



Tommi Tenkanen

Curriculum Vitae

Born: March 10, 1989
Place of birth: Harjavalta, Finland
Citizenship: Finnish
CV updated: February 4, 2019

Contact information

- Office 453, Bloomberg Center
- Johns Hopkins University
- 3400 N. Charles St., Baltimore, MD 21218, USA
- Mobile phone: +1 443 854 1265
- E-mail: ttenkan1@jhu.edu
- <http://www.tommitenkanen.net>

Professional working experience

- 2018– **Postdoctoral Fellow**, *Department of Physics and Astronomy*, Johns Hopkins University, United States.
Since October 2018, I have been working at the Department of Physics and Astronomy doing research on theoretical cosmology with Prof. Marc Kamionkowski and Prof. Joe Silk. Since the start of my post I have published 4 research articles. I supervise student research projects, organize group meetings, and participate in organizing seminars.
- 2016–18 **Postdoctoral Researcher**, *Astronomy Unit, School of Physics and Astronomy*, Queen Mary University of London, United Kingdom.
I worked at the Astronomy Unit doing research on theoretical cosmology with Prof. Bernard Carr, Dr. Karim Malik and Dr. David Mulryne. I published 13 research articles and 1 large review paper. I taught cosmology and advanced mathematical techniques for physicists, supervised student research projects from BSc to PhD level, and participated in organizing seminars.

- 2014–16 **Doctoral Candidate**, *Department of Physics*, University of Helsinki, Finland.
I worked at the Division of Particle Physics and Astrophysics doing research, teaching, and writing my PhD thesis. At the same time, I was an adjoint scientist at the Helsinki Institute of Physics. I published 7 research articles and 2 conference proceedings on theoretical cosmology, and was the editor-in-chief for the Physics Days 2015 abstract book. I gave teaching on theoretical physics including graduate level courses in cosmology and general relativity. For my PhD research project I won a 160 kEUR grant from The Research Foundation of the University of Helsinki, and was awarded with several prizes and travel grants, as listed below.
- 2013 **Intern**, *Department of Physics*, University of Helsinki, Finland.
I worked at the Division of Elementary Particle Physics writing my Master's thesis on cosmic inflation.
- 2012 **Intern**, *Helsinki Institute of Physics*, CERN, Geneva, Switzerland.
I worked as a part of CMS collaboration analysing Monte Carlo simulations on jet physics. I mainly used the C++ based ROOT analysis program.
- 2011 **Research Assistant**, *Department of Physics*, University of Helsinki, Finland.
I worked at the Division of Atmospheric Sciences making simulations of molecular cluster measurements and writing my Bachelor's thesis. I mainly used Python and Matlab.
- 2011–13 **Teaching Assistant**, *Department of Physics*, University of Helsinki, Finland.
For 19 months in total, I worked as a teaching assistant for the undergraduate level courses listed in section Teaching (see below).

Education and honours

- 2017 **Habilitation (Adjunct Professor / Title of Docent)**, University of Helsinki.
I'm an adjunct professor (docent) of theoretical physics. The title may be awarded to a person who "has comprehensive knowledge of his or her own field, a capacity for independent research demonstrated through publications or some other manner, and good teaching skills". In the evaluation process I got the grade "Excellent" for my teaching skills.
- 2014–16 **Doctor of Philosophy**, University of Helsinki.
Major in theoretical physics (grade 5/5), studies on academic leadership and project work. PhD thesis *Cosmological Constraints on Higgs Portal Dark Matter*, supervisors Prof. Kari Enqvist, Dr. Sami Nurmi, and Dr. Kimmo Tuominen. Official graduation day 24.1.2017.
- 2012–13 **Master of Science**, University of Helsinki.
Major in theoretical physics (grade 5/5), minors in physics and mathematics. Master's thesis *Epägaussisuudet kurvatonimallissa (Non-gaussianities in the curvaton model)*, supervisor Prof. Kari Enqvist.
- 2009–12 **Bachelor of Science**, University of Helsinki.
Major in theoretical physics, minors in physics and astronomy. Bachelor's thesis *Time-of-Flight massaspektrometrin sisäisten olosuhteiden vaikutukset ilmakehän molekyyliklusterien mittauksessa (On the inner conditions of a Time-of-Flight mass spectrometer in measuring molecular clusters in the atmosphere)*, supervisor Prof. Hanna Vehkamäki.

Scientific publications

24 research papers, 1 large review paper, and 2 proceedings with 624 citations in total, h-index 14. **All authors are listed in alphabetical order according to the particle physics convention.**

- 2019 *Minimal Higgs inflation with an R^2 term in Palatini gravity*, T. Tenkanen, *submitted*, arXiv:1901.01794.
- 2018 *Towards distinguishing variants of non-minimal inflation*, T. Takahashi and T. Tenkanen, *submitted*, arXiv:1812.08492.
- 2018 *Hidden Inflaton Dark Matter*, J.P. Beltrán Almeida, N. Bernal, J. Rubio and T. Tenkanen, *submitted*, arXiv:1811.09640.
- 2018 *Spectator Dark Matter*, T. Markkanen, A. Rajantie and T. Tenkanen, *Phys.Rev. D 98 (2018) 123532*, arXiv:1811.02586.
- 2018 *Scalar singlet dark matter in non-standard cosmologies*, N. Bernal, C. Cosme, T. Tenkanen and V. Vaskonen, *Eur. Phys. J. C79 (2019) no.1, 30*, arXiv:1806.11122.
- 2018 *Attractor Behaviour in Multifield Inflation*, P. Carrilho, D. Mulryne, J. Ronayne and T. Tenkanen, *JCAP 06 (2018) 032*, arXiv:1804.10489.
- 2018 *Primordial Black Hole Formation During Slow Reheating After Inflation*, B. Carr, K. Dimopoulos, C. Owen and T. Tenkanen, *Phys. Rev. D 97 (2018) no.12, 123535*, arXiv:1804.08639.
- 2018 *Phenomenology of self-interacting dark matter in a matter-dominated universe*, N. Bernal, C. Cosme and T. Tenkanen, *accepted for publication in Eur. Phys. J.*, arXiv:1803.08064.
- 2018 *Prospects for indirect detection of frozen-in dark matter*, M. Heikinheimo, T. Tenkanen and K. Tuominen, *Phys. Rev. D 97 (2018) no.6, 063002*, arXiv:1801.03089.
- 2017 *The Palatini side of inflationary attractors*, L. Järv, A. Racioppi and T. Tenkanen, *Phys. Rev. D 97 (2018) no.7, 083513*, arXiv:1712.08471.
- 2017 *Quantum corrections to quartic inflation with a non-minimal coupling: metric vs. Palatini*, T. Markkanen, T. Tenkanen, V. Vaskonen and H. Veermäe, *JCAP 03 (2018) 029*, arXiv:1712.04874.
- 2017 *A novel way to determine the scale of inflation*, K. Enqvist, R.J. Hardwick, T. Tenkanen, V. Vennin and D. Wands, *JCAP 02 (2018) 006*, arXiv:1711.07344.
- 2017 *Resurrecting Quadratic Inflation with a non-minimal coupling to gravity*, T. Tenkanen, *JCAP 12 (2017) 001*, arXiv:1710.02758.
- 2017 *The Dawn of FIMP Dark Matter: A Review of Models and Constraints*, N. Bernal, M. Heikinheimo, T. Tenkanen, K. Tuominen and V. Vaskonen, *Int. J. Mod. Phys. A32 (2017) no.27, 1730023*, arXiv:1706.07442.
- 2017 *Primordial black holes from inflaton and spectator field perturbations in a matter-dominated era*, B. Carr, T. Tenkanen and V. Vaskonen, *Phys. Rev. D 96 (2017) no.6, 063507*, arXiv:1706.03746.
- 2017 *Primordial black hole constraints for extended mass functions*, B. Carr, M. Raidal, T. Tenkanen, V. Vaskonen and H. Veermäe, *Phys. Rev. D 96 (2017) no.2, 023514*, arXiv:1705.05567.

- 2017 *WIMP miracle of the second kind*, M. Heikinheimo, T. Tenkanen and K. Tuominen, *Phys. Rev. D* 96 (2017) no.2, 023001, arXiv:1704.05359.
- 2016 *Inflation and pseudo-Goldstone Higgs Boson*, T. Alanne, F. Sannino, T. Tenkanen and K. Tuominen, *Phys. Rev. D* 95 (2017) no.3, 035004, arXiv:1611.04932.
- 2016 *Feebly Interacting Dark Matter Particle as the Inflaton*, T. Tenkanen, *JHEP* 1609 (2016) 049, arXiv:1607.01379.
- 2016 *A Strong Electroweak Phase Transition from the Inflaton Field*, T. Tenkanen, K. Tuominen and V. Vaskonen, *JCAP* 1609 (2016) no.09, 037, arXiv:1606.06063.
- 2016 *Reheating the Standard Model from a Hidden Sector*, T. Tenkanen and V. Vaskonen, *Phys. Rev. D* 94 (2016) no.8, 083516, arXiv:1606.00192.
- 2016 *Observational Constraints on Decoupled Hidden Sectors*, M. Heikinheimo, T. Tenkanen, K. Tuominen and V. Vaskonen, *Phys. Rev. D* 94 (2016) no.6, 063506, arXiv:1604.02401.
- 2016 *Isocurvature Constraints on Portal Couplings*, K. Kainulainen, S. Nurmi, T. Tenkanen, K. Tuominen and V. Vaskonen, *JCAP* 1606 (2016) no.06, 022, arXiv:1601.07733.
- 2015 *Inflationary Imprints on Dark Matter*, S. Nurmi, T. Tenkanen and K. Tuominen, *JCAP* 1511 (2015) no.11, 001, arXiv: 1506.04048.
- 2014 *Standard Model with a real singlet scalar and inflation*, K. Enqvist, S. Nurmi, T. Tenkanen and K. Tuominen, *JCAP* 1408 (2014) 035, arXiv: 1407.0659.

Conference proceedings

- 2016 *Observational Properties of Feebly Coupled Dark Matter*, M. Heikinheimo, T. Tenkanen, K. Tuominen and V. Vaskonen, *PoS ICHEP2016* (2016) 825, arXiv:1611.04951.
- 2015 *Cosmic Inflation Constrains Scalar Dark Matter*, T. Tenkanen, *Cogent Phys.* 2 (2015) no.1, 1029845.

Doctoral dissertation

- 2016 *Cosmological Constraints on Higgs Portal Dark Matter*, T. Tenkanen, Helsinki Institute of Physics Internal Report Series, HIP-2016-03.

Scientific presentations

Recent talks

In total 77 talks (24 invited), 4 posters.

- 2019 *The Dawn of FIMP Dark Matter*, Seminar talk, University of Bern, Bern, Switzerland, 4.2.2019.
- 2018 *Spectator Dark Matter*, Invited talk, SLAP 2018, London, United Kingdom, 19.12.2018.
- 2018 *WIMP miracle of the second kind*, Invited talk, Imperial College London, London, United Kingdom, 18.12.2018.
- 2018 *Inflationary attractors in different theories of gravity*, Seminar talk, RESCEU, Tokyo, Japan, 10.9.2018.

- 2018 *Inflationary attractors in different theories of gravity*, Seminar talk, Yukawa Institute for Theoretical Physics, Kyoto, Japan, 7.9.2018.
- 2018 *The Dawn of FIMP Dark Matter*, COSMO'18, Daejeon, South Korea, 28.8.2018.
- 2018 *Primordial Black Holes as Dark Matter*, Seminar talk, Saga University, Saga, Japan, 22.8.2018.
- 2018 *Primordial Black Holes as Dark Matter*, 5th LISA Cosmology Working Group Workshop, Helsinki, Finland, 12.6.2018.
- 2018 *Inflationary attractors in different theories of gravity*, Invited talk, Imperial College London, London, United Kingdom, 16.5.2018.

Recent posters

- 2017 *Inflation and pseudo-Goldstone Higgs boson*, Higgs Cosmology Meeting, Milton Keynes, United Kingdom, 27.3.2017.
- 2016 *Observational Properties of Feebly Coupled Dark Matter*, ICHEP 2016, Chicago, USA, 6.8.2016.

Grants and awards

Only the most important ones listed. Total value 368,500 EUR.

- 2018 Marie Skłodowska-Curie Individual Fellowship, European Commission, 183,500 EUR (declined)
- 2018 Grant for public information, The Committee for Public Information (Finland), 3500 EUR
- 2018 Travel grant for a Research and conference visit to South Korea and Japan, Magnus Ehrnrooth foundation, 4500 EUR
- 2016 Best talk award, PAP-PAPU meeting 12.12.2016, Helsinki, Finland
- 2016 Stipend of the Dr. Mikael Björnberg Memorial Foundation (awarded by the Finnish Society of Sciences and Letters), 7000 EUR
- 2016 Travel grant for a Research and conference visit to the USA, Emil Aaltonen foundation, 5000 EUR
- 2015 Travel grant for a Research visit to the USA, Alfred Kordelin foundation, 4200 EUR
- 2015 Travel grant for the COSMO'15 conference, Doctoral School in Natural Sciences, University of Helsinki, 1200 EUR
- 2014 Doctoral Program Position for four years, The Research Foundation of the University of Helsinki, 160,000 EUR
- 2013 & 2011 Teaching Assistant of the year, Department of Physics, University of Helsinki
- 2012 Student grant, The Mathematics and Science Fund of the University of Helsinki, 1000 EUR

I have also been awarded with honorary crosses, medals and ribbons of several student organisations.

Research visits

- 2019 University of Bern; CERN; Princeton University; University of Helsinki
- 2018 University of Tokyo; Yukawa Institute for Theoretical Physics; Saga University; Nikhef; RWTH Aachen University; King's College London; Imperial College London; Universidad Antonio Nariño; University of Manchester; University of Sheffield; University of Plymouth; University of Stockholm; University of Helsinki
- 2017 NICPB Tallinn; ITP Heidelberg; Max-Planck-Institut für Kernphysik (MPIK); Lancaster University; University of Porto; Université Paris Diderot; Stanford University; University of California, Riverside; University of Portsmouth; DAMTP Cambridge; University College London; CP³-Origins; University of Sussex; Imperial College London; University of Oxford; University of Helsinki
- 2016 University of California, Los Angeles; University of California, Irvine; Max-Planck-Institut für Physik (MPP); NICPB Tallinn; University of Jyväskylä; University of Helsinki; King's College London
- 2015 Stanford University; University of California, Berkeley; University of California, Los Angeles; CP³-Origins; Nordita; University of Portsmouth; University of Sussex; Queen Mary University of London; King's College London; Imperial College London; University of Heidelberg; University of Bielefeld; University of Münster; University of Jyväskylä

Teaching and supervision

The feedback from students has generally been from good to excellent. I have twice been awarded as the Teaching Assistant of the year at Department of Physics, U. Helsinki. I have constantly been developing both my own teaching and the teaching conditions at my department by e.g. being a member of my department's teaching committee.

Teaching experience

- 2018 Physical Cosmology (QMUL, undergrad level)
- 2017 Mathematical Techniques 2 (QMUL, undergrad level)
- 2016 General Relativity (U. Helsinki, graduate level)
- 2015 Analytical Mechanics (U. Helsinki, undergrad level)
- 2014 Cosmology I-II (U. Helsinki, graduate level)
- 2013 Radiation Fields and Photons (U. Helsinki, undergrad level)
- 2011–13 Mathematical Methods I-II (U. Helsinki, undergrad level)
- 2012 Waves and Fields (U. Helsinki, undergrad level)
- 2011–12 Thermophysics (U. Helsinki, undergrad level)
- 2011 Electrodynamics (U. Helsinki, undergrad level)

Supervision experience

- 2018– Supervisor of a BSc research project on cosmology, JHU
- 2017–18 Co-supervisor of 2 PhD research projects on cosmology; P. Carrilho (now a postdoc in QMUL) & J. Ronayne (now a postdoc in IAP, Paris), QMUL

- 2018 Supervisor of an MSc project on cosmology, QMUL
- 2017 Supervisor of a BSc research project on cosmology, QMUL
- 2012–16 Mentor for 3 students in the Researcher Education Program, U. Helsinki
- 2010–12 Tutor for 50 new students, U. Helsinki

Positions of trust

Only the most important ones listed.

- 2019– Organizer, weekly meetings of the JHU cosmology group
- 2017– Columnist, *Arkhimedes Magazine*
- 2015– Referee for e.g. the *Monthly Notices of the Royal Astronomical Society*
- 2017 Member, Editorial Board of the Conferment Ceremony Book, University of Helsinki
- 2016–17 Team Leader, Conferment Ceremony Committee, University of Helsinki
- 2016 Auditor, Association of Doctoral Students at the University of Helsinki
- 2015–16 Member, Project Group of 'Big Wheel' Degree Renovation, University of Helsinki
- 2015–16 Member, Outreach Group, Department of Physics, University of Helsinki
- 2014–16 Member of the Board, The Finnish Physical Society
- 2014–16 Member, Finnish National Committee of IUPAP
- 2015 President, Association of Doctoral Students at the University of Helsinki
- 2014–15 Member, Organizing Committee, Physics Days 2015 conference
- 2014 Vice-President, Association of Doctoral Students at the University of Helsinki
- 2014 Team Leader, CLIMATE Project, Helsinki Challenge competition
- 2013 Member, Teaching Committee, Department of Physics, University of Helsinki
- 2013 Member, Doctoral Studies Committee, Department of Physics, University of Helsinki
- 2012–13 Leader, Researcher Education Program for Students, Department of Physics, University of Helsinki
- 2010–11 Member of the Board, Meridiaani ry
- 2010–15 Group Leader, Research group on the history of prima inter pares of the Reserve Officer School

Other publications

Only the most important ones listed.

- Book *Keväisten toivojen riemua (Celebrating the Joys of Spring)*, S. Thilman et al., 226 pages, University of Helsinki, 2017.
- Abstract book *Proceedings of the XLIX Annual Conference of the Finnish Physical Society*, T. Tenkanen (editor-in-chief), 357 pages, Report Series in Physics, HU-P-268, 2015.
- Matricula *Invitation to the conferment ceremony of the Faculty of Philosophy*, T. Tenkanen (editor-in-chief), 194 pages, University of Helsinki, 2017.
- Matricula *RUK:n priimukset 1920–2014 (Prima inter pares of the Reserve Officer School 1920–2014)*, T. Tenkanen (editor-in-chief), 344 pages, RUK museum, 2015.

- Matricula *Halla – RUK Course 233*, T. Tenkanen (editor-in-chief), 390 pages, Supporting Association of the Student Union of the Finnish Reserve Officer School, 2009.
- Report *Tutkijapiirin vetäjän käsikirja (Handbook for the Leader of the Researcher Education Program)*, T. Tenkanen, 29 pages, University of Helsinki, 2013.
- Article *Julkaisukulttuurin on muututtava (Publishing culture must change)*, T. Tenkanen, Arkhimedes, 4/2018.
- Article *Ensimmäinen post-doc (The first post-doc)*, T. Tenkanen, Arkhimedes, 3/2018.
- Article *Keyyesti kosmoksesta (The cosmos – lightly)*, T. Tenkanen, Tähdet ja avaruus, 6/2018.
- Article *Maagista realismia (Magical realism)*, T. Tenkanen, Arkhimedes, 2/2018.
- Article *Myös tieteentekijät (Scientists too)*, T. Tenkanen, Arkhimedes, 1/2018.
- Article *Ikkuna maailmankaikkeuteen (A window to the Universe)*, T. Tenkanen, Arkhimedes, 4/2017.
- Article *Gravitational Waves from the Heavens*, T. Tenkanen, The Science Basement Digest, 28.11.2017.
- Article *Uskomukset suurennuslasin alla (Beliefs under a magnifying glass)*, T. Tenkanen, Tieteessä tapahtuu, 6/2017.
- Article *Lisäminuutteja (Extra minutes)*, T. Tenkanen, Arkhimedes, 3/2017.
- Article *Terveisiä Brexitlandista (Greetings from the Brexitland)*, T. Tenkanen, Arkhimedes, 2/2017.
- Article *Gravitaatioaaltojen havaitseminen (Detection of gravitational waves)*, T. Tenkanen, Tieteessä tapahtuu, 5/2016.
- Article *Tutkimus yhdistää Reserviupseerikoulun priimukset kautta aikain (Studies on prima inter pares of the Reserve Officer School)*, T. Tenkanen, S. Holopainen, J. Nivala and A. Vanhoja, Reserviläinen, 1/2015.
- Article *Fysiikan tutkijankoulutuslinja tarjoaa monipuolista toimintaa (The Physics' Researcher Education Program for Students provides versatile activities)*, T. Tenkanen, Arkhimedes, 4/2014.
- Article *John Adamsin oopperasta Dr Atomic (On John Adams' opera Dr Atomic)*, C. Montonen, T. Tenkanen and H. Vehkamäki, Arkhimedes, 1/2012.
- Article *Lämpöenergiaa nukleaatiosta – kuinka kuumapakkaukset toimivat (Thermal energy from nucleation – how do heat packs work)*, T. Tenkanen, Arkhimedes, 4/2011.
- Letter *Tieteen säätiörahoitusta on tarkasteltava uudelleen (Foundations' role in science funding should be revisited)*, T. Tenkanen, Helsingin Sanomat, 21.6.2017.
- Letter *Tiede ja tutkimus kärsivät lukukausimaksuista (Science and research suffer from tuition fees)*, T. Tenkanen, Helsingin Sanomat, 20.5.2015.

Outreach and other talks

Only the most important ones listed.

- Blog *Akatemian jalkaväki (Foot Soldiers of Academia)*, <http://www.akatemianjalkavaki.fi>, in total 48 texts since autumn 2015.
- Lecture *Dark Matter and the Hidden Cosmos*, Queen Mary University of London, London, United Kingdom, 24.5.2018.
- Lecture *Alkuräjähdyksen aikana syntyneet mustat aukot (Primordial Black Holes)*, University of Helsinki, Helsinki, 24.4.2018.
- Lecture *Pimeä aine ja kätkeyty kosmos (Dark Matter and the Hidden Cosmos)*, The Finnish Science Centre Heureka, Vantaa, 26.11.2017.
- Lecture *Dark Matter and the Hidden Cosmos*, Afternoon in the Science Basement event, Helsinki, 25.11.2017.
- Interview *Kosmologille syksyn pimeys avaa ikkunan maailmankaikkeuteen (For a cosmologist, darkness of the autumn opens a window to the universe)*, Yle Radio Suomi (the Finnish broadcasting company), 19.10.2017.
- Lecture *Topics in Modern Cosmology*, Meeting of the Finnish Young Minds, Helsinki, 13.12.2016.
- Lecture *Pimeä aine ja kosminen inflaatio (Dark Matter and Cosmic Inflation)*, Annual meeting of the Research Foundation of the University of Helsinki, 21.3.2016.
- Lecture *Cosmologist's world view*, Popular lecture for Suomen Humanistiliitto ry, 12.11.2015.
- Video presentation *Kosmos – Maailmankaikkeus viidessä minuutissa (Cosmos – The universe in five minutes)*, Yle Tiede, 6.4.2018.
- Video presentation *Väärinkäsitys: alkuräjähdyks oli kaiken alku (A Misnomer: Big Bang was the beginning of everything)*, Yle Tieteen Prisma Studio, 3.7.2015.
- Lecture *RUK:n priimukset 1920–2014 (Prima inter pares of the Reserve Officer School 1920–2014)*, 95th Anniversary of the Reserve Officer School, 5.6.2015.
- Panelist *Kosmoksen valoja (Lights of Cosmos)* event, University of Helsinki, 23.4.2015.
- Lecture *Matkalla maailmankaikkeudessa – 2000-luvun löytöretkeilyä (En route in the universe – Expeditions at the 21st century)*, Monthly meeting of the Kanta-Helsingin Kansalliset Seniorit association, 13.5.2014.
- In media News and articles about my research have appeared in e.g. the following media: *yle.fi*, *Aamulehti*, *Tekniikka ja talous* (in Finnish) and *Hufvudstadsbladet* (in Swedish), and in the *Tähdet ja avaruus (TA)* magazine. I have also been an 'Expert of the Week' of the web community <http://kuka.io> and an expert for the Academy of Finland's outreach forum <http://www.tietysti.fi> and the TA magazine.

International schools and courses

- 2018 *The Aspiring Leader – Leading and Motivating People*, Queen Mary University of London, spring 2018.
- 2017 *Public Engagement Masterclass*, Queen Mary University of London, autumn 2017.

- 2015 *Project Management and Leadership* (1.5 ECT), University of Helsinki, autumn 2015.
- 2015 *Introduction to Project Work* (5 ECT), University of Helsinki, spring 2015.
- 2015 *Nordic Winter School on Cosmology and Particle Physics* (2 ECT), Lillehammer, Norway, 2–7.1.2015.
- 2014 *The 2nd Azores School on Observational Cosmology* (2 ECT), Angra de Heroismo, Portugal, 1–7.6.2014.
- 2010 *Summer School on Particle Physics* (2 ECT), Tvärminne, Finland, 24–28.5.2010.

Memberships

Only the most important ones listed.

- 2016– The Royal Astronomical Society
- 2014– The Finnish Physical Society
- 2006– The Astronomical Association Ursa ry

Language skills

- Finnish Excellent oral and written skills
- English Excellent oral and written skills
- Swedish Good oral and satisfactory written skills
- German Basics

Other interests

- Literature, comic books, and movies
- Sports (in particular football, ice hockey, cycling, and badminton)

References

- Prof. Marc Kamionkowski (kamion@jhu.edu), Johns Hopkins U.
- Prof. Kari Enqvist (kari.enqvist@helsinki.fi), U. Helsinki, PhD supervisor
- Prof. Arttu Rajantie (a.rajantie@imperial.ac.uk), Imperial Coll. London
- Prof. Bernard Carr (b.j.carr@qmul.ac.uk), Queen Mary U. of London
- Prof. David Wands (d.wands@port.ac.uk), U. of Portsmouth