of General and Applied Physics, Moscow Institute of Physics and Technology</i>	1990 – 1993

RESEARCH INTERESTS

QCD at high energy. Hadronic and nuclear wave functions at high parton density. Small- x evolution: structure functions and their saturation at small- x ; diffractive dissociation; QCD odderon; running coupling corrections. Particle production and correlations in heavy ion collisions and in deep inelastic scattering; initial conditions for quark-gluon plasma formation in heavy ion collisions; rapidity correlations; elliptic flow in heavy ion collisions; baryon stopping; Cronin effect and high- p_T suppression.

Thermalization in heavy ion collisions. QCD instantons in high energy collisions. Thermal field theories. Application of string theory methods such as AdS/CFT correspondence to the physics of heavy ion collisions and DIS. Proton and nuclear spin at small and large values of x , longitudinal spin and small- x evolution of helicity PDFs and TMDs, transverse spin and quark and gluon TMDs.

MAIN RESEARCH ACCOMPLISHMENTS

- Classical Weizsäcker-Williams gluon field of a large ultrarelativistic nucleus (including the Kovchegov regularization prescription for the gluon propagator poles in light-cone gauge).
- Non-linear small- x evolution equation for the dipole scattering amplitude (the Balitsky-Kovchegov equation).
- Gluon production cross-section in p+A collisions and in DIS in the saturation framework: quasi-classical approximation, quantum evolution, k_T -factorization (the Kovchegov-Tuchin formula). Related particle production phenomenology (the Kharzeev-Kovchegov-Tuchin model).
- Two-gluon production cross-sections in DIS, p+A collisions, and in heavy-light ion collisions in the saturation framework.
- Evolution equation for diffractive dissociation in DIS at small x (the Kovchegov-Levin equation).
- Small- x evolution equation for the odderon in the dipole formalism (sometimes referred to as the WHIMIKS equation).
- Running coupling corrections to the leading-order BK and JIMWLK evolution (the Kovchegov-Weigert prescription).
- Perturbative analysis and its resummation for shock wave collisions in the AdS/CFT framework; black hole production in the bulk and thermalization in the boundary gauge theory.
- Prescription for constructing the general solution of BFKL equation at NLL and at any higher order (the Chirilli-Kovchegov procedure).
- Helicity evolution at small x : constructed evolution equations for quark and gluon helicity distributions aimed at helping resolve the proton spin puzzle (the Kovchegov-Pitonyak-Sievert-Cougoulic-Tarasov-Tawabutr (KPS-CTT) equations). Obtained small- x asymptotics for the quark and gluon helicity distributions and orbital angular momenta.

VISITORSHIPS

- May 17 – June 6, 1999, Short-term visitor at CERN Theory Division, CERN, Geneva, Switzerland
- June 6 – 14, 1999, Short-term visitor at Division de Physique Theorique, Institut de Physique Nucleaire d'Orsay, Orsay, France and Laboratoire de Physique Theorique des Particules Elementaires, Universite P. & M. Curie, Paris, France

- May 1 – 16, 2000, Short term visitor at High Energy Physics Department, School of Physics and Astronomy, The Raymond and Beverly Sackler Faculty of Exact Sciences, Tel Aviv University, Tel Aviv, Israel
- August 20 – September 7, 2001, Short-term visitor at Service de Physique Theorique, CEA/Saclay, Gif-sur-Yvette Cedex, France
- May 25 – 31, 2003, Short-term visitor at the Nuclear Theory Group, Physics Department, Columbia University, New York, NY
- April 18 – 24, 2004, Short-term visitor at Service de Physique Theorique, CEA/Saclay, Gif-sur-Yvette Cedex, France
- March 6 – 12, 2009, Short-term visitor at Departamento de Fisica, Universidad Tecnica Federico Santa Maria, Valparaiso, Chile

GRANTS AND AWARDS

- October 29, 2020, [Fellowship in the American Association for the Advancement of Science \(AAAS\)](#), *For foundational contributions to the theoretical understanding of parton saturation effects in Quantum Chromodynamics and their manifestation in high-energy collisions with strongly interacting particles.*
- November 3, 2012, [Fellowship in the American Physical Society upon the recommendation of the Division of Nuclear Physics](#), *For his seminal contributions to understanding the structure and dynamics of strong color fields in nucleons and nuclei at high energies.*
- 2010 – Present, DOE Office of Nuclear Physics Grant “Nuclear Theory for High Energy Collisions”, DE-SC0004286
- May 21, 2006, [Raymond and Beverly Sackler Prize in the Physical Sciences for outstanding research in the field of Theoretical or Experimental Nuclear/Hadron Physics](#), *For a number of ground-breaking contributions to theoretical understanding of Quantum Chromodynamics (QCD) at very high energies and gluon densities*, Tel Aviv University, Israel
- 2005 – 2009, Co-recipient of the Joint American–Israeli Bi–national Science Foundation Grant entitled “QCD Saturation and RHIC Data”, Grant No. 2004019
- 2005 – 2010, DOE Office of Nuclear Physics Outstanding Junior Investigator (OJI) award “High Energy QCD”, DE-FG02-05ER41377
- 2004 – 2007, Co-PI of the NSF-CNRS grant INT-0339138 “US-France Cooperative Research: QCD at High Parton Density”
- August 2001, National Science Foundation (NSF) travel award to attend the NATO Advanced Study Institute #977289 “QCD Perspectives on Hot and Dense Matter” in Cargese, Corsica, France
- 1999 – 2002, Co-recipient of the Joint American–Israeli Bi–national Science Foundation “High Parton Density” Grant No. 9800276
- 1993 – 1998, Faculty Fellowship at Columbia University Graduate School of Arts and Sciences

- 1987 – 1990, a number of awards at various Math and Physics high-school olympiads in Moscow, Russia, including the 2nd place in Moscow Physics Olympiad

PRESS COVERAGE

- June 8, 2020, [OSU College of Arts and Sciences News](#)
- November 24, 2020, [OSU News](#), [OSU College of Arts and Sciences News](#)
- February 3, 2021, [OSU College of Arts and Sciences Voices of Excellence](#) podcast *The Quirks of Quarks and Other Aspects of Quantum Mechanics with Yuri Kovchegov*
- March 19, 2021, *Physicists Discover the Elusive Odderon, First Predicted 50 Years Ago*, Gizmodo.com science news

SYNERGISTIC ACTIVITIES

- Referee for Physical Review D, Physical Review C, European Physical Journal C, European Physics Journal A, Nuclear Physics A, Physical Review Letters, Physics Letters B, Journal of High Energy Physics, Journal of Physics G. I have been named one of the most valued reviewers by the Editors of Nuclear Physics A in 2010 and by the Editors of Physics Letters B in 2011.
- Grant referee for DOE, NSF (including a panel), BSF (US-Israel), Israel Science Foundation, UK Royal Society, Fondecyt (Chile), South Africa NRF, NSERC (Canada), National Science Centre (Poland), Czech Science Foundation.
- Book reviewer for Cambridge University Press, Princeton University Press, CRC Press, Addison Wesley Publishing.
- Member of the [EIC White Paper](#) Steering Committee (2011–2014).
- Member of the EIC User Group Advisory Committee in preparation for the National Academy of Sciences (NAS) review (2016-2018).
- Member of the International Advisory Committee for the [Center for Frontiers In Nuclear Science](#) (CFNS) at Stony Brook University (2017 – Present).
- Member of the [EIC User Group Election and Nomination Committee](#) (2019 – 2021).
- Affiliate member of the [Topical Collaboration for the Coordinated Theoretical Approach to Transverse Momentum Dependent Hadron Structure in QCD](#) (the TMD Collaboration) (2020 – 2022).
- Member at Large of the [EIC User Group Steering Committee](#) (2021 – Present).
- Member of and Spin group convener in the Department of Energy’s [Saturated Glue \(SURGE\) Topical Theory Collaboration](#), December 2022 – Present.
- Member of the National Advisory Committee (NAC) of the Institute for Nuclear Theory (INT) at the University of Washington (2023 - Present).
- Professional society membership: [APS](#) (fellow), [AAAS](#) (fellow).

CONFERENCES ORGANIZED

- May 21 - 25, 2001, principal organizer of the “High Energy QCD: Beyond the Pomeron” RIKEN BNL Research Center & BNL Nuclear Theory workshop, Brookhaven National Laboratory, Upton, NY
- July 8 - 12, 2002, member of the Advisory Board, Wigner Centennial Conference, Pecs, Hungary
- October 14 - 25, 2002, organizer (coordinator) of the “Coherent Effects at RHIC and LHC: Initial Conditions and Hard Probes” workshop, European Centre for Theoretical Studies in Nuclear Physics and Related Areas (ECT*), Trento, Italy
- December 13 - 15, 2002, organizer of the INT/RHIC Winter Workshop 2002 on First Two Years of RHIC: Theory versus Experiments (INT 02-27), Institute for Nuclear Theory, University of Washington, Seattle, WA
- April 23 - 27, 2003, convener of the Working Group A: Structure Functions, Low- x and Diffraction, DIS2003, XI International Workshop on Deep Inelastic Scattering, St. Petersburg, Russia
- September 26 - 29, 2005, co-organizer of the “Odderon Searches at RHIC”, RIKEN BNL Research Center workshop, Brookhaven National Laboratory, Upton, NY
- September 25 – December 8, 2006, lead organizer, INT program “From RHIC to LHC: Achievements and Opportunities”, Institute for Nuclear Theory, University of Washington, Seattle, WA
- December 15 – 16, 2006, convener of the “QCD at High Energy” Session, QCD Workshop, Washington, DC
- August 4 – 9, 2007, convener of the “Small- x Physics and Diffraction” Session, 37th International Symposium on Multiparticle Dynamics (ISMD2007), Lawrence Berkeley National Laboratory, Berkeley, CA
- October 23 – 25, 2009, organizer of the “From Particles and Partons to Nuclei and Fields: an international workshop and symposium in celebration of Al Mueller’s 70th birthday”, Physics Department, Columbia University, New York, NY
- May 24 – July 16, 2010, co-organizer of the INT program “Quantifying the Properties of Hot QCD Matter” (INT 10-2A), Institute for Nuclear Theory, University of Washington, Seattle, WA
- October 7 – 8, 2010, co-organizer of the “Levinfest”, an International Symposium in celebration of Genya Levin’s 70th birthday, Tel Aviv University, Tel Aviv, Israel
- 2014 – present, member of the International Advisory Committee for the International Conference on the Initial Stages in High-Energy Nuclear Collisions (IS), assisting with organizing IS 2014, IS 2016, IS 2017
- April 27 – May 1, 2015, co-convener of Working Group 2: Small- x , Diffraction and Vector Mesons, XXIII International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2015), Department of Physics, Southern Methodist University, Dallas, Texas

- July 18 – 20, 2016, co-organizer of *ULtra-RelatIvistiCH HEavy IoNZ 2016*, a workshop in celebration of Ulrich Heinz's 60th birthday, CERN, Geneva, Switzerland
- October 1 – November 16, 2018, lead organizer of the INT program *Probing Nucleons and Nuclei in High Energy Collisions* (INT-18-3), Institute for Nuclear Theory, Seattle, WA. Together with three co-organizers I was in charge of 20 conveners, organizing and running the 7-weeks long program for 121 participants. I conducted negotiations with the managements of Brookhaven National Laboratory and Thomas Jefferson National Accelerator Facility concerning supplemental participant support and other program-related issues.
- September 16 – 20, 2019, member of the International Scientific Advisory Committee (SAC) for the [Light-Cone 2019 \(LC2019\) meeting](#), Ecole Polytechnique, Palaiseau, France
- August 2 – 6, 2021, co-organizer of the [Electron-Ion Collider User Group Summer 2021 Meeting](#) as part of my service on the EIC UG Steering Committee

INVITED TALKS, SEMINARS AND COLLOQUIA

- **November 1, 1996**, at the Institute for Nuclear Theory, Program INT-96-3 : *Ultrarelativistic nuclei: From structure functions to the Quark-Gluon Plasma*, University of Washington, Seattle, WA
- **January 14, 1997**, at the Nuclear Physics Seminar, Brookhaven National Laboratory, Upton, NY
- **January 27, 1997**, at the Nuclear Theory Seminar, Department of Physics, Duke University, Durham, NC
- **April 21, 1997**, at the Theoretical Physics Seminar, Department of Physics, Columbia University, New York, NY
- **July 8, 1997**, at RHIC '97 Brookhaven Theory Workshop on Relativistic Heavy Ions, Brookhaven National Laboratory, Upton, NY
- **December 11, 1997**, at RIKEN-BNL seminar, RIKEN BNL Research Center, Brookhaven National Laboratory, Upton, NY
- **January 7, 1998**, at the Nuclear Theory Seminar, Nuclear Theory Group, Department of Physics, University of Washington, Seattle, WA
- **January 9, 1998**, at the Theory Seminar, Stanford Linear Accelerator Center, Stanford, CA
- **January 30, 1998**, at the Special Seminar, Center for Theoretical Physics, Massachusetts Institute of Technology, Cambridge, MA
- **February 19, 1998**, at the Nuclear Seminar, School of Physics and Astronomy, University of Minnesota, Minneapolis, MN
- **April 16, 1998**, at the third workshop on Continuous Advances in QCD, Theoretical Physics Institute, School of Physics and Astronomy, University of Minnesota, Minneapolis, MN
- **August 26, 1998**, at the Nuclear Physics Seminar, NORDITA, Copenhagen, Denmark

- **September 9 & 10, 1998**, two talks at the International Workshop on Coherent QCD Processes with Nucleons and Nuclei, European Centre for Theoretical Studies in Nuclear Physics and Related Areas (ECT*), Trento, Italy
- **September 14, 1998**, at the Theory Institute on Deep-Inelastic Diffraction, Argonne National Laboratory, IL
- **October 1, 1998**, at the Nuclear Seminar, School of Physics and Astronomy, University of Minnesota, Minneapolis, MN
- **January 7, 1999**, at RHIC Winter Workshop, Nuclear Science Division, Lawrence Berkeley National Laboratory, Berkeley, CA
- **March 4, 1999**, at the RIKEN BNL Research Center Workshop on Hard Parton Physics in High-Energy Nuclear Collisions, Brookhaven National Laboratory, Upton, NY
- **April 15, 1999**, at the Nuclear Seminar, Iowa State University, Ames, IA
- **May 14, 1999**, at Quark Matter 99, XIV International Conference on Ultrarelativistic Nucleus-Nucleus Collisions, Turin, Italy
- **May 18, 1999**, at Heavy Ion Theory 99 workshop, CERN, Geneva, Switzerland
- **May 26, 1999**, at the Physics with HERA as eA Collider Workshop, DESY, Hamburg, Germany
- **June 15, 1999**, at the Workshop on Small x Physics, School of Physics and Astronomy, Tel Aviv University, Tel Aviv, Israel
- **October 14, 1999**, at RIKEN-BNL seminar, RIKEN BNL Research Center, Brookhaven National Laboratory, Upton, NY
- **October 22, 1999**, at the Fall Meeting of the APS Division of Nuclear Physics, Asilomar, CA
- **December 4, 1999**, at the eRHIC Workshop, Brookhaven National Laboratory, Upton, NY
- **February 8 & 10, 2000**, two talks at the High Energy Physics Seminar, University of Arizona, Tucson, AZ
- **February 14, 2000**, at the Nuclear Theory Seminar, University of Washington, Seattle, WA
- **March 14, 2000**, Physics Department Colloquium, Duke University, Durham, NC
- **April 7, 2000**, at the 2nd eRHIC Workshop, Yale University, New Haven, CT
- **April 29, 2000**, at the DIS2000, 8th International Workshop on Deep-Inelastic Scattering and QCD, University of Liverpool, Liverpool, United Kingdom
- **May 15, 2000**, at the High Energy Physics Seminar, Department of Physics, Technion, Haifa, Israel
- **June 19, 2000**, at RHIC Lunchtime Seminar, Brookhaven National Laboratory, Upton, NY
- **July 10, 2000**, at eRHIC Summer Meeting, Brookhaven National Laboratory, Upton, NY

- **July 31, 2000**, at the High Energy Seminar, NORDITA, Copenhagen, Denmark
- **August 4, 2000**, at the QCD in a Nuclear Environment Workshop, Institut für Theoretische Physik, Universität Regensburg, Regensburg, Germany
- **August 7, 2000**, at the Nuclear Physics Seminar, Institut für Theoretische Physik, Universität Heidelberg, Heidelberg, Germany
- **September 14 & 15, 2000**, two talks at the Second Workshop on Physics with a Polarized-Electron Light-ion Collider (EPIC), Massachusetts Institute of Technology, Cambridge, MA
- **December 13, 2000**, at the Nuclear Theory Seminar, Department of Physics, University of Washington, Seattle, WA
- **January 11, 2001**, at the Brown Bag Lunchtime Seminar, Nuclear Theory Group, Department of Physics, University of Washington, Seattle, WA
- **January 19, 2001**, at Quark Matter 2001, the Fifteenth International Conference on Ultra-Relativistic Nucleus-Nucleus Collisions, State University of New York at Stony Brook, Stony Brook, NY
- **January 26, 2001**, at the Nuclear Theory / RIKEN seminar, Physics Department, Brookhaven National Laboratory, Upton, NY
- **April 3, 2001**, at the Nuclear Theory Seminar, Center for Theoretical Physics, Massachusetts Institute of Technology, Cambridge, MA
- **April 18, 2001**, at the INT seminar, Institute for Nuclear Theory, University of Washington, Seattle, WA
- **May 15, 2001**, at the Particle Theory Seminar, Department of Physics, University of Washington, Seattle, WA
- **May 21 & 24, 2001**, talk and discussion moderation at the “High Energy QCD: Beyond the Pomeron” RIKEN BNL Research Center & BNL Nuclear Theory workshop, Brookhaven National Laboratory, Upton, NY
- **September 7, 2001**, at the International Workshop on the Physics of the Quark-Gluon Plasma, Ecole Polytechnique, Palaiseau, France
- **November 13, 2001**, at the Brown Bag Lunchtime Seminar, Nuclear Theory Group, Department of Physics, University of Washington, Seattle, WA
- **January 9, 2002**, at the Conference on the Phenomenology of Large N_c QCD, Arizona State University, Tempe, AZ
- **March 1, 2002**, at The Electron Ion Collider Workshop, Brookhaven National Laboratory, Upton, NY
- **June 15, 2002**, at the Workshop on two-particle interferometry and elliptic flow at RHIC, Brookhaven National Laboratory, Upton, NY
- **July 18, 2002**, at Quark Matter 2002, the XVI International Conference on Ultra-Relativistic Nucleus-Nucleus Collisions, Nantes, France

- **July 24, 2002**, at TH-2002, International Conference on Theoretical Physics, UNESCO, Paris, France
- **August 7, 2002**, at the "Current and future directions at RHIC" RIKEN BNL Research Center Workshop, Brookhaven National Laboratory, Upton, NY
- **October 1, 2002**, at the Heavy Ion Tea seminar, Nuclear Theory Group, Lawrence Berkeley National Laboratory, Berkeley, CA
- **October 24, 2002**, at the "Coherent Effects at RHIC and LHC: Initial Conditions and Hard Probes" workshop, ECT*, Trento, Italy
- **November 1, 2002**, Department of Physics Colloquium, Texas A&M University, College Station, TX
- **December 14, 2002**, at the INT/RHIC Winter Workshop 2002 on First Two Years of RHIC: Theory versus Experiments (INT 02-27), Institute for Nuclear Theory, University of Washington, Seattle, WA
- **March 4, 2003**, Theoretical Quarks, Hadrons and Nuclei Research Group seminar, Department of Physics, University of Maryland, College Park, MD
- **March 6, 2003**, at the "Transverse Dynamics at RHIC" workshop, Brookhaven National Laboratory, Upton, NY
- **April 1, 2003**, at the Brown Bag Lunchtime Seminar, Nuclear Theory Group, Department of Physics, University of Washington, Seattle, WA
- **May 9, 2003**, at the Institute for Nuclear Theory, Program INT-03-1 : *The First Three Years of Heavy-Ion Physics at RHIC*, University of Washington, Seattle, WA
- **May 20, 2003**, at the Conference on the Intersections of Particle and Nuclear Physics (CIPANP 2003), New York, NY
- **May 27 & 31, 2003**, two talks at the Nuclear Theory Group Seminars, Physics Department, Columbia University, New York, NY
- **July 28, 2003**, at the Nuclear Physics Seminar, Department of Physics, Ohio State University, Columbus, OH
- **September 18, 2003**, at the workshop on Small- x and Diffraction 2003, Fermi National Accelerator Laboratory, Batavia, IL
- **November 1, 2003**, at the 2003 Fall Meeting of the Division of Nuclear Physics of the American Physical Society, University of Arizona, Tucson, AZ
- **January 13, 2004**, at Quark Matter 2004, the Seventeenth International Conference on Ultra-Relativistic Nucleus-Nucleus Collisions, Oakland, CA
- **January 22, 2004**, Colloquium, Department of Physics, Ohio State University, Columbus, OH
- **February 23, 2004**, Theoretical Physics Seminar, Physics Department, Columbia University, New York, NY

- **February 24, 2004**, Particle Theory Seminar, Department of Physics, Yale University, New Haven, CT
- **March 4 & 5, 2004**, Colloquium and seminar at the Department of Physics and Astronomy, University of Victoria, Victoria, BC, Canada
- **April 15, 2004**, at the XII International Workshop on Deep Inelastic Scattering (DIS2004), Štrbské Pleso, Slovakia
- **April 21, 2004**, at the Particle and Hadronic Physics Seminar, Service de Physique Théorique, CEA/Saclay, Gif-sur-Yvette Cedex, France
- **April 22, 2004**, at the Particle Physics Seminar, Laboratoire de Physique Théorique d'Orsay, Université Paris XI, Orsay Cedex, France
- **May 15, 2004**, at the workshop on Continuous Advances in QCD 2004, William I. Fine Theoretical Physics Institute, School of Physics and Astronomy, University of Minnesota, Minneapolis, MN
- **May 28, 2004**, at the Particle Theory Seminar, Department of Physics, University of Washington, Seattle, WA
- **June 22, 2004**, at the Muon Physics and Forward Upgrades Workshop, Santa Fe, NM
- **September 30 & October 7 & 14, 2004**, three talks at the Nuclear Theory Seminar, Department of Physics, The Ohio State University, Columbus, OH
- **October 29, 2004**, at the APS Division of Nuclear Physics 2004 Fall Meeting, Chicago, IL
- **December 10, 2004**, at the High Energy/Nuclear Physics Seminar Series, Department of Physics and Astronomy, Wayne State University, Detroit, MI
- **February 4, 2005**, at the international conference on Contemporary Issues In Nuclear and Particle Physics (CINPP), Nuclear and Particle Physics Research Centre, Jadavpur University, Calcutta, India
- **February 9, 2005**, at the 5th International Conference on Physics and Astrophysics of Quark Gluon Plasma (ICPAQGP-2005), Saha Institute of Nuclear Physics/Variable Energy Cyclotron Centre Campus, Salt Lake City, Calcutta, India
- **March 7 & 11, 2005**, discussion moderation and talk at the RIKEN BNL Research Center workshop on “Classical and Quantum Aspects of the Color Glass Condensate”, Brookhaven National Laboratory, Upton, NY
- **April 27, 2005**, virtual talk at the RHIC-II Forward & p-A Physics workshop at Brookhaven National Laboratory, Upton, NY
- **April 28, 2005**, at the XIII International Workshop on Deep Inelastic Scattering (DIS2005), Madison, WI
- **August 5, 2005**, at Quark Matter 2005, the 18th International Conference on Ultra-Relativistic Nucleus-Nucleus Collisions, Budapest, Hungary

- **August 10, 2005**, at the workshop on Quark-Gluon Plasma Thermalization, Vienna Technical University, Vienna, Austria
- **August 30, 2005**, Nuclear Theory/RIKEN Seminar, Physics Department, Brookhaven National Laboratory, Upton, NY
- **September 14, 2005**, Theoretical Quarks, Hadrons and Nuclei Research Group seminar, Department of Physics, University of Maryland, College Park, MD
- **September 29, 2005**, at the "Odderon Searches at RHIC", RIKEN BNL Research Center workshop, Brookhaven National Laboratory, Upton, NY
- **January 13, 2006**, Kellogg Seminar, Kellogg Radiation Laboratory, California Institute of Technology, Pasadena, CA
- **February 28, 2006**, virtual talk at the STAR Collaboration Meeting, Brookhaven National Laboratory, Upton, NY
- **April 24, 2006**, Particles, Astrophysics, and Nuclear Physics Seminar, Physics Department, University of Connecticut, Storrs, CT
- **May 13, 2006**, at the International Conference on Strong and Electroweak Matter (SEWM 2006), Brookhaven National Laboratory, Upton, NY
- **May 21, 2006**, colloquium at the Raymond and Beverly Sackler Prize in the Physical Sciences award ceremony, Tel Aviv University, Tel Aviv, Israel
- **June 7, 2006**, at the 2006 Gordon Research Conference on Nuclear Chemistry, Colby-Sawyer College, New London, NH
- **September 28, 2006**, at the INT Workshop on Non-Equilibrium Quark-Gluon Plasma, Institute for Nuclear Theory, University of Washington, Seattle, WA
- **November 17, 2006**, at the INT program "From RHIC to LHC: Achievements and Opportunities", Institute for Nuclear Theory, University of Washington, Seattle, WA
- **December 12, 2006**, at the international workshop on "High Energy Physics in the LHC Era", Universidad Tecnica Federico Santa Maria, Valparaiso, Chile
- **December 16, 2006**, at the "QCD at High Energy" Session, QCD Workshop, Washington, DC
- **January 13, 2007**, at the APS Division of Nuclear Physics: 2007 Long Range Plan Joint Town Meeting on Quantum Chromodynamics, Rutgers University, Piscataway, NJ
- **April 6, 2007**, at the Electron-Ion Collider Collaboration Meeting, Massachusetts Institute of Technology, Laboratory for Nuclear Science, Cambridge, MA
- **May 14, 2007**, at the "Light Cone 2007: Relativistic Hadronic and Nuclear Physics" conference, Department of Physics, The Ohio State University, Columbus, OH
- **May 25, 2007**, at the workshop on "Exotic States of Hot and Dense Matter and their Dual Description", Perimeter Institute for Theoretical Physics, Waterloo, Ontario, Canada

- **July 18, 2007**, at the Conference on Early Time Dynamics in Heavy Ions, Department of Physics, McGill University, Montreal, Québec, Canada
- **September 27, 2007**, two talks at DESY Theory Workshop 2007 “Quantum chromodynamics: string theory meets collider physics”, DESY, Hamburg, Germany
- **November 9, 2007**, Nuclear Physics (Medium Energy) Seminar, Department of Physics, University of Illinois at Urbana-Champaign, Urbana, IL
- **November 29, 2007**, Nuclear Physics Seminar, Department of Physics and Astronomy, Iowa State University, Ames, IA
- **December 13, 2007**, EIC Seminar, Physics Department, Brookhaven National Laboratory, Upton, NY
- **December 14, 2007**, Nuclear Theory/RIKEN Seminar, Physics Department, Brookhaven National Laboratory, Upton, NY
- **May 13, 2008**, MIT/CTP Particle/Nuclear Theory Seminar, Center for Theoretical Physics, Massachusetts Institute of Technology, Cambridge, MA
- **July 18, 2008**, lecture on low- x physics at the PHENIX Collaboration Meeting, University of Illinois at Urbana-Champaign, Urbana, IL
- **September 13, 2008**, at Diffraction 2008, International Workshop on Diffraction in High-Energy Physics, La Londe-les-Maures, France
- **September 18, 2008**, at the 38th International Symposium on Multiparticle Dynamics (ISMD2008), DESY, Hamburg, Germany
- **September 20, 2008**, Theory Summary talk, at the 38th International Symposium on Multiparticle Dynamics (ISMD2008), DESY, Hamburg, Germany
- **September 30, 2008**, Nuclear Physics Seminar, Institute of Nuclear and Particle Physics, Ohio University, Athens, OH
- **October 15, 2008**, Nuclear Theory Seminar, Stony Brook Center for Nuclear Theory, Department of Physics and Astronomy, Stony Brook University, Stony Brook, NY
- **March 6, 2009**, Seminar on *Shock Wave Collisions in AdS₅ and Thermalization in Heavy Ion Collisions*, Departamento de Fisica, Universidad Tecnica Federico Santa Maria, Valparaiso, Chile
- **March 9, 10, 11, 2009**, three lectures on applications of AdS/CFT correspondence, Departamento de Fisica, Universidad Tecnica Federico Santa Maria, Valparaiso, Chile
- **April 2, 2009**, plenary talk on *Early Time Dynamics in Heavy Ion Collisions from CGC and from AdS/CFT* at Quark Matter 2009, the 21st International Conference on Ultra-Relativistic Nucleus-Nucleus Collisions, Knoxville, TN
- **April 13, 2009**, talk on *Heavy Quark Potential at Finite-T in AdS/CFT* at Dynamics of Symmetry Breaking, a workshop sponsored by the ANL/U. of Chicago Joint Theory Institute, Argonne National Laboratory, Argonne, IL

- **April 23, 2009**, talk on *McLerran-Venugopalan Model in AdS₅* at Quantum Field Theory in Extreme Environments: an international workshop and symposium to celebrate the 60th birthdays of Jean-Paul Blaizot and Larry McLerran, CEA Saclay, Paris, France
- **June 1, 2009**, talk on *Colliding Shock Waves in AdS₅* at the workshop on Baryon Stopping and Entropy Production, part of the RHIC & AGS Annual Users' Meeting, Brookhaven National Laboratory, Upton, NY
- **June 12, 2009**, lecture on *Thermal Medium in AdS/CFT* at the String Theory–Condensed Matter seminar, Department of Physics, The Ohio State University, Columbus, OH
- **June 26, 2009**, lecture on *Shear Viscosity in AdS/CFT* at the String Theory–Condensed Matter seminar, Department of Physics, The Ohio State University, Columbus, OH
- **July 22, 2009**, talk on *Shock Wave Collisions in AdS₅ and Implications for Heavy Ions* at the 6th International Symposium on Quantum Theory and Symmetries (QTS6), University of Kentucky, Lexington, KY
- **October 7, 2009**, HEP/Astrophysics Seminar on *Shock Wave Collisions in AdS₅ and in Real Life*, Physics Department, Pennsylvania State University, University Park, PA
- **October 21, 2009**, talk on *Running Coupling in Small-x Evolution* at the Physics at a High Energy Electron Ion Collider workshop, Institute for Nuclear Theory, University of Washington, Seattle, WA
- **November 12, 2009**, Theory Seminar on *Shock Wave Collisions in AdS₅ and in Real Life*, Physics Division, Argonne National Laboratory, Argonne, IL
- **February 13, 2010**, invited talk on *The Gauge-String Duality in Nuclear Collisions* in the *String Theory and Nuclear Collisions* Session, APS “April” Meeting 2010, Washington, DC
- **February 25, 2010**, String Theory seminar on *Heavy Ion Collisions in AdS₅*, Department of Physics and Astronomy, University of Kentucky, Lexington, KY
- **May 10, 2010**, opening talk entitled *Introduction to the Physics of Saturation* at the workshop on *Saturation, the Color Glass Condensate and Glasma: What Have we Learned from RHIC?*, RIKEN BNL Research Center, Brookhaven National Laboratory, Upton, NY
- **May 21, 2010**, Physics Seminar on *Heavy Ion Collisions in AdS₅*, Weissman School of Arts and Sciences, Natural Sciences Department, Baruch College, The City University of New York, New York, NY
- **June 3, 2010**, talk on *Initial conditions from shock wave collisions in AdS* at the INT program “Quantifying the Properties of Hot QCD Matter” (INT-10-2A), Institute for Nuclear Theory, University of Washington, Seattle, WA
- **August 10, 2010**, invited talk on *Shock wave collisions and thermalization in AdS₅*, at the 25th Nishinomiya-Yukawa Memorial International Workshop *High Energy Strong Interactions* (HESI2010), Yukawa Institute for Theoretical Physics, Kyoto, Japan
- **October 11, 2010**, talk on *Heavy ion collisions in AdS₅* at the 4th International Conference on Hard and Electromagnetic Probes of High Energy Nuclear Collisions (Hard Probes 2010), Eilat, Israel

- **October 11, 2010**, moderation of the round table *Critical discussion on evidence for the CGC* at the 4th International Conference on Hard and Electromagnetic Probes of High Energy Nuclear Collisions (Hard Probes 2010), Eilat, Israel
- **November 17, 2010**, talk on *Small- x physics in DIS* at the workshop on "The Science Case for an EIC", part of the INT program "Gluons and the quark sea at high energies: distributions, polarization, tomography" (INT-10-3), Institute for Nuclear Theory, University of Washington, Seattle, WA
- **May 23, 2011**, contributed talk on *Running coupling corrections to high energy inclusive gluon production* at Quark Matter 2011, the 22nd International Conference on Ultra-Relativistic Nucleus-Nucleus Collisions, Annecy, France
- **May 30, 2011**, invited talk on *Running Coupling Corrections for Gluon Production in CGC* at the workshop on "Standard and novel QCD phenomena at hadron colliders", European Centre for Theoretical Studies in Nuclear Physics and Related Areas (ECT*), Trento, Italy
- **September 9, 2011**, talk on *Running Coupling Corrections to Gluon Production* at the "High-energy QCD after the start of the LHC" workshop, Galileo Galilei Institute for Theoretical Physics (GGI), Florence, Italy
- **March 9, 2012**, joint Physics and Mathematics Departments Colloquium on *AdS/CFT Correspondence and Heavy Ion Collisions*, Florida International University, Miami, FL
- **April 4, 2012**, Nuclear-Astronomy-Particle Seminar on *Shock wave collisions, thermalization and correlations in AdS₅*, Department of Physics & Astronomy, Wayne State University, Detroit, MI
- **April 23, 24, 25, 2012**, three lectures on *High energy QCD: evolution equations and particle production*, XIIth workshop on Hadron Physics, Bento Gonçalves, Rio Grande do Sul, Brazil
- **May 16, 2012**, talk on *Single Spin Asymmetries in High Energy QCD* at the "QCD Evolution Workshop", Thomas Jefferson National Accelerator Facility, Newport News, VA
- **May 22, 2012**, colloquium entitled *Are Heavy Ion Collisions Strongly or Weakly Coupled?*, Department of Physics, The Ohio State University, Columbus, OH
- **June 11, 2012**, talk on *Shooting Spin Through CGC* at the STAR Upgrade Workshop, Physics Department, Brookhaven National Laboratory, Upton, NY
- **July 30, 2012**, talk on *Putting Spin on Color Glass* at the "Forward Physics at RHIC" RIKEN BNL Research Center Workshop, Physics Department, Brookhaven National Laboratory, Upton, NY
- **August 21, 2012**, talk on *Diffraction Physics at EIC* at the International Workshop on "Physics Opportunities at an Electron Ion Collider" (POETIC 2012), Indiana University, Bloomington, IN
- **September 14, 2012**, talk on *Running Coupling Corrections to Nonlinear Evolution for Diffractive Dissociation* at *Diffraction 2012*, an International Workshop on Diffraction in High-Energy Physics, Puerto del Carmen, Lanzarote, Canary Islands, Spain

- **January 7, 2013**, invited talk on *Single-spin asymmetry in polarized $p+A$ collisions* at the BNL-LANL-RIKEN Center workshop on *The Physics of $p+A$ Collisions at RHIC*, Brookhaven National Laboratory, Upton, NY
- **January 9, 2013**, Nuclear Theory/RIKEN-BNL Research Center Seminar on *Long-Range Rapidity Correlations in Heavy-Light Ion Collisions*, Physics Department, Brookhaven National Laboratory, Upton, NY
- **January 30, 2013**, Theory Seminar on *Saturation Physics and Rapidity Correlations*, Department of Physics, Columbia University, New York, NY
- **March 14, 2013**, Physics Department Colloquium on *High Energy Collisions and Gluon Saturation*, Kent State University, Kent, OH
- **April 15, 2013**, talk on *Long-Range Rapidity Correlations in Heavy-Light Ion Collisions* at the APS April Meeting 2013, Denver, CO
- **April 17, 2013**, invited talk on *Long-Range Rapidity Correlations in Heavy-Light Ion Collisions* at the RIKEN BNL Research Center Workshop on *Jet Quenching at RHIC vs LHC in Light of Recent dAu vs pPb Controls*, Brookhaven National Laboratory, Upton, NY
- **May 8, 2013**, invited talk on *Long-Range Rapidity Correlations in Heavy-Light Ion Collisions* at the *QCD Evolution Workshop*, Thomas Jefferson National Accelerator Facility, Newport News, VA
- **May 30, 2013**, invited talk on the *Solution of the NLO BFKL Equation* at the International Workshop on Low- x Physics, Weizmann Institute of Science, Rehovot, Israel
- **June 25, 2013**, invited e-talk on the *Single-Spin Asymmetry in $p+A$ Collisions* at the RHIC & AGS Users' Meeting, Brookhaven National Laboratory, Upton, NY
- **July 25, 2013**, invited lecture on *Introduction to the Physics of Saturation* at the 2013 National Nuclear Physics Summer School, Stony Brook University, Stony Brook, NY
- **August 16, 2013**, invited talk on the *Solution of the NLO BFKL Equation* at the Berkeley Summer Program *QCD Landscape of the Nucleon and Atomic Nuclei*, Lawrence Berkeley National Laboratory, Berkeley, CA
- **September 17, 2013**, invited talk on *The Status of QCD Diffractive Physics in DIS on Protons and Nuclei* at the XLIII International Symposium on Multiparticle Dynamics (ISMD13), HEP Division (Argonne National Laboratory) and Department of Physics (Illinois Institute of Technology), Chicago, IL
- **November 1, 2013**, invited talk on *Why EIC is Interesting* at the RBRC Scientific Review Committee (SRC) Meeting, Physics Department, Brookhaven National Laboratory, Upton, NY
- **February 26, 2014**, invited talk on (and a demonstration of) *Sivers Function in the Quasi-Classical Approximation*, INT Workshop *Studies of 3D Structure of Nucleon* (INT-14-55W), Institute for Nuclear Theory, University of Washington, Seattle, WA
- **May 13, 2014**, invited talk on *Recent Developments at Small- x* at the *QCD Evolution Workshop*, Santa Fe, NM

- **June 13, 14, 2014**, three invited lectures (two on June 13, one on June 14) on *Introduction to the Physics of Saturation* at the LIVth Cracow School of Theoretical Physics *QCD meets experiment*, Zakopane, Poland
- **June 19, 2014**, invited talk on *Gluon Saturation* at the 2014 RHIC & AGS Annual Users' Meeting, Brookhaven National Laboratory, Upton, NY
- **June 24 & 25, 2014**, invited student lecture on *Physics with Nuclei at the EIC* and a presentation as a panelist during the *Round Table Discussion: Sharpening the case for the EIC* at the Electron Ion Collider Users Meeting, Stony Brook University, Stony Brook, NY
- **September 11, 2014**, Nuclear Physics Seminar entitled *Probing the properties of QCD with atomic nuclei: theoretical aspects*, The Ohio State University, Columbus, OH
- **September 14, 2014**, invited talk on *Probing the properties of QCD with atomic nuclei: theoretical aspects* in the joint session of the APS DNP 2014 Long-range plan Joint Town Hall Meetings on QCD, Temple University, Philadelphia, PA
- **September 25, 2014**, invited talk on *Next-to-Leading Logarithm Small- x Evolution* at the International Workshop on the Physics Opportunities at an ElecTron-Ion Collider (POETIC 2014), Yale University, New Haven, CT
- **October 11, 2014**, invited talk on *The Nucleus as a Laboratory for Gluons at an EIC* at the 4th Joint Meeting of the APS Division of Nuclear Physics and the Physical Society of Japan, Waikoloa, Hawaii
- **November 18, 2014**, Triangle Nuclear Theory Colloquium (TNT) *Saturation Physics: an Overview and Recent Developments*, Department of Physics, North Carolina State University, Raleigh, NC
- **March 11, 2015**, Nuclear and Particle Physics Seminar on *Sivers Function in the Quasi-Classical Approximation*, Department of Physics, Temple University, Philadelphia, PA
- **April 9, 2015**, invited talk on *Two-Gluon Correlations in Heavy-Light Ion Collisions*, 6th Workshop of the APS Topical Group on Hadronic Physics (GHP15), Baltimore, MD (+chair of RHIC 5 session)
- **May 1, 2015**, convener summary talk *Working Group 2 Highlights: Small- x , Diffraction and Vector Mesons*, XXIII International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2015), Department of Physics, Southern Methodist University, Dallas, Texas
- **May 28, 2015**, invited talk on *TMD Evolution: the Small- x Perspective*, at the *QCD Evolution Workshop*, Thomas Jefferson National Accelerator Facility, Newport News, VA
- **September 8, 2015**, invited talk on *TMDs in the Saturation Picture: Quasi-Classical Approximation and Quantum Evolution* at the 6th International Conference on the "Physics Opportunities at an ElecTron-Ion Collider" (POETIC VI), Ecole Polytechnique, Palaiseau, France
- **October 11, 2015**, invited e-talk talk on *Energy Scan in pA* at the RHIC Cold QCD Plan Face-to-Face Meeting, Brookhaven National Laboratory, Upton, NY

- **January 5, 2016**, “Heavy Ion Tea” seminar on *Spin, Small x , and the EIC*, Relativistic Nuclear Collisions Program, Lawrence Berkeley National Lab, Berkeley, CA
- **January 6, 2016**, invited opening talk on *QCD at EIC* at the Electron Ion Collider User Group Meeting 2016, University of California Berkeley, Berkeley, CA
- **February 9, 2016**, invited talk on *TMDs of a Large Nucleus: Quasi-Classical Approximation and Quantum Evolution* at the RIKEN BNL Research Center Workshop on “Emerging Spin and Transverse Momentum Effects in pp and p+A Collisions”, Brookhaven National Laboratory, Upton, NY
- **May 30, 2016**, talk on *Helicity Evolution at Small x* at the *QCD Evolution Workshop*, National Institute for Subatomic Physics (Nikhef), Amsterdam, Netherlands
- **July 20, 2016**, talk on *Heavy Ion Collisions Beyond the “Dilute Projectile” Approximation*, at *ULtra-RelatIvistiCH HEavy IoNZ 2016*, a workshop in celebration of Ulrich Heinz’s 60th birthday, CERN, Geneva, Switzerland
- **September 26, 2016**, talk on *Helicity evolution at small x* at the 22nd International Spin Symposium (SPIN 2016), University of Illinois at Urbana-Champaign, Champaign, IL
- **October 18, 2016**, Institute of Nuclear and Particle Physics seminar on *QCD at EIC*, Ohio University, Athens, OH
- **November 15, 2016**, invited talk on *Helicity evolution at small x* at the Joint CTEQ Meeting and POETIC 7 (7th International Conference on Physics Opportunities at an Electron-Ion-Collider), Temple University, Philadelphia, PA (+plenary session chair)
- **January 20, 2017**, BNL Nuclear Theory/RIKEN seminar on *Helicity Evolution at Small x and the Proton Spin*, Brookhaven National Laboratory, Upton, NY
- **April 26, 2017**, invited talk on *Small- x asymptotics of the quark helicity distribution* at the RIKEN BNL Research Center Workshop on “Saturation: Recent Developments, New Ideas and Measurements”, Brookhaven National Laboratory, Upton, NY (+session chair)
- **May 1, 2017**, Physics Colloquium on *High energy QCD at the dawn of the EIC era*, Department of Physics, Columbia University, New York, NY
- **May 23, 2017**, invited talk on *Small- x Asymptotics of the Gluon Helicity Distribution* at the *QCD Evolution Workshop*, Thomas Jefferson National Accelerator Facility, Newport News, VA
- **June 28, 2017**, invited talk on *Small- x Asymptotics of the Gluon Helicity Distribution* at the RIKEN BNL Research Center Workshop on *Synergies of pp and pA Collisions with an Electron-Ion Collider*, Brookhaven National Laboratory, Upton, NY
- **September 12, 2017**, invited talk on *Small- x Asymptotics of the Quark and Gluon Helicity Distributions* at the XLVII International Symposium on Multiparticle Dynamics (ISMD2017), Tlaxcala City, Mexico
- **October 3, 2017**, invited talk on *Small- x Asymptotics of the Quark and Gluon Helicity Distributions* at the INT Workshop *The Flavor Structure of Nucleon Sea* (INT-17-68W), Institute for Nuclear Theory, University of Washington, Seattle, WA

- **November 4, 2017**, invited talk on *Cold QCD Physics at RHIC* at the STAR Collaboration Autumn 2017 Analysis Meeting, Brookhaven National Laboratory, Upton, NY
- **April 14, 2018**, contributed talk on *Small- x Asymptotics of the Gluon Helicity Distribution* at the APS April Meeting 2018, Columbus, OH
- **May 20, 2018**, invited talk on *TMDs at small- x : an operator treatment* at the 2018 [QCD Evolution Workshop](#), Santa Fe, NM
- **August 2, 2018**, invited talk on *Probing Nucleons and Nuclei in High Energy Collisions (INT 18-3 Program Planning)* at the 2018 [Electron Ion Collider User Group Meeting \(EICUGM\)](#), The Catholic University of America, Washington, D.C.
- **August 7, 2018**, invited talk on *Odd Harmonics from the Classical Gluon Fields* at the workshop on *Collectivity and correlations in high-energy hadron and nuclear collisions* at the Pedro Pascual Benasque Center for Sciences, Benasque, Spain
- **September 17, 2018**, CERN Theory Exceptional Seminar [The Boltzmann Equation: Missing in Action](#), CERN, Geneva, Switzerland
- **September 20, 2018**, SUBATECH seminar [The Boltzmann Equation: Missing in Action](#), SUBATECH, Nantes, France
- **October 18, 2018**, invited talk on *Spin at Small x* at the INT program [Probing Nucleons and Nuclei in High Energy Collisions](#) (INT-18-3), Institute for Nuclear Theory, Seattle, WA
- **November 6, 2018**, invited talk on *Quark and Gluon Helicity at Small x* at the INT program [Probing Nucleons and Nuclei in High Energy Collisions](#) (INT-18-3), Institute for Nuclear Theory, Seattle, WA
- **January 10, 2019**, invited talk on *Highlights from INT 18-3* at the EIC User Group Remote Meeting
- **May 8, 2019**, invited talk on *Comparing kinetic theory to Schwinger-Keldysh formalism in heavy ion collisions* at the INT program [Origins of Correlations in High Energy Collisions](#) (INT-19-1b), Institute for Nuclear Theory, Seattle, WA
- **May 15, 2019**, invited talk on *Orbital Angular Momentum at Small x* + discussion moderation on the *Proton Spin* at the [QCD Evolution 2019 Workshop](#), Physics Division, Argonne National Laboratory, IL, USA
- **May 29, 30, 31, 2019**, 4 lectures on *Introduction to Saturation Physics and the Spin Puzzle* at the [Strong interactions beyond simple factorization: collectivity at high energy from initial to final state](#) summer school, Department of Physics, University of Connecticut, Storrs, CT
- **July 22, 2019**, invited theory seminar on *Proton Spin at Small x* , Thomas Jefferson National Accelerator Facility, Newport News, VA
- **July 24, 2019**, joint Nuclear/HEP seminar on *Proton Spin at Small x* , Physics Department, University of Virginia, Charlottesville, VA
- **September 18, 2019**, invited talk and discussion moderation on *Helicity and Orbital Angular Momentum at Small x* at the TMD Collaboration Meeting, Lawrence Berkeley National Laboratory, Berkeley, CA

- **September 20, 2019**, invited talk on *Orbital Angular Momentum at Small x* at the [9th International Conference on Physics Opportunities at an Electron-Ion-Collider \(POETIC 9\)](#), Lawrence Berkeley National Laboratory, Berkeley, CA
- **September 30, 2019**, Physics Department Colloquium on *High energy QCD at the dawn of the EIC era*, Temple University, Philadelphia, PA
- **February 3, 2020**, invited talk on *Helicity Distributions and OAM at Small x* at the workshop on [Correlations in Partonic and Hadronic Interactions \(CPHI-2020\)](#), CERN, Geneva, Switzerland
- **June 11, 2020**, online seminar on *Small- x Contribution to the Proton Spin Puzzle*, QCD online seminar series organized by Prof. Xiangdong Ji
- **July 8, 2020**, invited online talk on *Small- x Physics at EIC*, Preparatory Joint Sessions on “[Open questions and New Ideas](#)” organized by the Energy Frontier Topical Groups as part of Snowmass 2021 process
- **July 23, 2020**, CFNS online seminar on *Small- x Contribution to the Proton Spin Puzzle*, Center for Frontiers in Nuclear Science (CFNS), Brookhaven National Laboratory/Stony Brook University, Upton/Stony Brook, NY
- **December 9, 2020**, invited talk on *Quark and gluon helicity distributions and OAM at small x* at the [Resummation, Evolution, Factorization 2020](#) workshop, Higgs Centre for Theoretical Physics, University of Edinburgh, Edinburgh, UK
- **January 14, 2021**, Co-convenor of the discussion on *Low- x and gluon saturation* at the [VIth International Conference on the Initial Stages of High-Energy Nuclear Collisions \(IS2021\)](#), Weizmann Institute of Science, Israel
- **January 28, 2021**, invited talk on *Helicity Distributions and Orbital Angular Momentum at Small x* at the [EIC opportunities for Snowmass](#) workshop, Center for Frontiers in Nuclear Science (CFNS) at Stony Brook University/Brookhaven National Laboratory
- **March 4, 2021**, [Frontiers in Nuclear Theory Colloquium](#) on *High energy QCD at the dawn of the EIC era*, Institute for Nuclear Theory, Seattle, WA
- **March 12, 2021**, invited talk on *Lensing Mechanism Meets Small- x Physics: Single Transverse Spin Asymmetry in $p^\uparrow + p$ and $p^\uparrow + A$ Collisions*, virtual [STAR Collaboration Meeting 2021](#), Czech Technical University in Prague, Faculty of Nuclear Sciences and Physical Engineering, Czech Republic
- **April 19, 2021**, talk on *First analysis of world polarized DIS data with small- x helicity evolution*, virtual [APS April Meeting 2021](#)
- **April 28, 2021**, [CTEQ Webinar: The Discovery of the Odderon: from Theory to the Experimental Results by TOTEM/D0](#), (theory overview), on Zoom and [YouTube Live](#)
- **May 6, 2021**, online seminar [Introduction to Saturation Physics](#), Institute for Particle Physics Phenomenology, Durham University, UK
- **May 12, 2021**, invited talk on *An Update on Helicity Evolution at Small x* at the virtual [QCD Evolution Workshop 2021](#) hosted by UCLA

- **May 17, 2021**, online seminar on *Small-x Contribution to the Proton Spin Puzzle*, MIT Nuclear/Particle Seminar series, Center for Theoretical Physics, MIT
- **June 2, 2021**, online seminar on [The Discovery of the Odderon: from Theory to the Experimental Results by TOTEM/D0](#) (theory overview), at the HEP Weekly Seminar, Departamento de Fisica, Universidad Tecnica Federico Santa Maria, Chile
- **June 11, 2021**, invited talk on *Cold QCD at RHIC: Theory Topics* at the virtual [2021 RHIC/AGS Annual Users' Meeting](#)
- **September 22, 2021**, invited talk on *Introduction to Saturation Physics* at the virtual [Physics Opportunities at the Electron-Ion Collider](#) workshop, Institute for Particle Physics Phenomenology, Durham University, UK
- **October 20, 2021**, online [Theoretical Physics Colloquium](#) on *Small-x Contribution to the Proton Spin Puzzle*, hosted by Prof. Igor Shovkovy at the Arizona State University (see also on [YouTube](#))
- **November 19, 2021**, invited talk on *Small-x Evolution and Spin at Small x* at the virtual [MC4EIC: Monte Carlo event simulation for the EIC](#) workshop, organized by the CTEQ collaboration and the EIC User Group, and hosted by CFNS
- **December 15, 2021**, convener of the Opening session and discussion co-leader at the virtual [Small-x Physics in the EIC Era](#) workshop, RIKEN BNL Research Center
- **January 24 & 25, 2022**, two lectures on *TMDs at small x* at the hybrid [2022 TMD Winter School](#), Santa Fe, New Mexico
- **May 12, 2022**, invited talk on *Quark and gluon helicity evolution at small-x: revised and updated* at the [QCD Evolution 2022](#) workshop, University of Virginia, Charlottesville, Virginia
- **May 31, 2022**, invited talk on *Quark and gluon helicity evolution at small-x: revised and updated* at the Israel Science Foundation workshop on the [Physics of Saturation — precision and quasicollectivity](#), Ben-Gurion University of the Negev, Be'er Sheva, Israel
- **August 5, 2022**, invited talk on *Quark and gluon helicity evolution at small-x: revised and updated* at the [Center for Frontiers in Nuclear Science](#) workshop on [Precision QCD predictions for ep Physics at the EIC](#), Stony Brook University, New York
- **August 11, 2022**, invited talk on *Small-x quark and gluon helicity contribution to the proton spin puzzle* at the [2022 Photonuclear Reactions Gordon Research Conference](#), Holderness, New Hampshire
- **September 23, 2022**, invited talk on *Nucleon Spin Structure at Low-x* at the [2022 NSAC Long-Range Plan Town Hall Meeting on Hot and Cold QCD](#), Massachusetts Institute of Technology, Cambridge, Massachusetts
- **December 6, 2022**, invited online talk on *Topics in small-x DIS: From diffractive/elastic scattering to nuclear TMDs* at the [EICUG 2nd Detector Meeting](#)
- **December 12, 2022**, Special Seminar on *Small-x Quark and Gluon Helicity Contributions to the Proton Spin Puzzle*, Nuclear Science Division, Lawrence Berkeley National Lab, Berkeley, CA

- **January 25, 2023**, invited online talk on *FoCal and EIC: Theoretical Complementarity* at the ALICE Forward Calorimeter (FoCal) DOE Science Review
- **February 1, 2023**, INPP seminar on *Small- x Quark and Gluon Helicity Contributions to the Proton Spin Puzzle*, [Institute of Nuclear and Particle Physics](#), Ohio University, Athens, OH
- **March 16, 2023**, Nuclear Theory Seminar on *Small- x Quark and Gluon Helicity Contributions to the Proton Spin Puzzle*, [Maryland Center for Fundamental Physics](#), Department of Physics, University of Maryland, College Park, MD
- **May 18, 2023**, invited talk on *Revised helicity evolution at small x : exact analytic solution of the large- N_c equations* at the [Color Glass Condensate at the Electron-Ion Collider](#) workshop, ECT*, Trento, Italy
- **May 23, 2023**, discussion moderation on *Spin & TMDs at small x* at the [QCD Evolution Workshop 2023](#), IJCLab, Université Paris-Saclay, Orsay, France

BOOK

Yuri V. Kovchegov, Eugene Levin, *Quantum Chromodynamics at High Energy*, Cambridge Monographs on Particle Physics, Nuclear Physics and Cosmology (No. 33), ISBN: 9780521112574, Cambridge University Press, September 2012.

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- [3] Yuri V. Kovchegov, Dirk H. Rischke, *Classical Gluon Radiation in Ultrarelativistic Nucleus-Nucleus Collisions*, [hep-ph/9704201](#), Phys. Rev. C **56**, 1084 (1997).
- [4] Yuri V. Kovchegov, A. H. Mueller, and Samuel Wallon, *Unitarity Corrections and High Field Strengths in High Energy Hard Collisions*, [hep-ph/9704369](#), Nucl. Phys. B **507**, 367 (1997).
- [5] Yuri V. Kovchegov, A. H. Mueller, *Gluon Production in Current-Nucleus and Nucleon-Nucleus Collisions in a Quasi-Classical Approximation*, [hep-ph/9802440](#), Nucl. Phys. B **529**, 451 (1998).
- [6] Yuri V. Kovchegov, A. H. Mueller, *Running Coupling Effects in BFKL Evolution*, [hep-ph/9805208](#), Phys. Lett. B **439**, 428 (1998).
- [7] Yuri V. Kovchegov, *Small- x F_2 Structure Function of a Nucleus Including Multiple Pomeron Exchanges*, [hep-ph/9901281](#), Phys. Rev. D **60**, 034008 (1999).
- [8] Yuri V. Kovchegov, Larry McLerran, *Diffraction Structure Function in a Quasi-Classical Approximation*, [hep-ph/9903246](#), Phys. Rev. D **60**, 054025 (1999).
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- [10] Yuri V. Kovchegov, Eugene Levin, *Diffraction Dissociation Including Multiple Pomeron Exchanges in High Parton Density QCD*, [hep-ph/9911523](#), Nucl. Phys. B **577**, 221 (2000).
- [11] Yuri V. Kovchegov, Eugene Levin, Larry McLerran, *Large Scale Rapidity Correlations in Heavy Ion Collisions*, [hep-ph/9912367](#), Phys. Rev. C **63**, 024903 (2001).

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- [13] Yuri V. Kovchegov, *Classical Initial Conditions for Ultrarelativistic Heavy Ion Collisions*, [hep-ph/0011252](#), Nucl. Phys. **A692**, 557 (2001).
- [14] Dmitri Kharzeev, Yuri V. Kovchegov, Eugene Levin, *Instantons in the Saturation Environment*, [hep-ph/0106248](#), Nucl. Phys. **A699**, 745 (2002).
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- [17] Yuri V. Kovchegov, Kirill Tuchin, *Inclusive Gluon Production in DIS at High Parton Density*, [hep-ph/0111362](#), Phys. Rev. D **65**, 074026 (2002).
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[64] R. Abir *et al*, *The case for an EIC Theory Alliance: Theoretical Challenges of the EIC*, White Paper on EIC Theory Alliance, arXiv:2305.14572 [hep-ph].

TEACHING EXPERIENCE

<https://www.asc.ohio-state.edu/kovchegov.1/courses.html>

- **Spring 2023**, “Quantum Field Theory II”, a graduate-level class at the Ohio State University
- **Autumn 2022, Spring 2023**, “Electromagnetic Field Theory I & II” (including Analytic and Numeric Methods of Physics), a graduate-level class at the Ohio State University
- **Autumn 2021, Spring 2022**, “Quantum Field Theory I & II”, a graduate-level class at the Ohio State University
- **Autumn 2020, Spring 2021**, “Elementary Particle Physics I & II”, a graduate-level class at the Ohio State University

- **Autumn 2019, Spring 2020**, “Quantum Field Theory I & II”, a graduate-level class at the Ohio State University
- **Spring 2019**, “Quantum Chromodynamics at High Energy”, a graduate-level special-topics class at the Ohio State University
- **Autumn 2017, Spring 2018**, “Elementary Particle Physics I & II”, a graduate-level class at the Ohio State University
- **Spring 2017**, “Elementary Particle Physics II”, a graduate-level class at the Ohio State University
- **Autumn 2015, Spring 2016**, “Electromagnetic Field Theory I & II” (including Analytic and Numeric Methods of Physics), a graduate-level class at the Ohio State University
- **Autumn 2014, Spring 2015**, “Electromagnetic Field Theory I & II” (including Analytic and Numeric Methods of Physics), a graduate-level class at the Ohio State University
- **Spring 2014**, “Electromagnetic Field Theory”, a graduate-level class at the Ohio State University
- **Autumn 2012, Spring 2013**, “Quantum Field Theory I & II”, a graduate-level class at the Ohio State University
- **Autumn 2012, Spring 2013**, Journal Club: [High Energy QCD](#)
- **Fall 2011, Winter 2012**, “Quantum Field Theory I & II”, a graduate-level class at the Ohio State University
- **Fall 2010, Winter and Spring 2011**, “Quantum Field Theory I, II & III”, a graduate-level class at the Ohio State University
- **Fall 2009, Winter and Spring 2010**, “Quantum Field Theory I, II & III”, a graduate-level class at the Ohio State University
- **Winter and Spring 2009**, “Elementary Particle Physics I & II”, a graduate-level class at the Ohio State University
- **Fall 2007, Winter and Spring 2008**, “Electromagnetic Field Theory I, II & III”, a graduate-level class at the Ohio State University
- **Winter and Spring 2007**, “Electricity, Magnetism and Light”, an introductory undergraduate-level course at the Ohio State University
- **Fall 2005, Winter and Spring 2006**, “Electromagnetic Field Theory I, II & III”, a graduate-level class at the Ohio State University
- **Spring 2005**, Special Topics advanced graduate-level class “[Strong Interactions at High Energy](#)” at the Ohio State University
- **Fall 1997**, Introductory Physics labs for undergraduate students at Columbia University
- **Fall 1996, Spring 1997**, Mechanics and E & M labs at Barnard College, Columbia University
- **Spring 1996**, prepared Modern Physics labs at Barnard College, Columbia University

- **Fall 1995**, Mechanics labs at Barnard College, Columbia University
- **1993 – 1995**, Labs in Mechanics, Thermodynamics, E & M and Modern Physics at Columbia University

PHD STUDENTS AND POSTDOCS SUPERVISED

Postdocs:

- Kirill Tuchin, September 2001 – August 2003
- Heribert Weigert, October 2005 – October 2007
- Javier Lopez Albacete, October 2005 – September 2008
- William A. Horowitz, October 2008 – September 2010
- Hovhannes R. Grigoryan, October 2010 – September 2011
- Giovanni A. Chirilli, October 2012 – December 2015
- Bin Wu, October 2015 – October 2017
- Florian Cougoulic, October 2018 – October 2020
- Andrey Tarasov, October 2019 – October 2022
- Ming Li, September 2022 – present

PhD Students:

- Anastasios Taliotis, Ph.D. (2010), *Geometrical Methods in Heavy Ion Collisions*
- Matthew D. Sievert, Ph.D. (2014), *Transverse Spin and Classical Gluon Fields: Combining Two Perspectives on Hadronic Structure*, arXiv:1407.4047 [hep-ph]
- Douglas E. Wertepny, Ph.D. (2016), *Two-Particle Correlations in Heavy-Light Ion Collisions*, arXiv:1608.08618 [nucl-th]
- M. Gabriel Santiago, Ph.D. (2022), Small- x Physics Meets Spin-Orbit Coupling: Transverse Spin Effects in High Energy QCD
- Yossathorn (Josh) Tawabutr, Ph.D. (2022), Helicity of Quarks and Gluons at Small Bjorken x

OTHER EDUCATIONAL EXPERIENCE

- **Summer 1994**, D0 experiment at Fermi National Accelerator Laboratory, Batavia, IL, summer student working with Professor M. Tuts
- **August 19 – 30, 1996**, XXIV SLAC Summer Institute on Particle Physics, *The Strong Interaction, From Hadrons to Partons*, Stanford Linear Accelerator Center, Stanford, CA
- **May 27 – June 4, 1997**, CTEQ Summer School on QCD Analysis and Phenomenology, Interlaken Resort, Lake Como, WI

- **July 6 – 16, 1997**, RHIC '97 Summer Study, Brookhaven National Laboratory, Upton, NY
- **July 14 – 25, 1997**, RIKEN BNL Research Center Workshop on Perturbative QCD As A Probe of Hadron Structure, RIKEN BNL Research Center, Brookhaven National Laboratory, Upton, NY
- **September 17 – 20, 1998**, 4th Workshop on Small-x and Diffractive Physics, Fermi National Accelerator Laboratory, IL
- **October 23, 1998**, RHIC Physics and Beyond: Kay Kay Gee Day, Brookhaven National Laboratory, Upton, NY
- **August 6 – 18, 2001**, NATO Advanced Study Institute “QCD Perspectives on Hot and Dense Matter”, Cargese, Corsica, France
- **February 19 – 22, 2003**, “QCD and String Theory” workshop, Institute for Nuclear Theory, University of Washington, Seattle, WA
- **October 29, 2003**, workshop on “QCD, Confinement and Heavy-Ion Collisions”, University of Arizona, Tucson, AZ
- **November 19 – 20, 2004**, RHIC II Science Workshop, Physics Department, Brookhaven National Laboratory, Upton, NY
- **July 29, 2016**, Professional Association of Diving Instructors (PADI) and Scuba Diving International (SDI) certified open water diver
- **November 28 – 30, 2018**, [Inaugural Symposium and the first review of the Center for Frontiers in Nuclear Science](#) (CFNS), Stony Brook University, Stony Brook, NY
- **July 26 – 29, 2022**, [the 2022 Electron-Ion Collider User Group Meeting, Center for Frontiers in Nuclear Science](#) (CFNS), Stony Brook University, Stony Brook, NY (included chairing a session)
- **September 20 – 22, 2022**, [Workshop: Theory for EIC in the next decade](#), Massachusetts Institute of Technology, Cambridge, Massachusetts

OUTREACH

- **May 7, 2009**, a talk on Mechanics and Magnetism to girl-scout troop #799 aimed at helping them achieve a Science badge
- **April 9, 2018**, Nuclear Physics Day on Capitol Hill, a day of in-person advocacy for Nuclear Physics in the US Senate and the House of Representatives
- **August 23 and September 6, 2020**, two lectures on *Gluons: what they are and where to find them* to the class of 1990 graduates of Moscow school number 57
- **April 25, 2023**, Nuclear Physics Day 2023, a day of in-person advocacy for Nuclear Physics in the US Senate and the House of Representatives