

# Curriculum vitæ

Tuomas Lappi

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Born 1978 in Suonenjoki, Finland. Finnish citizen.

## Positions, education

### Current

- Professor of physics, University of Jyväskylä
- Director of Research Council of Finland Center of Excellence in Quark Matter

### Previous positions

- University of Jyväskylä, Finland, Sep 2009 – present. *Details: Academy of Finland Postdoctoral researcher Sep 2009 – Dec 2011, Research scientist (different Academy of Finland research grants) Jan 2012 – Aug 2013, Academy of Finland Research Fellow Sep 2013 – Aug 2018, Senior Lecturer (on leave) Apr 2015 – Dec 2017, Professor Jan 2018 – (on leave Jan 2018 – Aug 2018).*
- Institut de Physique Théorique (IPhT, formerly SPhT), CEA/Saclay, France, Oct 2007 – Aug 2009. Postdoctoral researcher (*Partially funded by Academy of Finland, project 126604, Jan 2009 – Aug 2009.*)
- Brookhaven National Laboratory, Upton, NY, USA, Oct 2005 – Sep 2007. Postdoctoral Research Associate in Nuclear Theory Group.
- University of Helsinki, Finland, autumn 2001–summer 2005, Graduate student. *Details of position: employed as research assistant at the Division of Theoretical Physics, 2001, and at the Helsinki Institute of Physics, spring 2002. Funded by personal scholarships from the Finnish Cultural Foundation and the Magnus Ehrnrooth foundation, July 2002 – September 2005.*
- Helsinki University of Technology, Physics laboratory, summer 1999, Research Assistant (computational condensed matter physics).

### Degrees

- *Docent* (Adjunct professor, equivalent of habilitation) at University of Jyväskylä, August 25th 2010.
- *PhD* in theoretical physics at the University of Helsinki, **January 28th 2005**. Thesis “Classical chromodynamics and heavy ion collisions,” hep-ph/0505095, opponent Dr. J.-P. Blaizot, supervisor prof. K. Kajantie.
- *MSc* at the University of Helsinki, **September 14th 2001**. Master’s thesis on “Classical fields in relativistic heavy ion collisions”, advisor prof. K. Kajantie. Major subject: theoretical physics. Minor subjects: mathematics, computer science and physics. Degree includes studies of theoretical physics (DEA de physique théorique) at Ecole Normale Supérieure, Paris, France, 1999 – 2000.
- Graduated from Suonenjoki high school in May 1997.

### Other qualifications

- Basics of University Pedagogy, 10 ECTS credits, spring 2012. Basic course satisfying the formal requirements for University teaching positions, organized by the Faculty of Education, University of Jyväskylä.
- Teaching demonstration for adjunct professor (docent) position, University of Jyväskylä June 18th, 2010, evaluated as 4/5 (very good).

## Awards

- Finnish Academy of sciences and letters, member 4/2021–
- “Zimanyi Nuclear Theory Award” recognizing an “exceptionally accomplished early career theorist whose work has had major and broad impact in the field of high energy nuclear physics,” awarded at the Quark Matter conference, Darmstadt, May 2014.

## Publications

### Overview

- 1 invited review article
- 80 published regular articles in Phys. Rev. Lett., Phys. Rev. C & D, Phys Lett. B, Nucl. Phys. A, JHEP and EPJ C.
- 77 conference proceedings
- 14 contributions to scientific reports and white papers
- Total 11097 citations for 171 papers between 2003 and 2024 (INSPIRE database, August 2024).
- h-index 49 (INSPIRE database, August 2024)

### Most cited regular articles (*citations: INSPIRE, Sep 2023*)

1. T. Lappi and L. McLerran, “Some features of the glasma,” Nucl. Phys. A **772** (2006) 200 [hep-ph/0602189]. *576 cit.*
2. T. Lappi, “Production of gluons in the classical field model for heavy ion collisions,” Phys. Rev. C **67** (2003) 054903, [arXiv:hep-ph/0303076]. *334 cit.*
3. A. Dumitru, K. Dusling, F. Gelis, J. Jalilian-Marian, T. Lappi and R. Venugopalan, “The ridge in proton-proton collisions at the LHC,” Phys. Lett. B **697** (2011) 21, [arXiv:1009.5295 [hep-ph]]. *327 cit.*
4. T. Lappi and H. Mäntysaari, “Single inclusive particle production at high energy from HERA data to proton -nucleus collisions,” Phys. Rev. D **88** (2013) 114020 [arXiv:1309.6963 [hep-ph]]. *189 cit.*
5. K. Dusling, F. Gelis, T. Lappi and R. Venugopalan “Long range two-particle rapidity correlations in A+A collisions from high energy QCD evolution,” Nucl. Phys. A **836** (2010) 159-182, [arXiv:0911.2720 [hep-ph]]. *180 cit.*
6. H. Kowalski, T. Lappi and R. Venugopalan, “Nuclear enhancement of universal dynamics of high parton densities,” Phys. Rev. Lett. **100**, (2008) 022303, [arXiv:0705.3047 [hep-ph]]. *178 cit.*
7. F. Gelis, T. Lappi and R. Venugopalan, “High energy factorization in nucleus-nucleus collisions,” Phys. Rev. D **78** (2008) 054019, [arXiv:0804.2630 [hep-ph]]. *155 cit.*
8. T. Lappi, “Wilson line correlator in the MV model: Relating the glasma to deep inelastic scattering,” Eur. Phys. J. C **55** (2008), 285-292, [arXiv:0711.3039 [hep-ph]]. *149 cit.*
9. T. Lappi, “Energy density of the glasma,” Phys. Lett. B **643** (2006) 11, [arXiv:hep-ph/0606207]. *148 cit.*
10. A. Dumitru, J. Jalilian-Marian, T. Lappi, B. Schenke and R. Venugopalan, “Renormalization group evolution of multi-gluon correlators in high energy QCD,” Phys. Lett. B **706** (2011) 219, [arXiv:1108.4764 [hep-ph]]. *140 cit.*

## Supervision and teaching

### Supervision

*Postdocs supervised (University of Jyväskylä)*

- J. Peuron, 11/2022 – 12/2023 (then private sector)
- A.-D. Le, 9/2022 –
- P. Singh, 12/2021 –
- H. Hänninen, 12/2021 – 8/2022 (then postdoc in mathematics, U Jyväskylä)
- C. Flett, Nov 2020 – Oct 2022 (then postdoc at ICJLab, Orsay)
- F. Cougoulic, Oct 2020 – April 2022 (then postdoc at U Santiago de Compostela)
- M. Li, Jan 2020 – Dec 2021 (then postdoc at U Santiago de Compostela)

- P. Guerrero Rodríguez, Oct 2019 – Sep 2021 (then postdoc at LIP Lisbon)
- Y. Mulian, Oct 2018 – Sep 2021 (then postdoc at U Santiago de Compostela)
- M. Mace, Oct 2018 – Sep 2019 (then private sector)
- G. Beuf, Oct 2017 – Jan 2020 (then tenure track position at NCBJ Warsaw)
- H. Mäntysaari, Oct 2017 – Sep 2018 (then independent AoF postdoc grant at Jyväskylä, 2024 ERC CoG grant & associate prof at Jyväskylä)
- K. Boguslavski, Oct 2016 – Feb 2019 (then 6-year research assistant at TU Wien)
- R. Paatelainen, Oct 2016 – Sep 2017 (then postdoc at U Helsinki, 2018 CERN fellow)
- M.-A. Escobedo Espinosa, Oct 2016 – Sep 2018 (then postdoc at U Santiago de Compostela, since 2023 faculty at U Barcelona)
- Y. Zhu, Oct 2015 – Sep 2017 (then postdoc at TU München)
- B. Ducloué, Sep 2014 – Aug 2017 (then postdoc at IPhT Saclay)

*Graduate students supervised (University of Jyväskylä)*

- P. Gimeno Estivill: 8/2023 – 2027 (est.)
- D. Avramescu: 8/2022 – 2026 (est.)
- M. Tevio: 1/2021 – 2024 (est.) (joint with H. Paukkunen)
- S. Demirci: 9/2018 – 6/2023 (then private sector)
- H. Hänninen: 4/2017 – 11/2021 (then postdoc at Jyväskylä)
- A. Ramnath: 9/2014 – 6/2021 (10/2021 postdoc at Lund)
- J. Peuron: 9/2014 – 8/2018 (then postdoc at ECT\* Trento)
- H. Mäntysaari: 2012 – 2015 (then postdoc at Brookhaven Nat. Lab.)

*Undergraduate students supervised (University of Jyväskylä)*

- Y. Dunlop: MSc (in prog.)
- P. Runko: MSc (in prog.)
- M. Jokivalli: BSc 2024
- P. Gimeno Estivill: MSc 2023
- M. Tevio: MSc 2020 (joint with H. Paukkunen)
- A. Piirainen: BSc 2019
- L. Huhta: BSc 2018
- J. Penttala: BSc 2018
- S. Demirci: Research training assignment 2017, MSc 2018
- T. Kovanen: BSc 2017
- A. Hulkkonen: BSc 2017, Research training assignment 2017
- H. Hänninen: MSc 2017
- T. Stylman: Research training assignment 2014, MSc 2017.
- A. Asikainen: Research training assignment 2014.
- L. Laulumaa: BSc 2013, Research training assignment 2014.
- P. Pöyhönen: MSc 2013
- J. Peuron: BSc 2012, Research training assignment 2013, MSc 2014
- H. Mäntysaari: BSc 2010, Research training assignment 2011, MSc 2011

*PhD, habilitation theses reviewed*

- A. Tymowska, NCBJ Warsaw 2023, reviewer and examination committee member
- R. Törnqvist, Lund University 2023, member of examination committee
- M. Fucilla, University of Cosenza 2023, external reviewer
- A.-D. Le, Ecole Polytechnique 2021, member of jury (“rapporteur”)
- F. Salazar Wong, Stony Brook University 2021, member of jury
- J. Čepila, CTU in Prague 2021, referee for habilitation
- S. McDonald, McGill University 2020, external referee
- J. Remes, University of Helsinki 2020, external referee
- M. Mieskolainen, University of Helsinki 2020, external referee

- P. Guerrero Rodríguez, University of Granada 2019, external referee
- D. Müller, Technische Universität Wien 2019, assessor (“Gutachter”)
- V. Leino, University of Helsinki 2018, external referee
- A. Rasoanaivo, University of Cape Town, 2017, external examiner
- H. Grönqvist, Université Paris-Sud, 2015, member of jury (“rapporteur”)
- L. Franti, University of Helsinki 2015 external referee
- T. Epelbaum, Université Paris VI, 2014; member of jury (“examineur”)
- A. Mykkänen, University of Helsinki 2012; external referee
- J. Alanen, University of Helsinki 2012; external referee
- J. Kuokkanen, University of Oulu 2011; opponent in dissertation
- S. Kurki, University of Helsinki 2011; external referee
- V. Muhonen, University of Helsinki 2008; external referee

#### *MSc theses reviewed*

- J. Rantamäki, University of Jyväskylä 2023; evaluator
- O. Väisänen, University of Jyväskylä 2021; evaluator
- D. Adamiak, University of Cape Town, 2018; external examiner
- C. Hillebrand-Viljoen, University of Cape Town, 2016; external examiner
- O. Koskivaara, University of Jyväskylä 2015; evaluator
- A. Ramnath, University of Cape Town, 2014; external examiner
- E. Pohjoisaho, University of Jyväskylä 2013; evaluator
- R. Paatelainen, University of Jyväskylä 2010; evaluator

#### **Teaching**

##### *Lectures (Jyväskylä)*

- Spring 2023 (Jyväskylä): High energy scattering in QCD (special graduate course), lectures 28h.
- Spring 2022 & spring 2024: Introduction to Representation Theory, lectures 24h.
- Spring 2021: Quantum Mechanics II, part B, lectures 28h.
- Fall 2018 & spring 2020: Quantum Mechanics II, part A, lectures 28h.
- Spring 2016 (Jyväskylä): Statistical Physics Ib (FYSA242), lectures 20h.
- Spring 2014: “QCD” (special graduate course, FYSH555), lectures 20h (1/3 of course).
- Spring 2012 & 2013 (Jyväskylä): Statistical Physics Ia (FYSA241), lectures 20h.
- Fall 2011 & 2013 (Jyväskylä): Particle Physics (FYSH300), lectures 24h (1/2 of course).
- Spring 2011 (Jyväskylä): High energy scattering in QCD (special graduate course, FYSH560), lectures 28h and exercises 14h.
- Spring 2010 (Jyväskylä): Mathematical methods of physics II (FYSA200), lectures, 28 (1/2 of course).

##### *Exercises (Helsinki)*

- Spring 2005: Hydrodynamics, exercises, 22h.
- Autumn 2002: Many body physics, exercises, 24h.
- Spring 2001: Statistical physics I, exercises, 48h.
- Autumn 2000: Quantum Mechanics I, exercises, 52h.

##### *Invited lectures*

- March 2023, Invited lectures at school on “Frontiers in Nuclear and Hadronic Physics 2023,” Galileo Galilei Institute, Florence
- January 2023, Invited lectures on “Color fields in a high energy nucleus,” CTMP, University of Cape Town, South Africa
- August 2021, CFNS Summer School on the Physics of the EIC (online, Stony Brook), lectures on “Small- $x$  physics”
- September 2018, lectures in the COST Indian-Summer School on Phenomenology of Hot and Dense Matter for Future Accelerators, Prague, Czech Republic
- June 2018, lectures on “Early stages of heavy-ion collisions” in the Doctoral Training Program “QCD under extreme conditions,” ECT\*, Trento, Italy.

- November 2013, lectures on “CGC and small  $x$ ,” Hard Probes 2013 pre-conference summer school, University of Cape Town, South Africa.
- January 2012, lectures on “High energy scattering in QCD,” Stellenbosch Institute of Advanced Studies, South Africa.
- September 2008, lectures at school on “Initial Conditions in Heavy-Ion Collisions,” Goa, India.

## Scientific activities

### Organization

#### *Conferences, workshops*

- Co-chair of program committee, “Ultrapерipheral collisions” workshop: Playa del Carmen, Mexico, Dec 2023 ; Saariselkä, Finland, June 2025
- Member of program committee, “Initial stages of Heavy Ion Collisions” conference, Copenhagen, June 2023
- Member of organizing committee, “Color Glass Condensate at the EIC” workshop, ECT\*, Trento, May 2023
- Member of organizing committee, “Saturation and Diffraction at the LHC and EIC” workshop, ECT\*, Trento, June 2022
- Co-convenor for parallel sessions at the Electron-Ion Collider User’s group meeting, Paris, France, July 2019
- Member of organizing committee, “Workshop on collectivity of small systems in high energy collisions,” Rice University, Houston, TX, March 2019
- Member of organizing committee, “Probing QCD at the high energy frontier” workshop, ECT\*, Trento, May 2018.
- Member of organizing committee, “Saturation: Recent Developments, New Ideas and Measurements,” workshop, BNL, NY, USA, April 2017.
- Member of organizing committee, “Probing QCD in Photon-Nucleus Interactions at RHIC and LHC: the Path to EIC” workshop, INT, Seattle, WA, February 2017.
- Member of organizing committee, “Spaatind 2016 - Nordic Conference on Particle Physics,” January 2016
- Co-organizer of “Particle Physics Day” (annual meeting of the Particle Physics Division of the Finnish Physical Society), October 2014, November 2016 & November 2018
- Co-convenor of Heavy-Ion session for “Elastic and Diffractive scattering, (EDS Blois 2013)” , Saariselkä, Finland, September 2013
- Chair of organizing committee for POETIC (Physics Opportunities at an Electron-Ion Collider) workshop, Jyväskylä, Finland, September 2013.
- Co-convenor of the “Heavy Ions”-session at the European Physical Society High Energy Physics conference (EPS-HEP 2013), Stockholm, Sweden, July 2013.
- Member of International Advisory Committee for:
  - “Exploring the QGP properties through low-pt and high-pt probes” workshop, Belgrade, May 2023
  - Zimanyi School winter workshop on heavy ion physics, 2015 –
  - International Conference on the Initial Stages in High-Energy Nuclear Collisions, 2019
  - International Nuclear Physics Conference, 2022

#### *Schools*

- Member of organizing committee, Midsummer school in QCD, Saariselkä, Finland, Jun-Jul 2024
- Co-coordinator for 2 courses in the Jyväskylä international summer school, 2018. *H. Paukkunen: “Introduction to parton distributions in perturbative QCD”, G. Beuf: “Light cone perturbation theory and small- $x$  QCD”.*
- Co-coordinator for 2 courses in the Jyväskylä international summer school, 2016. *H. Niemi: “Viscous Relativistic Hydrodynamics”, A. Kurkela: “QCD Kinetic Theory and Thermalization”.*
- Co-coordinator for 3 courses in the Jyväskylä international summer school, 2012. *F. Gelis: “High Energy Scattering in QCD”, W. Horowitz: “pQCD Calculations of Parton Energy Loss in a Quark-*

*Gluon Plasma” and B. Schenke: “Relativistic Hydrodynamics in Heavy Ion Collisions”.*

### Research funding

- Doctoral Training Pilot funding 2024-2027, Ministry of Education and Culture, €4.08M, out of which €1.785M at Jyväskylä
- Academy of Finland, “Center of Excellence in Quark Matter,” leader of “High energy QCD” team and director of CoE (€4 152 653 + €1 000 000 strategic University funding for first 5 years) 1/2022 – 12/2026. Extension 1/2027 – 12/2029 granted separately
- Academy of Finland project “Frontiers of high energy QCD,” (no 321840), €598 784, 9/2019 – 8/2023,
- Co-coordinator of “Small- $x$  physics at the LHC and in new DIS experiments” networking activity in the STRONG2020 action in Horizon 2020, JYU share ca €70 000
- European Research Council Consolidator grant CGCGLasmaQGP (no 681707), €1 935 000, 10/2016–9/2021
- Leader of “QCD theory” project at Helsinki Institute of Physics 2014–2022 (ca €110 000/year)
- Academy of Finland Research Fellow grant 2013–2018: €425 005 (project 267321) + €210 000 (project 273464) +€140 000 (project 303756)
- Grants for organizing workshop in 2013: Väisälä foundation €5000, Federation of Finnish Learned Societies €3000 and Jefferson Lab \$2000.
- “Strengthening the competitiveness of ERC applicants” grant, Academy of Finland, 12 mo 2011–2012, €119 400 (project 141555).
- Postdoctoral researcher–project, Academy of Finland, 2009–2011, €195 450.
- Travel grants from Magnus Ehrnrooth foundation (2003: €1800; 2005: €2100 and €1200; 2006: €2000; 2007: €2200; 2008: €1200)
- Graduate student scholarships from Finnish Cultural Foundation (2002: €13 500; 2003: €14 000 and 2004: €14 000) and Magnus Ehrnrooth foundation (2003: €14 400).

### Scientific expert and administrative positions

- Member of Faculty Council, Faculty of Science, University of Jyväskylä, 2022-2025
- Representative of Finland of the Nordita Research committee for high-energy physics 2019-2024.
- Reviewer for grant applications (*NRF, South Africa 2014 & 2018; CONICYT, Chile 2014; FWF, Austria 2014; NWO, the Netherlands 2017; ANR, France 2018; NCN, Poland 2018, 2019, 2020, 2021, 2022, 2023; DOE, US 2021; BSF US/Israel 2018 ; HRZZ Croatia 2019 & 2024; ERC-CoG 2021; OTKA Hungary 2022; FONDECYT Chile 2021; UKRI UK 2023 ; RIF Cyprus 2024* )
- Referee for Phys. Rev. Lett., Phys. Rev. C&D, Nucl. Phys. A, Phys. Lett. B, EPJ A and EPL.
- Finnish Physical Society, Division of Particle Physics, board member 2014 – 2019, chair 2015 – 2018
- Co-convenor for the “exclusive reactions” subgroup for the Electron-Ion Collider Yellow report, 2020 – 2021.
- Member of writing committee for the “Hot QCD” whitepaper for the US DOE/NSAC Nuclear Physics Long Range Plan, responsible for “Saturation” section (2014-2015).
- Center for Scientific Computing, Espoo, Finland, manager for project “JYY2580, High energy QCD in relativistic heavy ion collisions”, November 2009 – 2024
- Chair of the nuclear physics seminar committee 2007, BNL physics department.
- Student vice-representative in the Board of the Department of Physical Sciences, University of Helsinki, 2001–2003.

### Outreach

- Science lectures and presentations of particle physics research to high school students, 10 lectures, autumn 2010 — present.
- FysikerFest (AGM of Finnish physics students), lecture on “Color dynamics under extreme conditions”, November 2012, Jyväskylä, Finland.
- Contact person at U Jyväskylä for the Finnish high school CERN network, 2018–. Most importantly organizing annual seminar attracting ca 200 students and 20-30 high school teachers.

## Misc.

- Various activities at the Nation of Savo (organisation of students from the province of Savo) of the University of Helsinki, including Treasurer 2001–2002.
- Student Union of the University of Helsinki (HYY): Member of the Representative Council: 2002–2003, member of the board of Oy Vanha Ylioppilastalo Ab: 2002, member of the financial committee: 2003.
- Representative for Finland in the International Physics Olympiad, Sudbury, Canada, 1997, bronze medal.

## Talks

### Invited conference talks and colloquia

1. May 2024, "Status and physics of EIC," talk at the ECFA-ECR Nordic Future Collider day Lund/zoom
2. May 2023, "Transport coefficients in the pre-equilibrium stage," talk at the "Exploring the QGP properties through low-pt and high-pt probes" workshop, Belgrade
3. April 2023, "The Electron-Ion Collider EIC - the most powerful microscope on Earth," Kumpula Physics Colloquium, Helsinki
4. April 2021, "XXVIII International Workshop on Deep Inelastic Scattering and Related Subjects (DIS2020)," (online Stony Brook/Amsterdam). Invited plenary talk on "Ultrapерipheral collisions and low  $x$  physics"
5. November 2019, "15th Vienna Central European Seminar on Particle Physics and Quantum Field Theory 2019: Precision Physics at the LHC," Vienna, Austria, invited talk on "Gluon saturation and initial stages of a heavy ion collision"
6. November 2019, "13th European Research Conference on Electromagnetic Interactions with Nucleons and Nuclei," Paphos, Cyprus. Invited talk on "QCD at the high-energy frontier"
7. January 2019, XXV Epiphany Conference on "Advances in Heavy Ion Physics" Cracow, Poland, invited talk on "Spectral function for overoccupied gluodynamics from real-time lattice simulations"
8. April 2018, "Fire and ice: Hot QCD meets cold and dense matter" workshop, Saariselkä, Finland, invited talk on "Spectral function for overoccupied gluodynamics from real-time lattice simulations"
9. March 2018, "Physics Opportunities at an Electron-Ion Collider" workshop, Regensburg, Germany, invited talk on "Linearly polarized gluons and axial charge fluctuations in the Glasma"
10. October 2017, "Particle physics day," annual meeting of the particle physics division of the Finnish physical society, invited talk on "Formation of quark-gluon plasma in QCD"
11. July 2017, EIC User's Group meeting, Trieste, Italy, invited talk on "UPC's and nucleon and nuclear structure"
12. December 2016, "QCD and Diffraction - Saturation 1000+" workshop, Cracow, Poland, invited talk on "Gluon saturation in the initial stages of a heavy ion collision"
13. August 2016, "XII Quark Confinement and the Hadron Spectrum (CONF 12)," Thessaloniki, Greece, invited talk on "Initial conditions in AA and pA collisions" in the "Deconfinement" session.
14. June 2016, "4th annual Large Hadron Collider Physics conference (LHCP2016)," Lund, Sweden, invited plenary overview talk "Theory overview of Heavy Ion collisions."
15. May 2016, "3rd International Conference on the Initial Stages in High-Energy Nuclear Collisions IS2016," Lisbon, Portugal, invited plenary talk on "pA/eA/ultrapерipheral AA complementarity: what, where and how can we learn about the AA initial state."
16. December 2015, "15th Zimányi winter school on heavy ion physics," Budapest, Hungary, invited lecture on "Azimuthal multigluon correlations in the glasma initial state"
17. June 2015, "The 7th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions (Hard Probes 2015)," Montréal, QC. Invited plenary review talk on "Recent developments in the theory of initial states in heavy ion collisions"
18. April 2015, "XXIII International Workshop on Deep-Inelastic Scattering and Related Subjects

- (DIS2015),” Dallas, TX, US. Invited plenary review talk on “Small  $x$ , diffraction and vector mesons”.
19. December 2014, “2nd International Conference on the Initial Stages in High-Energy Nuclear Collisions” conference, Napa, CA, US. Invited talk on “Theoretical overview of ultraperipheral collisions”.
  20. September 2014, “Physics Opportunities at an Electron-Ion Collider” workshop, Yale University, New Haven, CT, US. Talks on “Diffractive physics at an EIC” and “Nuclear Collisions at LHeC”
  21. April 2014, “The Approach to Equilibrium in Strongly Interacting Matter” workshop, RIKEN-BNL research center, Brookhaven, NY, US, invited talk on “Spatial Wilson loops in the glasma.”
  22. December 2013, “New Frontiers in QCD” workshop, Yukawa Institute, Kyoto, Japan, invited talk on: “Numerical studies of JIMWLK (and glasma) evolution.”
  23. September 2013, EDS-Blois (Elastic and Diffractive Scattering) conference, Saariselkä, Finland, invited talk on “Models for exclusive vector meson production in heavy-ion collisions”.
  24. March 2013, “Physics Opportunities at an Electron-Ion Collider” workshop, UTFSM, Valparaíso, Chile, invited talk on “Diffractive studies at EIC”.
  25. November 2011, “Multiple parton interactions 2011” conference, DESY, Hamburg, Germany, invited talk on “Multi-gluon correlations in the Color Glass Condensate”.
  26. November 2010, “Structure Functions, Geometric Scaling and Parton Saturation: Assessment and Perspectives for the LHC” workshop, GSI, Darmstadt, Germany, talk on “Multigluon correlations in the Glasma.”
  27. August 2010, “High energy strong interactions 2010” symposium, Yukawa institute of theoretical physics, Kyoto University, Japan, talk on “Gluon correlations in the Glasma”.
  28. October 2009, MIT, Cambridge, MA, USA, Particle and Nuclear Physics colloquium on “Understanding saturation and AA collisions with an eA collider”
  29. June 2009, “International Conference on Elastic and Diffractive Scattering (Blois Workshop),” CERN, Geneva, Switzerland, invited talk on “Saturation in Nuclei”.
  30. June 2009, “Workshop on Non-Perturbative Quantum Chromodynamics”, Paris, France, invited talk on “Saturation at RHIC and LHC”.
  31. April 2009, “Deep Inelastic Scattering 2009” conference, Madrid, Spain; invited talk on “Nuclear enhancement and suppression of diffractive structure functions at high energies”.
  32. April 2009, Quark Matter 2009, Knoxville, TN, invited plenary talk on “Understanding saturation and AA collisions with an eA collider”.
  33. January 2009, XV Epiphany Conference on “Hadronic Interactions at the dawn of LHC” Cracow, Poland, invited talk on “Initial conditions of heavy ion collisions and high energy factorization.”
  34. November 2008, “Particles and Nuclei International Conference”, Eilat, Israel, invited talk on “Initial conditions and small  $x$ .”
  35. September 2008, “International Symposium on Very High Energy Cosmic Ray Interactions,” Paris, France, invited talk on “RHIC data and small  $x$  physics.”
  36. July 2006, Classical field theory and solitons workshop, Cambridge, UK, invited talk on “Classical fields and heavy ion phenomenology.”
  37. March 2006, Strangeness in Quark Matter conference, Los Angeles, CA, invited talk on “Chemical composition of the decaying glasma.”
  38. June 2004, “Strong and Electroweak Matter 2004” conference, Helsinki, invited talk: “Classical fields and heavy ion collisions.”

#### Other talks

1. Aug 2024, nuclear physics seminar at UCLA on “Loops and quark masses in the dipole picture of DIS”
2. Aug 2024, “Heavy Ion Physics in the EIC Era” program, INT, Seattle, WA, talk on “Transport coefficients in the pre-equilibrium stage”
3. June 2024, Midsummer school in QCD, Saariselkä, Finland, lecture on “High energy Scattering”
4. Apr 2024, “Dipole picture diffractive structure function at NLO,” parallel talk at “XXXI International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS2024),” Grenoble,



France

5. Feb 2024, "Attractor behavior of pre-equilibrium transport coefficients," talk at "New jet quenching tools to explore equilibrium and non-equilibrium dynamics in heavy-ion collisions" workshop, ECT\*, Trento
6. Sep 2023, "Hot spots in a proton," talk at Quark Matter 2023, Houston, TX
7. Aug 2023, "BK-JIMWLK evolution equation + NLO computations in small- $x$ ," invited talk at the SURGE collaboration weekly seminar (online)
8. May 2023, "Hot spots in a proton," talk at "CGC at the EIC" workshop, ECT\*, Trento, Italy
9. Feb 2023, "DIS in the dipole picture at one loop with massive quarks," International Light Cone Advisory Committee seminar, online
10. Jan 2023, "EIC - the most powerful microscope on Earth," HIP seminar, Helsinki
11. Sep 2022, "Diffractive structure function in the dipole picture," talk at the Diffraction and low- $x$  conference, Corigliano Calabro, Italy
12. June 2022, "Diffractive structure function in the dipole picture," and "One-loop light cone wave functions with massive quarks," talks at "Saturation and Diffraction at LHC and EIC" workshop, ECT\*, Trento, Italy
13. May 2022, "One-loop light cone wave functions with massive quarks," parallel talk at "XXIX International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS2022)," Santiago de Compostela
14. Dec 2021, "Color Glass Condensate at the Electron-Ion Collider," invited online talk at the "Small  $x$  physics in the EIC era workshop", RBRC
15. Nov 2021, "Scattering and gluon emission in Hamiltonian Light cone formalism," remote seminar at Bergen
16. Nov 2021, "Loops in Light Cone Perturbation Theory," remote BNL Nuclear Theory seminar
17. Oct 2021, "Properties of glasma color fields," remote seminar at TU München
18. May 2021, "Properties of glasma color fields," remote CLASH seminar at Lund
19. March 2021, "Classical color fields and the initial geometry of a heavy ion collision," remote seminar at NCBJ Warsaw
20. January 2020, "Spaatind 2020 - Nordic conference on Particle Physics," Gausdal, Norway, talk on "QCD at the high-energy frontier"
21. December 2019, "19th Zimányi school conference on heavy ion physics," Budapest, Hungary, talk on "Real-time lattice simulations of overoccupied gluodynamics"
22. October 2019, "Quo vadis QCD theory: heavy-ion collision perspectives and beyond," Stavanger, Norway, talk on "Real-time lattice simulations of overoccupied gluodynamics"
23. May 2019, "Origins of correlations in high energy collisions" program, INT, Seattle, WA, talk on "Fluctuating color fields and azimuthal particle correlations"
24. November 2018, "Probing Nucleons and Nuclei in High Energy Collisions" program, INT, Seattle, WA, talk on "NLO calculations for dilute-dense processes in the CGC picture"
25. May 2018, Quark Matter 2018 conference, Venice, Italy. Talk on "Isolated photon production in proton-nucleus collisions at forward rapidity"
26. December 2017, "17th Zimányi winter school on heavy ion physics," Budapest, Hungary, talk on "CGC scattering at NLO accuracy"
27. September 2017, "4th International Conference on the Initial Stages in High-Energy Nuclear Collisions IS2016," Cracow, Poland, talk on "Moving to NLO accuracy in dilute-dense processes in the CGC picture"
28. April 2017, BNL nuclear theory seminar on "Forward particle production in pA: implementing the NLO hybrid formalism"
29. April 2017, JLab remote seminar on "Non-linear effects and saturation with UPCs and EIC"
30. September 2016, "Hard Probes 2016" conference, Wuhan, China, talk on "Including resummation in the NLO BK equation."
31. February 2016, CERN heavy ion seminar on "Initial state gluon correlations and azimuthal anisotropies."
32. October 2015, "New Progress in Heavy Ion Collision: What is Hot in the QGP" workshop, Wuhan, China. Talk on "Multigluon correlations and initial state azimuthal anisotropies in the

glasma”.

33. September 2015, Quark Matter 2015 conference, Kobe, Japan. Talk on “Initial state azimuthal anisotropies in small collision systems”.
34. August 2015, “Equilibration mechanisms in weakly and strongly coupled quantum field theory” program, INT, Seattle, WA, talk on “Classical field initial stages of a heavy ion collision”
35. May 2015, BNL Nuclear theory seminar on “Solving the NLO BK equation in coordinate space”.
36. April 2015, “XXIII International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS2015),” Dallas, TX, US. Parallel talk on “Solving the NLO BK equation in coordinate space”.
37. December 2014, “Ab-initio approaches in many-body QCD confront heavy-ion experiments” workshop, Heidelberg, Germany, talk on “Classical gauge field picture of the initial stage in A+A collisions”
38. June 2014, IPhT, CEA/Saclay, France, seminar on “Spatial Wilson loops in the glasma”.
39. May 2014, Quark Matter 2014 conference, Darmstadt, Germany. Talk on “Structure of chromomagnetic fields in the glasma”.
40. November 2013, Hard Probes 2013 conference, Stellenbosch, South Africa. Talk on “Proposal for a running coupling JIMWLK equation”.
41. July 2013, EPS-HEP 2013 conference, Stockholm, Sweden. Talk on “Hadron production in pA collisions” in the Heavy Ions-session.
42. June 2013, h3QCD (High energy, high density and hot QCD) workshop, ECT\*, Trento, Italy, talk on “Numerical studies of JIMWLK evolution”.
43. April 2013, Jyväskylä, Finland, URHIC seminar on “The running coupling in the JIMWLK equation”
44. March 2013, Physics Days (Finnish Physical Society general meeting), Espoo, Finland, talk on “Langevin formulation of renormalization group evolution in high energy QCD”
45. October 2012, Center for Scientific computing, Espoo, Finland, Workshop on “High performance computing in particle and nuclear physics”, talk on “High performance computing in heavy ion collisions and high energy QCD”
46. August 2012, Quark Matter 2012, Washington DC, USA, talk on “Multigluon correlations in the color glass condensate”
47. June 2012, IPhT, CEA/Saclay, France, seminar on “Unequal rapidity correlations in JIMWLK”
48. May 2012, Hard Probes 2012 conference, Cagliari, Italy, talk on “Multigluon correlations in JIMWLK”
49. March 2012, Santiago de Compostela, Spain, seminar on “Multigluon correlations in the color glass condensate”
50. February 2012, Stellenbosch, South Africa, “Exploring QCD frontiers from RHIC and LHC to EIC” workshop, “Multigluon correlations in the color Glass condensate”
51. December 2011, Oulu, Finland, seminar on “Classical color fields and heavy ion collisions”.
52. October 2011, Particle Physics Day of the Finnish Physical Society, Helsinki. Talk on “Renormalization group evolution of multi-gluon correlators in high energy QCD”
53. March 2011, Physics Days (Finnish Physical Society general meeting), Helsinki. Talk on “The Glasma initial state of a heavy ion collision”
54. September 2010, “Gluons and the quark sea at high energies: distributions, polarization, tomography” program, INT, Seattle, WA. Two talks on “Diffraction in nuclei” and “Small x in ep and eA, theory overview.”
55. June 2010, “Hot Quarks 2010” workshop, La Londe-les-Maures, France, talk on “Gluon correlations in the Glasma”.
56. June 2010, “Quantifying the Properties of Hot QCD Matter” program, INT, Seattle, WA, USA, talk on “Rapidity correlations from the Glasma initial state”.
57. May 2010, “Saturation, the Color Glass Condensate and Glasma” workshop, RIKEN BNL Research center, Brookhaven, NY, USA, talk on “Multiplicity distributions and long range rapidity correlations”.
58. November 2009, University of Santiago de Compostela, Spain, seminar on “Gluon correlations in the Glasma”.
59. October 2009, “Physics at a High Energy Electron Ion Collider” workshop, INT, Seattle, WA,

- USA. Talk on "Inclusive diffraction in nuclei".
60. February 2009, University of Jyväskylä, Department of Physics and University of Helsinki and Helsinki Institute of Physics, seminar on "Initial conditions of heavy ion collisions and high energy factorization".
  61. September 2008, lectures on "Initial Conditions in Heavy-Ion Collisions," Goa, India.
  62. August 2008, "Strong and Electroweak Matter 2008" conference, Amsterdam, the Netherlands, talk on "The glasma initial state and JIMWLK factorization".
  63. August 2008, University of Jyväskylä, seminar on "Diffraction in Nuclei"
  64. July 2008, ECT\*, Trento, Italy, "Structure of hadrons and nuclei at an electron-ion collide"—workshop, talk on "Inclusive diffraction in Nuclei"
  65. March 2008, IPN Orsay, France, seminar on "The glasma initial state of heavy ion collisions"
  66. February 2008, Quark Matter 2008, Jaipur, India, contributed talk on "The glasma initial state at LHC"
  67. December 2007, University of Jyväskylä, Particle Physics Day of the Finnish Physical Society, talk on "Color glass and glasma: the initial state of a relativistic heavy ion collision"
  68. December 2007, University of Helsinki, seminar "The initial state of the little bang at RHIC and LHC"
  69. October 2007, CEA/Saclay, Paris, France, seminar on "The glasma initial state at RHIC and LHC."
  70. July 2007, Workshop on Early Time Dynamics of Heavy Ion Collisions, McGill University, Montreal, Canada, talk on "The glasma initial stage of heavy ion collisions"
  71. June 2007, RHIC/AGS user's meeting, Brookhaven, talk on "Eccentricity and elliptic flow"
  72. April 2007, Electron-Ion Collider collaboration meeting, MIT, Cambridge, MA, talk on "The Oomph factor in eA: the A-dependence of the saturation scale."
  73. November 2006, Stony Brook University, seminar on "From color glass to glasma and plasma."
  74. October 2006, McGill University, Montreal, Canada, seminar on "From color glass to glasma and plasma."
  75. September 2006, Workshop on Non-Equilibrium Quark-Gluon Plasma, INT Seattle, WA, talk on "From color glass to glasma and plasma."
  76. July 2006, CEA/Saclay, Paris, France, talk on "From color glass to glasma and plasma."
  77. June 2006, RHIC/AGS user's meeting, Brookhaven, talk on "From Glasma to Hadrons."
  78. April 2006, Jyväskylä, seminar on "From Glass to Glasma."
  79. February 2006, RIKEN seminar, Brookhaven, talk on "Quark pairs from classical fields."
  80. October 2005, "Particles and Nuclei International Conference", Santa Fe, NM, talk on "Quark pair production from classical fields in heavy ion collisions."
  81. August 2005, Quark Gluon Plasma Thermalization workshop, Vienna, Austria, talk on "Production of quark pairs from classical gluon fields."
  82. August 2005, Quark Matter 2005, Budapest, Hungary, contributed talk on "Quark-antiquark production from classical fields and chemical equilibration."
  83. May 2005, University of Jyväskylä, talk on "Quark antiquark pair production in the classical field model."
  84. January 2005, Duke University, Durham, NC; Ohio State University, Columbus, OH and BNL, Upton, NY: talk on "Particle production in the classical field model for heavy ion collisions."
  85. October 2004, University of Helsinki, High energy physics phenomenology seminar: "Saturation in deep inelastic scattering."
  86. February 2004, University of Helsinki, High energy physics phenomenology seminar: "News from Quark Matter 2004."
  87. October 2003, CEA/Saclay, Paris, France: "Particle production in the classical field model for heavy ion collisions."
  88. June 2003, ECT\*, Trento, Italy: "Color Glass Condensate and Parton Percolation"—workshop: "Classical field simulations of heavy ion collisions."
  89. April 2003, University of Jyväskylä, Department of Physics: "Classical fields in heavy ion collisions."

90. March 2003, University of Helsinki, High energy physics phenomenology seminar: "Classical fields in heavy ion collisions."
91. October 2002, ECT\*, Trento, Italy: "Coherent Effects at RHIC and LHC: Initial Conditions and Hard Probes"--workshop: "Numerical Consequences of the McLerran-Venugopalan Model."
92. May 2002, University of Jyväskylä, Department of Physics: "Classical Chromodynamics Simulations of Relativistic Heavy-Ion Collisions."