

Curriculum vitæ – Heikki Mäntysaari

Name: Heikki Jalo Jalmari Mäntysaari
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Postdoctoral researcher Adjunct Professor (docent)
University of Jyväskylä heikki.mantysaari@jyu.fi
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Jyväskylä, Finland

WORK EXPERIENCE

University of Jyväskylä, Department of Physics
Postdoctoral Researcher **October 2017 –**
Ultra Relativistic Heavy Ion Collisions theory group. Academy of Finland post-doctoral researcher 9/2018–8/2021 (project 314764).

Helsinki Institute of Physics, Adjoint scientist 2019 –

Brookhaven National Laboratory
Postdoctoral Research Associate **October 2015 – October 2017**
Nuclear Theory Group.

University of Jyväskylä, Department of Physics
Postdoctoral researcher **July 2015 – October 2015**
Ultra Relativistic Heavy Ion Collisions theory group.

University of Jyväskylä, Department of Physics
PhD student **January 2012 – June 2015**
Graduate studies in the Ultra Relativistic Heavy Ion Collisions theory group. Funded by the National Graduate School of Particle and Nuclear Physics.

University of Jyväskylä, Department of Physics
Trainee **2010, 2011**
Ultra Relativistic Heavy Ion Collisions theory group in June – July 2010 and April – December 2011.

The Finnish Defence Forces, Army Academy, Research and development department
Assistant researcher **July 2008 – January 2009**
Special officer during the last 6 months of the compulsory military service. Tasks: software development, testing and training.

DEGREES

University of Jyväskylä, Adjunct professor (Docent) **October 2018**
Field of docentship: physics

University of Jyväskylä, Doctor of Philosophy **June 2015**
Subject: theoretical physics.
Thesis: *Scattering off the Color Glass Condensate* ([arXiv:1506.07313](https://arxiv.org/abs/1506.07313)), evaluated as *Accepted with honors*. Postgraduate studies evaluated as 5/5 (excellent). 96

ECTS credits.

University of Jyväskylä, Master of Science **December 2011**
Major subject: theoretical physics. Evaluated as 5/5 (excellent). 128 ECTS credits.

Additional studies

- Advanced studies in mathematics (in total 122 ECTS credits in mathematics). Completed: March 2014. Evaluated as 5/5 (excellent).
- Pedagogical studies (60 ECTS credits, Finnish teacher qualification). Completed: May 2015. Evaluated as 5/5 (excellent).

University of Jyväskylä, Bachelor of Science **October 2010**
Major subject: physics, minor subjects: mathematics and computer science. 181 ECTS credits.

Upper secondary school of Orivesi **2007**

CITATION SUMMARY **29** original research articles and **31** conference proceedings published. In total **1324** citations. *h*-index **20**.

RESEARCH FUNDING

- Magnus Ehrnrooth Foundation, physics olympiad training for advanced high school students, 4800 € (March 2019, with A. Lindell)
- Academy on Finland, postdoctoral research grant 234890 € (3 years, 2018–2021, project 314764)
- 750 € travel grant from the Eemil Aaltonen Foundation for collaborative visit to the University of Jyväskylä (April 2017)
- 4-year funding from the national Graduate School of Particle and Nuclear Physics to completely cover doctoral studies (January 2012 – June 2015)

SUPERVISED STUDENTS

- H. Hänninen. PhD supervisor (1/2019– ongoing).
- J. Penttala, research training (8/2018), MSc (12/2019), PhD (ongoing 1/2020–, responsible supervisor).
- L. Huhta, MSc (ongoing)

HONOURS AND AWARDS

- Mikael Björnberg Memorial Fund 7500 € award from the Finnish Society of Sciences and Letters (April 2018).
- Jyväskylä Physical Society, best MSc thesis at the Department of Physics (University of Jyväskylä) in 2011.
- International Physics Olympiad 2007: representative of Finland, honorable mention.
- IV Estonian-Finnish Olympiad in Physics 2007: 6th position
- National physics competition for the upper secondary school students 2006–2007: 2nd position
- Technology Industries of Finland Centennial Foundation 1000 € award for the success in the mathematics matriculation examination (June 2007).

VISITS

- Brookhaven National Laboratory, NY, USA. Aug. 29 – Oct 2, 2019.

- Brookhaven National Laboratory, NY, USA. Jan. 29 – Feb 11, 2018.
- CERN, Theory Department, May 27 – May 31, 2017.
- University of Jyväskylä, Department of Physics, Finland. May 15 – 19, 2017.
- University of Jyväskylä, Department of Physics, Finland. Nov. 11 – 15, 2016.
- CERN, Theory Department, Oct. 23 – Nov. 10, 2016.
- University of Jyväskylä, Department of Physics, Finland. Apr. 18 – 22, 2016.
- Brookhaven National Laboratory, NY, USA. Jan. 7 – 17, 2014.

TEACHING

- Autumn 2020: Flying Start in Physics
- Autumn 2019: Particle physics, part 2/2, lecturer (20 h)
- Autumn 2018: Flying Start in Physics (30 h)
- Supervising teacher (*omaopettaja*), 2012 – 2014 and 2018–
- Autumn 2018: Problem solving class *Kiihdytin* (36 h)
- Spring 2014: Quantum Chromodynamics, teaching assistant (18 h).
- Autumn 2013: Mathematical Methods in Physics: Integral Transforms, teaching assistant (12h).
- Autumn 2013: Mathematical Methods in Physics: Linear Algebra, teaching assistant (14h).
- Spring 2013: Quantum mechanics II, teaching assistant (26 h).
- Autumn 2012: Particle physics, teaching assistant (24 h).
- Spring 2012: Quantum mechanics II, teaching assistant (26 h).
- Autumn 2011: Particle physics, teaching assistant (24 h).
- Autumn 2010: Mechanics, continuation, teaching assistant (14 h).
- Autumn 2010: Mechanics, introduction, teaching assistant (28 h).
- Training camps for the Finnish and Estonian high school students attending to the International Physics Olympiad. 2010–
- Autumns 2010, 2011 and 2012: Tutoring new students.
- Mathematics and physics at the Upper secondary school of Orivesi for high school and upper secondary school students as a substitute teacher during periods 6.4.–17.4.2009, 7.9.–11.9.2009, 29.3.–1.4.2010 and 27.8.2010.

Number of contact hours in parenthesis.

WORKSHOP ORGANIZATION

- Physics Opportunities at an ElecTron-Ion Collider workshop, Jyväskylä September 2013. Member of the local organizing committee.

REFEREE

Served as a referee for the following journals

- Physical Review C (3 articles)
- Physical Review D (7 articles)
- Physical Review Letters (3 articles).
- Physics Letters B (8 articles)
- Nuclear Physics A (2 articles)
- Nuclear Physics B (1 article)
- European Physics Journal A (1 article)

PROFESSIONAL DEVELOPMENT COURSES

- Deep Learning and GPU Programming Workshop (CSC – IT Center for Sciences Ltd,), Sep. 7.–10, 2020
- GPU Programming with OpenACC (CSC – IT Center for Sciences Ltd). Oct. 14–15, 2019

- Node-Level Performance Optimizations (CSC – IT Center for Sciences Ltd). May 22–24, 2019
- CodeRefinery workshop – Teaching researchers in sustainable software development (Nordic e-Infrastructure Collaboration). Dec. 12–14, 2018

ORIGINAL RESEARCH
ARTICLES

1. **H. Mäntysaari, K. Roy, F. Salazar and B. Schenke**
arXiv:2011.02464 [hep-ph] *Gluon imaging using azimuthal correlations in diffractive scattering at the Electron-Ion Collider*
2. **LHeC and FCC-he Study Group** (including H. Mäntysaari)
arXiv:2007.14491 [hep-ex] *The Large Hadron-Electron Collider at the HL-LHC*
3. **G. Beuf, H. Hänninen, T. Lappi, H. Mäntysaari**
Phys. Rev. D **D102** (2020) 074028, arXiv:2007.01645 [hep-ph] *Color Glass Condensate at next-to-leading order meets HERA data.*
4. **T. Lappi, H. Mäntysaari and A. Ramnath**
Phys. Rev. D **D102** (2020) 074027, arXiv:2007.00751 [hep-ph] *Next-to-leading order Balitsky-Kovchegov equation beyond large N_c .*
5. **T. Lappi, H. Mäntysaari and J. Penttala**
Phys. Rev. D **D102** (2020) 054020, arXiv:2006.02830 [hep-ph]: *Relativistic corrections to the vector meson light front wave function.*
6. **H. Mäntysaari, N. Mueller, F. Salazar, B. Schenke**
Phys. Rev. Lett **124**, 112301 (2020), arXiv:1912.05586 [nucl-th], *Multi-gluon correlations and evidence of saturation from dijet measurements at an Electron Ion Collider.*
7. **H. Mäntysaari and H. Paukkunen**
Phys. Rev. D **D100** (2019) 114029, arXiv:1910.13116 [hep-ph], *Saturation and forward jets in proton-lead collisions at the LHC.*
8. **H. Mäntysaari and B. Schenke**
Phys. Rev. C **C101**, 015203, arXiv:1910.03297 [hep-ph] *Accessing the gluonic structure of light nuclei at the Electron Ion Collider.*
9. **H. Mäntysaari, N. Mueller and B. Schenke**
Phys. Rev. D **D99** (2019) 074004, arXiv:1902.05087 [hep-ph] *Diffractive Dijet Production and Wigner Distributions from the Color Glass Condensate .*
10. **H. Mäntysaari and B. Schenke**
Phys. Rev. D **D98** (2018) 034013, arXiv:1806.06783 [hep-ph] *Confronting the impact parameter dependent JIMWLK evolution with HERA data.*
11. **H. Mäntysaari and P. Zurita**
Phys. Rev. D **D98** (2018) 036002, arXiv:1804.05311 [hep-ph] *In depth analysis of the combined HERA data in the dipole models with and without saturation.*
12. **H. Mäntysaari and R. Venugopalan**
Phys. Lett. B **B781** (2018) 665–671, arXiv:1712.02508 [nucl-th] *Systematics of strong nuclear amplification of gluon saturation from exclusive vector meson production in high energy electron-nucleus collisions.*
13. **B. Ducloué, T. Lappi and H. Mäntysaari**
Phys. Rev. D **97**, 054023 (2018), arXiv:1710.02206 [hep-ph] *Isolated photon production in proton-nucleus collisions at forward rapidity.*

14. **E. Aschenauer, S. Fazio, J. Lee, H. Mäntysaari, B. Page, B. Schenke, T. Ullrich, R. Venugopalan and P. Zurita**
Rept. Prog. Phys. **82** 024301, arXiv:1708.01527 [nucl-ex] *The Electron-Ion Collider: Assessing the Energy Dependence of Key Measurements.*
15. **J. Albacete et al (including H. Mäntysaari and 40 other authors)**
Nucl. Phys. **A972** (2018) 18-85, arXiv:1707.09973 [hep-ph] *Predictions for p+Pb collisions at $\sqrt{s_{NN}} = 8.16$ TeV.*
16. **H. Mäntysaari, B. Schenke, C. Shen and P. Tribedy**
Phys. Lett. **B772** (2017) 681–686 arXiv:1705.03177 [nucl-th] *Imprints of fluctuating proton shapes on flow in proton-lead collisions at the LHC.*
17. **H. Mäntysaari and B. Schenke**
Phys. Lett. **B772** (2017) 832–838, arXiv:1703.09256 [hep-ph] *Probing sub-nucleon scale fluctuations in ultraperipheral heavy ion collisions.*
18. **H. Mäntysaari and B. Schenke**
Phys. Rev. D. **94** (2016), 034042, arXiv:1607.01711 [hep-ph] *Revealing proton shape fluctuations with incoherent diffraction at high energy.*
Department of Energy Office of Science Highlight: Modeling the “Flicker” of Gluons in Subatomic Smashups.
19. **B. Ducloué, T. Lappi and H. Mäntysaari**
Phys. Rev. D. **94** (2016), 034042, arXiv:1605.05680 [hep-ph] *Forward J/Ψ production at high energy: centrality dependence and mean transverse momentum.*
20. **H. Mäntysaari and B. Schenke**
Phys. Rev. Lett. **117** (2016), 052301, arXiv:1603.04349 [hep-ph] *Evidence of strong proton shape fluctuations from incoherent diffraction.*
Physics Viewpoint Article: Of Gluons and Fireflies.
21. **T. Lappi and H. Mäntysaari**
Phys. Rev. D. **93** (2016), arXiv:1601.06598 [hep-ph] *Next-to-leading order Balitsky-Kovchegov equation with resummation.*
22. **B. Ducloué, T. Lappi and H. Mäntysaari**
Phys. Rev. D. **91** (2015) 114005, arXiv:1503.02789 [hep-ph] *Forward J/Ψ production in proton-nucleus collisions at high energy.*
23. **T. Lappi and H. Mäntysaari**
Phys. Rev. D. **91** (2015) 074016, arXiv:1502.02400 [hep-ph] *Direct numerical solution of the coordinate space Balitsky-Kovchegov equation at next-to-leading order.*
24. **T. Lappi, H. Mäntysaari and R. Venugopalan**
Phys. Rev. Lett. **114** (2015) 082301 arXiv:1411.0887 [hep-ph]: *Ballistic protons in incoherent exclusive vector meson production as a measure of rare parton fluctuations at an Electron-Ion Collider.*
25. **T. Lappi and H. Mäntysaari**
Phys. Rev. D. **88** (2013) 114020, arXiv:1309.6963 [hep-ph]: *Single inclusive particle production at high energy from HERA data to proton-nucleus collisions.*
26. **T. Lappi and H. Mäntysaari**
Phys. Rev. C. **87** (2013) 032201, arXiv:1301.4095 [hep-ph]: *J/Ψ production in ultraperipheral Pb+Pb and p+Pb collisions at LHC energies.*

27. **T. Lappi and H. Mäntysaari**
Eur. Phys. J. C **73** (2013) 2307, [arXiv:1212.4825 \[hep-ph\]](#): *On the running coupling in the JIMWLK equation.*
28. **T. Lappi and H. Mäntysaari**
Nucl. Phys. A **908** (2013) 51–72, [arXiv:1209.2853 \[hep-ph\]](#): *Forward di-hadron correlations in deuteron-gold collisions with a Gaussian approximation of JIMWLK.*
29. **T. Lappi and H. Mäntysaari**
Phys. Rev. C **83** (2011) 065202, [arXiv:1011.1988 \[hep-ph\]](#): *Incoherent diffractive J/Ψ production in high-energy nuclear deep-inelastic scattering.*

REVIEW ARTICLES

1. **H. Mäntysaari**
Rep. Prog. Phys. **83** 082201 (2020) [arXiv:2001.10705 \[hep-ph\]](#): *Review of proton and nuclear shape fluctuations at high energy.* Invited review.
2. **S. Klein and H. Mäntysaari**
Nature Rev. Phys. **1** (2019), 662–674, [arXiv:1910.10858 \[hep-ex\]](#), *Imaging the nucleus with high-energy photons.*

CONFERENCE PROCEEDINGS

1. **H. Mäntysaari**
[arXiv:2010.05481 \[hep-ph\]](#) *Electron-Ion Collisions at the LHeC and FCC-he.* Talk by H.M. at the ICHEP2020 conference (July 2020)
2. **G. Beuf, H. Hänninen, T. Lappi and H. Mäntysaari**
[arXiv:2008.05233 \[hep-ph\]](#) *Dipole model at Next-to-Leading Order meets HERA data .* Talk by H.H. at the 10th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions (June 2020)
3. **C. Aidala et. al** (including H. Mäntysaari, in total 86 authors)
[arXiv:2002.12333 \[hep-ph\]](#) *Probing Nucleons and Nuclei in High Energy Collisions.* Proceedings of the INT 18-3 Program.
4. **H. Mäntysaari, N. Mueller and B. Schenke**
PoS(DIS2019)060, [arXiv:1906.04389 \[hep-ph\]](#) *Diffractive dijet production from the Color Glass Condensate and the small- x gluon distributions.* Talk by H.M. at the XXVII International Workshop on Deep-Inelastic Scattering and Related Subjects (April 2019).
5. **H. Mäntysaari**
PoS (HardProbes2018) 115, [arXiv:1811.06328 \[hep-ph\]](#) *Small- x physics at the LHeC.* Talk by H.M. at 9th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions (September 2018)
6. **H. Mäntysaari and B. Schenke**
PoS (HardProbes 2018) 114, [arXiv:1811.04782 \[hep-ph\]](#) *Impact parameter dependent JIMWLK evolution meets HERA data.* Talk by H.M. at 9th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions (September 2018)

7. **B. Ducloué, T. Lappi and H. Mäntysaari**
Nucl. Phys. **A982** (2019) 267-270, [arXiv:1807.05094 \[hep-ph\]](#) *Forward rapidity isolated photon production in proton-nucleus collisions*. Talk by T.L. at the Quark Matter 2018 conference (May 2018).
8. **H. Mäntysaari and B. Schenke**
Nucl. Phys. **A982** (2019) 283-286, [arXiv:1807.04088 \[hep-ph\]](#) *Energy and system size dependence of subnucleonic fluctuations*. Talk by H.M. at the Quark Matter 2018 conference (May 2018).
9. **H. Mäntysaari**
PoS(DIS2018)241, [arXiv:1806.07612 \[hep-ph\]](#) *Proton shape fluctuations and its relation to DIS*. Invited talk at the XXVI International Workshop on Deep-Inelastic Scattering and Related Subjects (April 2018).
10. **H. Mäntysaari**
CERN Proc. 1. (2018), 195, [arXiv:1708.05756 \[nucl-ex\]](#) *Photoproduction prospects at the EIC*. Invited talk at the Photon 2017 conference (May 2017).
11. **H. Mäntysaari, B. Schenke, C. Shen and P. Tribedy**
PoS(DIS2017)060 [arXiv:1706.05937 \[nucl-th\]](#) *Proton structure fluctuations: from HERA to the LHC*. Talk by H.M. at the 25th International Workshop on Deep Inelastic Scattering and Related Topics (April 2017).
12. **H. Mäntysaari, B. Schenke, C. Shen and P. Tribedy**
Nucl. Phys. **A967** (2017) 317-320, [arXiv:1705.03735 \[nucl-th\]](#) *Proton structure fluctuations: constraints from HERA and applications to p+A collisions*. Talk by H.M. at the Quark Matter 2017 conference (February 2017).
13. **T. Lappi and H. Mäntysaari**
Nucl. and Part. Phys. Proc, Vol 289–290, 305–308, [arXiv:1702.06320 \[hep-ph\]](#): *Including resummation in the NLO BK equation*. Talk by T.L. at the 8th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions (September 2016).
14. **B. Ducloué, T. Lappi and H. Mäntysaari**
Nucl. and Part. Phys. Proc., Vol. 289–290, 309-312, [arXiv:1612.04585 \[hep-ph\]](#): *Forward J/Ψ and D meson nuclear suppression at the LHC*. Talk by B.D. at the 8th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions (September 2016).
15. **H. Mäntysaari and B. Schenke**
Nucl. and Part. Phys. Proc., Vol 289–290, 457–460, [arXiv:1612.00041 \[hep-ph\]](#): *Constraints for proton structure fluctuations from exclusive scattering*. Talk by H.M. at the 8th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions (September 2016).
16. **B. Ducloué, T. Lappi and H. Mäntysaari**
PoS (DIS2016) 186, [arXiv:1607.00603 \[hep-ph\]](#): *Forward J/Ψ production in pA collisions: centrality dependence*. Talk by B. D. at the 24th International Workshop on Deep-Inelastic Scattering and Related Subjects (April 2016).
17. **T. Lappi and H. Mäntysaari**
PoS (DIS2016) 169, [arXiv:1605.03862 \[hep-ph\]](#): *Balitsky-Kovchegov equation at next-to-leading order accuracy with a resummation of large logarithms*. Talk by H. M. at the 24th International Workshop on Deep-Inelastic Scattering and Related Subjects (April 2016).

18. **H. Mäntysaari and B. Schenke**
PoS (DIS2016) 171: Incoherent diffraction and structure fluctuations at small x . Contribution to the proceedings of the 24th International Workshop on Deep-Inelastic Scattering and Related Subjects.
19. **B. Ducloué, T. Lappi and H. Mäntysaari**
EPJ Web Conf. 112 (2016) 04002, arXiv:1601.06557 [hep-ph]: *Centrality-dependent forward J/Ψ production in high energy proton-nucleus collisions.* Talk by B.D. at the 6th International Conference on Physics Opportunities at an Electron-Ion Collider POETIC6 (September 2015).
20. **B. Ducloué, T. Lappi and H. Mäntysaari**
Nucl. Phys. A956 (2016) 701-704 arXiv:1512.09274 [hep-ph]: *Centrality dependence of forward J/Ψ suppression in high energy proton-nucleus collisions.* Talk by B.D. at the 25th International Conference on Ultra-Relativistic Nucleus-Nucleus Collisions (October 2015).
21. **B. Ducloué, T. Lappi and H. Mäntysaari**
Nucl. and Part. Phys. Proc., Vol. 276-278, 141-144, arXiv:1509.04856 [hep-ph]: *Nuclear modification of forward J/Ψ production in proton-nucleus collisions at the LHC.* Talk by B.D. at the 7th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions (June 2015).
22. **T. Lappi and H. Mäntysaari**
PoS DIS2015 (2015) 080 arXiv:1508.04552 [hep-ph]: *Solving the NLO BK equation in coordinate space.* Talk by T. L. at XXIII International Workshop on Deep-Inelastic Scattering and Related Subjects (April 2015).
23. **T. Lappi and H. Mäntysaari**
Nucl. and Part. Phys. Proc., Vol. 276-278, 189-192, arXiv:1508.03434 [hep-ph]: *Solving the Balitsky-Kovchegov equation at next to leading order accuracy.* Talk by H.M. at the 7th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions (June 2015).
24. **T. Lappi and H. Mäntysaari**
PoS (DIS2014) 068, arXiv:1406.2878 [hep-ph]: *Dipole amplitude with uncertainty estimate from HERA data and applications in Color Glass Condensate phenomenology.* Talk by H.M. at XXII. International Workshop on Deep-Inelastic Scattering and Related Subjects (May 2014).
25. **T. Lappi and H. Mäntysaari**
Pos (DIS2014) 069, arXiv:1406.2877 [hep-ph]: *Diffraction vector meson production in ultraperipheral heavy ion collisions from the Color Glass Condensate.* Talk by H.M. at XXII. International Workshop on Deep-Inelastic Scattering and Related Subjects (May 2014).
26. **T. Lappi and H. Mäntysaari**
Nucl. Phys. A932 (2014) 69-74, arXiv:1403.7289 [hep-ph]: *Proposal for a running coupling JIMWLK equation.* Talk by T.L. at the 6th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions (November 2013).
27. **T. Lappi and H. Mäntysaari**
Nucl. Phys. A932 (2014) 549-554, arXiv:1403.6944 [hep-ph]: *Particle production from the Color Glass Condensate: proton-nucleus collisions in light of the HERA data.* Talk by H.M. at the 6th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions (November 2013).

28. **T. Lappi and H. Mäntysaari**
Nucl. Phys. **A926** (2014) 186-197, [arXiv:1311.7310 \[hep-ph\]](#): *Particle production in the Color Glass Condensate: from electron-proton DIS to proton-nucleus collisions*. Talk by H.M. at the International Conference on the Initial Stages in High-Energy Nuclear Collisions (September 2013).
29. **T. Lappi and H. Mäntysaari**
[arXiv:1310.6336 \[hep-ph\]](#): *Models for exclusive vector meson production in heavy-ion collisions*. Talk by T.L. at the EDS Blois 2013 (September 2013).
30. **T. Lappi and H. Mäntysaari**
Nucl. Phys. **A904-905** (2013) 807c-810c, [arXiv:1210.4655 \[hep-ph\]](#): *Forward particle correlations in the color glass condensate*. Talk by T.L. at Quark Matter 2012 (August 2012).
31. **T. Lappi and H. Mäntysaari**
Nucl. Phys. **A910-911** (2013) 498-501, [arXiv:1207.6920 \[hep-ph\]](#): *Forward dihadron correlations in the Gaussian approximation of JIMWLK*. Talk by H.M. at the 5th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions (May 2012).

SCIENTIFIC TALKS IN
 CONFERENCES

1. November 2020: *Probing nucleon substructure in UPCs*. APS NDP 2020 Fall Meeting, online.
2. July 2020: *Electron-Ion Collisions at the LHeC and FCC-eh*. ICHEP 2020 virtual conference.
3. March 2020: *Exclusive di-jet production as an access gluon Wigner function*. 1st EIC Yellow Report Workshop. Remote meeting.
4. December 2019: *Diffraction particle production as a probe of high-energy*. Zimányi school 2019, Budapest, Hungary (invited talk)
5. October 2019: *Probing the nucleon and nuclei at small x* . Implications of LHCb measurements and future prospects, CERN (invited talk)
6. September 2019: *Diffraction Vector Meson and Dijet production from CGC at EIC*. Joint CFNS & RBRC Workshop on Physics and Detector Requirements at Zero-Degree of Colliders, NY, USA (invited talk)
7. June 2019: *Proton shape fluctuations*. Initial Stages 2019, NY, USA (invited plenary talk)
8. May 2019: *Probing the structure of light (and heavy) nuclei at the Electron Ion Collider*, Origins of Correlations in High Energy Collisions, INT Workshop, Seattle, USA
9. April 2019: *Diffraction Dijet Production and Wigner and Husimi Distributions from the CGC*. XXVII International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2019), Torino, Italy
10. October 2018: *Diffraction scattering from CGC*. Probing Nucleons and Nuclei in High Energy Collisions, INT Workshop, Seattle, USA
11. October 2018: *Small- x physics at the LHeC*. Hard Probes 2018, Aix-les-Bains, France
12. October 2018: *Impact parameter dependent JIMWLK evolution meets HERA data*. Hard Probes 2018, Aix-les-Bains, France

13. May 2018: *Elastic Vector Meson Production*. Electrons for the LHC - LHeC/FCCeh and PERLE workshop, LAL Orsay, France (invited talk)
14. May 2018: *Confronting JIMWLK evolution with HERA data*. Probing QCD at the high energy frontier, ECT*, Trento, Italy
15. May 2018: *Energy and system size dependence of the subnucleonic fluctuations*. Quark Matter 2018, Venice, Italy.
16. April 2018: *Hadron shape fluctuations*. XXVI International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2018), Kobe, Japan. (invited plenary talk)
17. March 2018: *Exclusive vector meson production off nuclei*. Physics Opportunities at an Electron-Ion Collider (POETIC 2018) workshop, Regensburg, Germany.
18. September 2017: *Subnucleon fluctuations in heavy ion collisions*. 4rd International Conference on the Initial Stages in High-Energy Nuclear Collisions Initial Stages 2017, Krakow, Poland.
19. June 2017: *Diffractional J/Ψ production and the Proton Structure*. RHIC and AGS users' group meeting 2017, Brookhaven National Lab, USA (invited plenary talk).
20. June 2017: *eA physics at very high energies*. Prospects for a very high energy eP and eA Collider workshop, MÜNICH, Germany (invited talk)
21. May 2017: *Photoproduction prospects at the EIC*. Photon 2017 workshop, CERN, Switzerland (invited talk).
22. April 2017: *Proton structure fluctuations from HERA to the LHC*. XXV International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2017), Birmingham, UK.
23. February 2017: *Vector meson production in ultraperipheral collisions: accessing the small- x gluon*. Probing QCD in Photon-Nucleus Interactions at RHIC and LHC, INT Workshop, Seattle, USA.
24. February 2017: *Proton structure fluctuations: constraints from diffraction and applications to $p+A$ collisions*. Quark Matter 2017, Chicago, USA.
25. February 2017: *Diffractional vector meson production and initial state fluctuations in DIS*. 7th Workshop of the APS Topical Group on Hadronic Physics, Washington DC, USA (invited talk).
26. September 2016: *Proton structure fluctuations: constraints from incoherent diffraction and applications to pA collisions*. Hard Probes 2016, Wuhan, China.
27. May 2016: *Incoherent diffraction and proton structure fluctuations*. 3rd International Conference on the Initial Stages in High-Energy Nuclear Collisions Initial Stages 2016, Lisbon, Portugal.
28. April 2016: *Next-to-leading order Balitsky-Kovchegov equation with resummation*. XXIV International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2016), DESY, Hamburg.
29. April 2016: *Incoherent diffraction and structure fluctuations at small x* . XXIV International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2016), DESY, Hamburg.

30. January 2016: *Longitudinal evolution of small- x gluons*. Opportunities for Exploring Longitudinal Dynamics in Heavy Ion Collisions at RHIC, Upton, USA (invited talk).
31. January 2016: *Incoherent diffraction as a probe of fluctuations*. Electron Ion Collider User Group Meeting, Berkeley, USA (invited talk).
32. June 2015: *Numerical solution to the NLO BK equation*. Hard Probes 2015, Montreal, Canada.
33. December 2014: *Numerical solution to the NLO BK equation*. The 2nd International Conference on the Initial Stages in High-Energy Nuclear Collisions (IS2014). Napa, California, USA.
34. June 2014: *Incoherent and coherent vector meson production in ultraperipheral heavy ion collisions from the Color Glass Condensate*. Workshop on photon-induced collisions at the LHC. CERN, Switzerland.
35. May 2014: *Dipole amplitude with uncertainty estimate from HERA data and applications in Color Glass Condensate phenomenology*. DIS 2014, Warsaw, Poland.
36. May 2014: *Diffraction vector meson production in ultraperipheral heavy ion collisions from the Color Glass Condensate*. DIS 2014, Warsaw, Poland.
37. March 2014: *Color Glass Condensate from HERA to proton-nucleus collisions including uncertainty analysis*. Physics Days, Tampere, Finland.
38. November 2013: *Color Glass Condensate from electron-proton DIS to proton-nucleus collisions*. Hard Probes 2013, Stellenbosch, South Africa.
39. October 2013: *Particle production in the Color Glass Condensate: from HERA data to proton-nucleus collisions*. Particle Physics Day, Helsinki, Finland.
40. September 2013: *Color Glass Condensate from electron-proton DIS to proton-nucleus collisions*. International Conference on the Initial Stages in High-Energy Nuclear Collisions, Pontevedra, Spain.
41. September 2013: *Dipole model fits to DIS data*. Physics Opportunities at an ElecTron-Ion Collider (POETIC 2013) workshop, Jyväskylä, Finland.
42. June 2013: *Probing the Color Glass Condensate: from single inclusive baseline to dihadron correlations*. h3QCD (high energy, high density and hot QCD), ECT* Trento, Italy.
43. May 2013: *Probing the Color Glass Condensate: from single inclusive baseline to dihadron correlations*. Workshop on proton-nucleus collisions at the LHC, ECT* Trento, Italy.
44. November 2012: *Single and double inclusive particle production in pp and pA collisions in the Color Glass Condensate*. Particle Physics Day, Jyväskylä, Finland.
45. May 2012: *Azimuthal angle correlations in forward dihadron production in pA collisions*. NeD/TURIC 2012, Crete, Greece.
46. April 2012: *Azimuthal angle correlations in forward dihadron production in pA collisions*. Hard Probes 2012, Cagliari, Italy.
47. March 2012: *Azimuthal angle correlations in forward dihadron production in pA collisions*. Physics Days, Joensuu, Finland.

All talks have been presented by H. Mäntysaari.

SEMINAR TALKS

1. June 2020: *Exclusive processes as a probe of gluon saturation at the EIC*. ECT* seminar (online)
2. September 2019: *Diffraction Dijet Production from the CGC*. EIC Working Group Meeting, Brookhaven National Laboratory, New York, USA
3. March 2019: *Ydinaine äärimmäisissä olosuhteissa (Nuclear Matter Under Extreme Conditions)*. Young Academy Finland YAF, Academy Club, Helsinki, Finland
4. February 2018: *Probing gluon saturation at the EIC*. CFNS seminar talk, Brookhaven National Laboratory, New York, USA
5. November 2016: *Proton structure fluctuations at high energy*. URHIC seminar talk, University of Jyväskylä, Finland
6. November 2016: *Proton structure fluctuations at high energy*. CERN Heavy Ion Forum, Geneva, Switzerland
7. May 2016: *Incoherent diffraction as a probe of proton structure fluctuations*. Seminar talk at Stony Brook University, New York, USA
8. April 2016: *Constraining proton structure fluctuations at small x* . URHIC seminar talk, University of Jyväskylä, Finland
9. January 2014: *Particles from the Colored Glass: diffraction, DIS and hadron production*. Nuclear theory/RIKEN seminar, Brookhaven National Laboratory, New York, USA

POSTERS

1. August 2016: *Constraints for proton structure fluctuations from incoherent diffraction*. Photonuclear Reactions, Holderness, USA.
2. June 2014: *Diffraction vector meson production in ultraperipheral heavy ion collisions from the Color Glass Condensate*. Quark Matter 2014, Darmstadt, Germany.
3. August 2012: *Forward dihadron correlations in the Gaussian approximation of JIMWLK*. Quark Matter 2012, Washington DC, USA.

THESES

- PhD thesis (June 2015):
Scattering off the Color Glass Condensate. Supervisor Dr. T. Lappi.
- MSc thesis (November 2011):
Balitsky-Kovchegov equation, supervisor Dr. T. Lappi.
- Research training (August 2011):
Nuclear Suppression in Diffraction Vector Meson Production. Supervisor Dr. T. Lappi.
- BSc thesis (August 2010)
Diffraaktiivinen syvä epäelastinen sironta dipolimallissa (Diffraction Deep Inelastic Scattering in Dipole Model). Supervisor Dr. T. Lappi.

POSITIONS OF TRUST

- University of Jyväskylä, Department of Physics: member of the equality and wellbeing committee, 2020–
- Finnish Academy of Sciences and Letters, Young Academy Finland YAF, member 2018–2022
- Chair of the Nuclear Theory/RIKEN seminar committee at the Brookhaven National Laboratory October 2016 – September 2017. Responsible for the \$12,000 annual seminar budget.
- University of Jyväskylä, Department of Physics. Coordinator of the teacher-tutor (*omaopettaja*) program 2014–2015.
- University of Jyväskylä, Faculty of Mathematics and Science: member of the examination board 2014–2015
- University of Jyväskylä, Faculty of Mathematics and Science: vice member of the examination board 2011–2013
- International Physics Olympiad 2012, 2013, 2014: team leader
- Co-ordinator of the Finnish International Physics Olympiad training 2011– with Dr. A. Lindell (annual budget c.a. 40 000 €)
- Jyväskylä Physical Society, member of the board 2010–2014
- Jyväskylä Physical Society, student division, member of the board 2009

NON-SCIENTIFIC
PUBLICATIONS

H. Mäntysaari *et al.*

Suomelle hopeaa ja pronssia vuoden 2017 Kansainvälisissä fysiikkaolympialaisissa (*Silver and bronze medals to team Finland in the International Physics Olympiad 2017*). Dimensio 5/2017.

H. Mäntysaari *et al.*

Suomelle kaikkien aikojen palkintosaalis vuoden 2016 Kansainvälisissä fysiikkaolympialaisissa (*All time record to team Finland from the International Physics Olympiad 2016*). Dimensio 5/2016.

H. Mäntysaari *et al.*

Suomalaisnuoret menestyivät 46. kansainvälisissä fysiikkaolympialaisissa Intiassa (*Finnish students succeeded in the 46th International Physics Olympiad in India*). Dimensio 5/2015.

H. Mäntysaari *et al.*

Kansainväliset fysiikkaolympialaiset Kazakstanissa (International Physics Olympiad in Kazakhstan). Dimensio 5/2014.

H. Mäntysaari *et al.*

Suomi menestyi kansainvälisissä fysiikkaolympialaisissa (Finland succeeded in the International Physics Olympiad). Dimensio 5/2013.

H. Mäntysaari *et al.*

Suomi menestyi kansainvälisissä fysiikkaolympialaisissa (Finland succeeded in the International Physics Olympiad). Dimensio 5/2012.

LANGUAGE SKILLS

- Finnish: mother tongue
- English: fluent
- Swedish: moderate

Updated November 5, 2020.