

Curriculum vitæ — Aleksi Vuorinen

June 12, 2025

1. Basic information, education and work history

Personal details

- Full name: Alexi Risto Johannes Vuorinen
- Family status: Married, two children
- Date of birth and nationality: March 11th 1980, Finnish
- Present positions: Full Professor, University of Helsinki;
Theory Programme Director, Helsinki Institute of Physics
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 - Google Scholar: <http://scholar.google.com/citations?user=tUEv9PYAAAAJ>
 - HEP Inspire profile: <https://inspirehep.net/authors/1020140>
 - ORCID profile: <https://orcid.org/0000-0002-6429-8534>



Education and degrees awarded

- High school diploma, 6/1998, Helsingin Normaalilyseo
- Master of Science, 11/2001, University of Helsinki
 - Major subject theoretical physics, minors in mathematics and physics
 - MSc thesis: *Four-loop Feynman diagrams in three dimensions*
- Doctor of Philosophy, 1/2004, University of Helsinki
 - PhD thesis: *The pressure of QCD at finite temperature and quark number density*
 - Grade *laudatur*, highest of seven
- Habilitation (title of docent), 3/2009, University of Helsinki

Employment history and current positions

- University of Helsinki, Department of Physical Sciences
 - Undergraduate research assistant, PhD student and researcher, 6/2000 - 8/2004
- University of Washington, Department of Physics
 - Research associate, 9/2004 - 6/2007
- Technical University of Vienna, Institute of Theoretical Physics

- Lise Meitner fellow, 7/2007 - 12/2007
- CERN, Theory Division
 - Senior fellow, 1/2008 - 10/2009
- Bielefeld University, Faculty of Physics
 - Sofja Kovalevskaja group leader, 12/2008 - 8/2013
- University of Helsinki, Department of Physics
 - Academy research fellow, 9/2013 - 8/2018
 - Associate professor, 9/2017 - 8/2021
 - Full professor, 9/2021 -
- Helsinki Institute of Physics
 - Theory project leader, 1/2014 - 12/2022
 - Theory programme director, 1/2025 -

Career breaks

- Parental leaves, 2/2019 - 4/2019 and 1/2021 - 2/2021

2. Research funding and supervision

Significant research funding awarded (all as sole PI and rounded to nearest 10k)

- Lise Meitner fellowship, Austrian Science Fund, 2007, 130.000€
- Sofja Kovalevskaja award, Alexander von Humboldt Foundation, 2008, 1.160.000€
- Academy Research Fellowship with research funding, Academy of Finland, 2013, 930.000€
- Theory project, Helsinki Institute of Physics, 2013 (renewed in 2019), 1.100.000€
- Three-year research grant, University of Helsinki, 2015, 150.000€
- ERC Consolidator grant, 2016, 1.340.000€
- Project funding, Academy of Finland, 2019, 850.000€
- Project funding, Academy of Finland, 2023, 860.000€

Altogether (including smaller grants not listed) approx. 6.700.000€

Supervision experience (at Bielefeld University and University of Helsinki)

- Altogether 18 past and current PhD students as primary or joint primary supervisor:
 1. Martin Krssak, 6/2010 - 8/2013
 2. Yan Zhu, 9/2010 - 8/2013
 3. Sylvain Moggiacci, 9/2010 - 6/2014
 4. Tuomas Tenkanen, 9/2014 - 5/2018 (co-supervised with David Weir)
 5. Arttu Pönni, 12/2014 - 12/2019 (co-supervised with Niko Jokela)
 6. Saga Säppi, 1/2017 - 9/2020 (co-supervised with Aleksi Kurkela)
 7. Eemeli Annala, 9/2016 - 11/2020 (co-supervised with A. Kurkela)

8. Jere Remes, 9/2015 - 12/2020 (co-supervised with N. Jokela and Kimmo Tuominen)
 9. Joonas Hirvonen, 9/2020 - 8/2024 (co-supervised with Oliver Gould)
 10. Juuso Österman, 1/2020 - 3/2025 (co-supervised with Risto Paatelainen)
 11. Kaapo Seppänen, 11/2021 - 9/2025 (co-supervised with R. Paatelainen)
 12. Mika Nurmela, 10/2022 - (co-supervised with R. Paatelainen)
 13. Pablo Navarrete, 5/2023 - (co-supervised with R. Paatelainen)
 14. Aapeli Kärkkäinen, 3/2024 - (co-supervised with R. Paatelainen)
 15. Sofia Blomqvist, 7/2024 - (co-supervised with Joonas Nätilä)
 16. Tomi Ruosteoja, 7/2024 - (co-supervised with R. Paatelainen)
 17. Leon Sandbote, 1/2025 - (co-supervised with R. Paatelainen)
 18. Olavi Kiuru, 3/2025 - (co-supervised with J. Nätilä and R. Paatelainen)
- 18 BSc and 20 MSc theses, 2011 -
 - Altogether 21 past or current postdoctoral fellows:
 - Primary supervisor of altogether 9 postdocs at Bielefeld University, 2009 - 2013, and so far 12 at the University of Helsinki, 2013 -
 - Four former postdocs have since obtained permanent faculty positions, and two are currently on longer fixed-term junior faculty positions

3. Teaching merits

Teaching experience

- Teaching assistant on four courses, University of Helsinki, 2000 - 2004
- Guest lecturer on five courses (24 lectures), University of Washington, 2005 - 2007
- Lecturer, Bielefeld University
 - Symmetries in physics (undergraduate [ug], 5 ects credits, winter semester 2010 - 2011)
- Lecturer, University of Helsinki (each course 5 ects credits)
 - Statistical physics I (ug, spring semester 2014)
 - Thermal field theory (graduate [g], spring 2015, fall 2018, spring 2023 and 2025)
 - Advanced thermal field theory (g, fall 2015, spring 2020 and 2024)
 - Statistical mechanics (ug, spring 2017 - 2018, fall 2023 - 2024)
 - Quantum statistics (ug, spring 2017 - 2018, 2021 - 2025)
 - Mathematical methods for physicists II (ug, fall 2019 - 2022)
- Invited lectures in various summer schools and workshops, recently including e.g.
 - Summer schools of the *Particles and Interactions* doctoral program in Austria, Krems 4/2016 and Hirschegg, 9/2018
 - XIX Mexican School of Particles and Fields (virtual), 8/2021
 - QCD Master Class, Saint-Jacut-de-la-Mer, 9/2021
 - Effective Field Theory and Lattice Field Theory summer school, Bad Honnef, 7/2023
 - 63rd Cracow School of Theoretical Physics, Zakopane, 9/2023
 - Spåtind 2025: Nordic Conference on Particle Physics, Skeikampen, 1/2025

Teaching materials

- Graduate level textbook *Basics of Thermal Field Theory — A Tutorial on Perturbative Computations* with Mikko Laine, Springer publishing, 2016

Pedagogical training

- University pedagogy 1, University of Helsinki, 2013; grade 5/5
- University pedagogy 2.1, University of Helsinki, 2019; grade 5/5

Thesis examination

- Pre-examiner of 10 PhD theses, 2006 - (Cantabria, Helsinki, Jyväskylä)
- Opponent in 5 PhD defenses, 2011 - (Frankfurt, Helsinki, Southampton, TU Vienna)
- Chair or member of the grading committee in 17 PhD defenses, 2017 - (Helsinki, Uppsala)

4. Awards, impact and academic merits

Major honors and awards

- MSc thesis award, Faculty of Science, University of Helsinki, 2001
- PhD thesis award, Finnish Academy of Sciences and Letters, 2004
- Sofja Kovalevskaja award, Alexander von Humboldt Foundation, 2008
- ERC Consolidator grant, 2016
- Member, Finnish Academy of Science and Letters, 2020 -
- Magnus Ehrnrooth foundation award, Finnish Society of Sciences and Letters, 2022

Summary of publication record

- 89 journal articles, including 1 in Nature Physics, 1 in Nature Communications, 11 PRLs, 1 in PRX, and 1 in Physics Reports
- 2 topcite 1000+, 2 topcite 500+, 4 topcite 200+, and 9 topcite 100+ papers
- Altogether approx. 8100 citations with h -index 42
- Graduate level textbook on thermal field theory with Mikko Laine, 2016

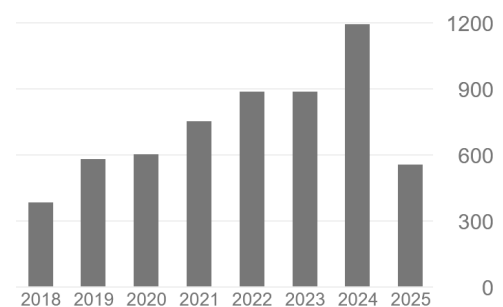


Figure: Recent annual citation counts, Google Scholar 6/2025

Other academic merits and positions of trust

- Associate Editor for European Physical Journal C, 2020 - 2023
- Participant in Forum for Future Leadership, University of Helsinki, 2021 - 2024
- Grade A (interview invitation) and top 20% ranking but no funding, ERC AdG 2024 call
- Member of eXTP Working Group 1 (Ultradense matter), 2025 -
- Regular invited presentations at major international conferences and seminar series

- Recent plenaries at Strong and Electroweak Matter; Extreme QCD (multiple times); Quark Matter; INTEGRAL; Cosmology, Astrophysics, Theory and Collider Higgs
- Recent colloquia at Harvard University; APC, Paris; University of Amsterdam
- Referee for multiple journals, including Nature, Phys. Rev. Lett., Phys. Rev. D, Journal of High Energy Physics, European Physical Journal, Nuclear Physics B, Physics Letters
- International Advisory Committee member in conference series *Extreme QCD*, 2015 -, and *Strong and Electroweak Matter*, 2023 -
- Grant reviewer for many organizations, including European Research Council (ERC); Deutsche Physikalische Gemeinschaft (DFG) and Alexander von Humboldt foundation, Germany; Department of Energy, USA; Fonds Wetenschappelijk Onderzoek, Belgium; Natural Sciences and Engineering Research Council of Canada; UK Research and Innovation Services; Croatian Science Foundation
- Chair or member of committees responsible for filling permanent positions at multiple universities, including Norwegian University for Science and Technology; University of Barcelona, Spain; Universities of Helsinki and Jyväskylä, Finland

5. Other activities

Recent administrative positions of trust

- Member of the Management Committees of the COST actions *NewCompStar*, 2013 - 2017 and PHAROS, 2017 - 2021
- Vice member of the Management Committee of the COST action *FUNDAMENTALCONNECTIONS*, 2015 - 2019
- Study planning contact person for physics BSc students, Department of Physics, University of Helsinki, 2017 - 2020
- Member of the Wellbeing and Equality Monitoring Group of the Department of Physics, University of Helsinki, 2017 - 2022
- Board member of Particle Physics Division of the Finnish Physical Society, 2017 - 2019
- Steering board member of Master's Programme in Particle Physics and Astrophysical Sciences, University of Helsinki, 2021 - 2024
- Member of steering group, Helsinki Institute of Physics, 2025 -

Conference organization

- Organizer of seminar series at the Univ. of Washington (2005 - 2007) and CERN (2009)
- Organizer of summer school *Aspects of QCD at Finite Density*, Bielefeld University, 2011
- Organizer of a HoloGrav network workshop, University of Helsinki, 2013
- Convener and member of International Program Committee for the conference *Heavy ion collisions in the LHC era and beyond*, Quy Nhon, Vietnam, 2015
- Organizer of an Institute for Nuclear Theory program on thermalization in gauge field theories, INT, Seattle, 2015
- Convener of Deconfinement section, *Quark Confinement and the Hadron Spectrum* conference series, 2015 - 2022

- Organizer of a CERN TH Institute on neutron star physics, CERN, Switzerland, 2016
- Convener of the Quantum field and string theory session, EPS-HEP 2017, Venice, Italy
- Organizer and lecturer, Particle Physics school, University of Helsinki, Finland, 2017
- Organizer of Finnish Particle Physics Day 2017, Helsinki, Finland, 2017
- Main organizer of workshop *Fire and Ice: Hot QCD meets cold and dense matter*, Saariselkä, Finland, 2018
- Member of Scientific Committee for Finnish Physics Days 2019
- One of two main organizers of workshop *From holography to machine learning: novel takes on dense matter*, Helsinki, Finland, 2022

Public outreach

- Numerous (altogether approx. 40) lectures for Finnish high school students and teachers visiting CERN and the University of Helsinki, 2008 -
- Regular media appearances in radio, newspapers and popular science magazines; cf. list at <https://www.mv.helsinki.fi/home/arjvuori/media.html>
- Regular invited public talks on high energy physics related topics, 2008 -
 - Recently e.g. at Night of Researchers, 9/2017; Finnish Astronomical Society URSA, 3/2018; Studia Generalia, 10/2018 and 3/2021; CERN 70 years, 3/2024
- Regular expert contributor to "Ask a researcher" column series in a leading Finnish popular science magazine (Tähdet ja Avaruus) and newspaper (Helsingin Sanomat)