

# Curriculum vitæ — Aleksi Vuorinen

November 23, 2023

## 1. Basic information, education and work history

### Personal details

- Full name: Aleksi Risto Johannes Vuorinen
- Family status: Married, two children (born 11/2017, 1/2020)
- Date and place of birth: March 11th 1980, Helsinki, Finland
- Nationality: Finnish
- Present position: Full Professor, University of Helsinki
- Contact details:
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  - Homepage: <https://www.mv.helsinki.fi/home/arjvuori/>
  - 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
- Helsinki Institute of Physics
  - Project leader, 1/2014 - 12/2022
- University of Helsinki, Department of Physics
  - Academy research fellow, 9/2013 - 8/2018
  - Associate professor, 9/2017 - 8/2021
  - Full professor, 9/2021 -

### Career breaks

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

## 2. Research funding and supervision

### Significant research funding awarded (all as PI)

- Lise Meitner fellowship, Austrian Science Fund, 2007, ca. 130.000€
- Sofja Kovalevskaja award, Alexander von Humboldt Foundation, 2008, 1.155.000€
- Academy Research Fellowship with research funding, Academy of Finland, 2013, 925.000€
- Theory project, Helsinki Institute of Physics, 2013 (renewed in 2019), ca. 1.100.000€
- Three-year research grant, University of Helsinki, 2015, ca. 150.000€
- ERC Consolidator grant, 2016, 1.340.000€
- Project funding, Academy of Finland, 2019, ca. 850.000€
- Project funding, Academy of Finland, 2013, ca. 860.000€

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

### Supervision experience (at Bielefeld University and University of Helsinki)

- 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. Jere Remes, 9/2015 - 12/2020 (co-supervised with N. Jokela and Kimmo Tuominen)
  7. Eemeli Annala, 9/2016 - 11/2020 (co-supervised with Aleksi Kurkela)

8. Saga Säppi, 1/2017 - 9/2020 (co-supervised with A. Kurkela)
  9. Juuso Österman, 1/2020 - (co-supervised with Risto Paatelainen)
  10. Joonas Hirvonen, 9/2020 - (co-supervised with Oliver Gould and Kari Rummukainen)
  11. Kaapo Seppänen, 11/2021 - (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)
- 15 BSc and 16 MSc theses supervised, 2011 -
  - Postdoctoral fellows
    - Supervisor of altogether 9 postdocs within the Kovalevskaja group in Bielefeld, 2009 - 2013, and so far 12 at the University of Helsinki, 2013 -

### Thesis examination

- Examiner of 9 BSc and 8 MSc theses, 2011 - (Universities of Bielefeld, Helsinki and Regensburg)
- Pre-examiner of 10 PhD theses, 2006 - (Universities of Cantabria, Helsinki, and Jyväskylä)
- Opponent in 4 PhD defenses, 2011 - (Universities of Frankfurt and Helsinki, Technical University of Vienna)
- Chair or member of the grading committee in 14 PhD defenses, 2017 - (University of Helsinki and Uppsala University)

## 3. Teaching merits

### Teaching experience

- Teaching assistant of four undergraduate and graduate courses, University of Helsinki, 2000 - 2004
- Guest lecturer on altogether 24 lectures on undergraduate and graduate courses, University of Washington, 2005 - 2007
- Lecturer, Bielefeld University
  - Symmetries in physics (undergraduate, 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) (spring 2015, fall 2018, spring 2023)
  - Advanced thermal field theory (g) (fall 2015, springs 2020 and 2024)
  - Statistical mechanics (ug) (springs 2017 and 2018, fall 2023)
  - Quantum statistics (ug) (springs 2017 - 2018, 2021 - 2023)
  - Mathematical methods for physicists II (ug) (falls 2019 - 2022)
- Numerous (altogether ca. 40) lectures for Finnish high school students and teachers visiting CERN and University of Helsinki, 2008 -
- Invited lectures in various summer schools and workshops, recently including e.g.
  - 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

## 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

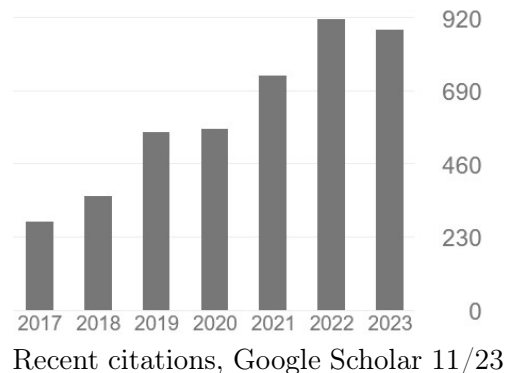
## 4. Awards, impact and academic merits

### 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
- Magnus Ehrnrooth foundation award, Finnish Society of Sciences and Letters, 2022

### Summary of publication record

- 84 articles published in international journals, including 1 in Nature Phys., 1 in Nature Comm., 9 in Phys. Rev. Lett. and 1 in Phys. Rev. X
- Approx. 6000 citations with  $h$ -index 39
- Graduate level textbook on thermal field theory with Mikko Laine, 2016
- Physics Reports review on pQCD with J. Ghiglieri, A. Kurkela, and M. Strickland, 2020



### Other academic merits

- Member, Finnish Academy of Science and Letters, 2020 -
- Associate Editor for European Physical Journal C, 2020 - 2023
- Participant in Forum for Future Leadership, University of Helsinki, 2021 -
- 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
- Grant reviewer for multiple foundations, including Alexander von Humboldt foundation, Germany; Department of Energy, USA; Fonds Wetenschappelijk Onderzoek, Belgium; Natural Sciences and Engineering Research Council of Canada
- 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
- Regular invited presentations at major international conferences
  - Recent plenaries at Quark Matter, Strong and Electroweak Matter, Extreme QCD (multiple times), Integral, Lepton-Photon Interactions,...

## 5. Administration and other activities

### Recent 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
- International Advisory Committee member in conference series *Extreme QCD*, 2015 - 2023, and *Strong and Electroweak Matter*, 2023 -
- 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
- Board member of Master's Programme in Particle Physics and Astrophysical Sciences, University of Helsinki, 2021 -

### 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
- 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 -
- Organizer of a CERN TH Institute on neutron star physics, CERN, Switzerland, 2016
- Convener of the Quantum field and string theory session of the EPS-HEP 2017 conference
- Organizer and lecturer at a summer school on Particle Physics, 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 the Scientific Committee of 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

- 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 -
- Regular expert contributor to "Ask a researcher" column series in a leading Finnish popular science magazine (*Tähdet ja Avaruus*) and newspaper (*Helsingin Sanomat*)