

Curriculum Vitae: Tuija I Pulkkinen

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Current position

2022-, George R. Carignan Collegiate Professor, Department of Climate and Space Sciences and Engineering

2018-, Professor and Chair, Department of Climate and Space Sciences and Engineering,
College of Engineering, University of Michigan, Ann Arbor, MI, US

Education

1995, Title of Docent (entitled to supervise PhD students), Space Physics, University of Helsinki

1992, Doctor of Philosophy, University of Helsinki, Theoretical Physics

1989, Licentiate of Philosophy, University of Helsinki, Theoretical Physics

1987, Master of Science, University of Helsinki, Theoretical Physics

(POBox 3, 00014 University of Helsinki, Finland; <https://www.helsinki.fi/en/university>)

Previous positions

2018-2021, Adjunct Professor, Department of Electronics and Nanoengineering, Aalto University, Espoo, Finland

2014-2018, Vice President for Research and Innovation, Aalto University, Espoo, Finland

2011-2014, Dean, Aalto University School of Electrical Engineering

2013-2018, Professor, Department of Radio Science and Engineering, Aalto University

2008-2010, Head, Earth Observation Programme, Finnish Meteorological Institute, Helsinki, Finland

2004-2007, Head, Space Research Programme, Finnish Meteorological Institute

2003-2004, Director, Geophysical Research Division, Finnish Meteorological Institute

2000-2003, Research professor, Finnish Meteorological Institute

1998-2000, Research manager, Finnish Meteorological Institute

1988-1997, Scientist, Finnish Meteorological Institute

Extended visits

2005-2006, Orson Anderson visiting professor, IGPP/Los Alamos National Laboratory, NM, USA, 12 months

1996-1997, Fulbright scholar, LASP/University of Colorado, Boulder, CO, USA, 16 months

1993, Visiting scientist, IGPP/UCLA, Los Angeles, CA, USA, 1 month

1990-1992, Visiting scientist, Goddard Space Flight Center, Greenbelt, MD, USA, 6 months

Awards and honors

2021, Sigma Xi, member

2019, Birkeland Lecturer, The Norwegian Academy of Science and Letters

2017, Julius Bartels Medal, European Geosciences Union

2014, US National Academy of Sciences, international member

2011, Academia Europaea, member

2011, Academy of Technology (Teknillisten Tieteiden Akatemia), member

2010, The Finnish Society of Sciences and Letters (Suomen Tiedeseura), member

2005, Royal Astronomical Society, associate member

2004, NASA Group Achievement Award

2001, Finnish Academy of Sciences and Letters (Suomalainen Tiedeakatemia), member

1999, City of Helsinki Science Award

1998, James B. Macelwane Medal and fellowship of the American Geophysical Union

1993, Editors' Citation for Excellence in Refereeing JGR-Space Physics, AGU

1991, Outstanding Student Paper Award, AGU Spring Meeting, Baltimore, MD, USA

Service for US expert and funding organizations

NAS (United States National Academy of Sciences):

2022-2024, Member, Steering Committee of the NASEM Decadal Survey on Solar and Space Physics

2022-2023, Member, Arctowski Medal Committee

2021- Co-Chair, Committee on Solar and Space Physics (CSSP) under the Space Studies Board

2021, Chair, Committee for Space Weather Operations and Research Infrastructure Workshop Part 2

2020, Member, Committee for Space Weather Operations and Research Infrastructure Workshop Part 1

2019, Member, Committee on Review of the SMD 2019 Science plan

2018-2021 Member, Committee on Solar and Space Physics (CSSP) under the Space Studies Board

2016-2017, Member, Arctowski Medal Committee

2015-2016, Member, Cozzarelli Prize Selection Committee

NASA (United States National Aeronautics and Space Administration):

2021, Member, NASA Living With a Start (LWS) Program Architecture Committee

2020, Chair, NASA Heliophysics Division 2020 Senior Review

Chair, NASA Heliophysics review panel, twice

Member, NASA SR&T panel, twice

University of Michigan

2023-2025, Member, CoE NEXUS (online and professional education) Faculty Advisory Board

2021, Chair, CoE Computer Science and Engineering Division Climate Assessment Committee

2020, Member, CoE Campus Support Committee for COVID-19 actions

2019-2020, Member, Earth Day at 50 and Sustainability Collaborations Committee

Service for other research funding organizations (evaluations and recommendations):

2012-2018, Chair, Space Research Programme Committee, Research Council of Norway

2001-2009, Member, Swedish Space Research Advisory Board

Member, Swedish Research Council panel (twice)

Chair, Academy of Finland Space Physics and Astrophysics panel

Mail-in reviews of research proposals for Academy of Finland, Swedish National Space Board, US National Science Foundation, NASA, Canadian Space Agency, Canadian Research Council, and European Union.

Other Expert tasks

2021, Member, Evaluation Committee of the UCLA Department of Earth, Planetary and Space Sciences

2019, Chair, Evaluation Panel of the 2019 Research Assessment Exercise of the University of Eastern Finland

2017, Member, Search committee for Director of Space Research Institute, Austrian Academy of Sciences

2015-2018, Member, Science Advisory Council of the Deutsches Geoforschungszentrum Potsdam, Germany

2012-2018, Chair, Space Research Programme Committee, Research Council of Norway

2010-2017, Member, Publication Forum for evaluation of Finnish science

2012, Chair, Panel 5, Research Assessment Exercise, Royal Institute of Technology, Stockholm, Sweden

2012- Expert, European Space Agency, Board of the Space Situational Awareness Programme

2008, Member, Search committee for new director for EISCAT

2008, Chair, Panel 5, Research Assessment Exercise, Royal Institute of Technology, Stockholm, Sweden

2005, Member, International Evaluation Panel of UK Physics and Astrophysics

2001-2009, Member, Space Research Advisory Committee, Swedish National Space Board

Reviewer of scientific articles: Science, PNAS, MNRAS, J. Geophys. Res., Space Physics, J. Geophys. Res., Atmospheres, Geophys. Res. Lett, Ann. Geophys., Planet. Space Science, J. Atmosph. Space Phys., Adv. Polar Upper Atmosph. Res., and other journals.

Service for Finnish expert and funding organizations

Academy of Finland (Suomen Akatemia), research funding organization:

2009-2012, Board member, vice chair, Research Programme on Climate Change
2007-2012, Member, Research Council for Natural Sciences and Engineering
2010-2012, Board chair, Sustainable Energy research program
2008-2009, Board member, Research Programme on Sustainable Production and Products
2008-2009, Board member, Research Programme on Computational Sciences
2007-2009, Board member, Sustainable Energy research program
2007, Board member, International evaluation of the Computer Sciences in Finland
2007, Board member, International evaluation of the Mechanical, Production and Automation Science in Finland

Finnish National Space Committee (Avaruusasiain neuvottelukunta), national advisory body:

2015-2018, Associate member
2012-2018, Member of the secretariat
2007-2010, Member

Federation of Finnish Learned Societies (Tieteellisten seurain valtuuskunta), scientific academy:

2008-2010, Board member

Finnish Academy of Sciences and Letters (Suomalainen tiedeakatemia), scientific academy:

2006-2008, Board member
2002-2008, Secretary of the Geosciences Group

The Finnish Society of Sciences and Letters (Suomen tiedeseura), scientific academy:

2015-2018, Election committee

Finnish Physical Society (Suomen Fyysikkoseura), scientific society:

2004-2006, Board member, Society journal Arkhimedes
2003-2005, Board member

Finnish Meteorological Institute:

2020- External jury member, FMI early career scientist of the year
2006-2009, Board member, Sodankylä Geophysical Observatory, University of Oulu
1999-2008, Executive board member, Finnish Graduate School for Astronomy and Space Physics

Aalto University:

2018- Fellow, to promote the Millennium Technology Prize of the Technology Academy Finland
2017, Member, evaluation committee for Wihuri Foundation for International Prizes
2016, Member, Olli V. Lounasmaa Memorial Prize committee
2015-2016, Advisory board member, StartupLife student internship programme
2013, Board member, Aalto University Committee on environmental research and education
2012-2015, Board member, Foundation for Advancing Technology (Tekniikan edistämisseätiö)
2012-2015, Board member, TKK support foundation (TKK:n tukiseätiö)
2013-2018, Board member, Finnish Centre for Astronomy with ESO
2010-2013, Aalto U representative, University of Helsinki Science Campus Infrastructure Committee
2011-2017, Member, Aalto University President's Management Team

Other Finnish national science policy positions:

2017-2018, Member, Board of VTT Technical Research Centre of Finland
2017-2018, Confederation of Finnish Industries, Business transformation committee (EK:n Liiketoiminnan uudistuminen -valiokunta)
2016-2019, Member, Tekes Delegation (Tekesin valtuuskunta), advisory body for innovation funding agency
2016-2018, Member, Board of Directors, Smart and Clean Foundation

Finland's national representative in international organizations

EISCAT (European Incoherent Scatter Radar) Association:

2013-2018, Member, National Representative in EISCAT Council

EUMETSAT (European Meteorological Satellite Organization)

2008-2010, Steering Group Chair, Satellite Application Facility on Ozone and Atmospheric Chemistry Monitoring (O3MSAF)

NOT (Nordic Optical Telescope):

2011-2012, Comete Cientifico Internacional (CCI), delegate of the Academy of Finland

WMO (World Meteorological Organization):

2010-2018, National point of contact, Space weather activities

Service for European expert and funding organizations

European Space Agency:

2010-2012, Expert, Space Situational Awareness Programme

2002, Member, ESA Solar System Working Group, evaluation of Flexi mission proposals

2000-2002, Member, European Space Agency, Solar System Working Group

European Union:

2009-2013, Member, ERC Advanced Grant Proposal Evaluation group, 2009-2013

2008, Member, Evaluation board for COST action 724, 2008

2007-2013, Member, Finnish advisory group for Ideas Programme, FP7

2003, Member, Evaluation panel of the European Space Science Committee (ESSC)

International scientific organizations, memberships and offices held

AE (Academia Europaea):

2015-2022, Member, Section Committee of the Earth and Cosmic Sciences

AGU (American Geophysical Union):

2015, Member, Centennial Task Force

2009, Member, AGU Strategic Planning Forum

2006-2008, Chair, Fellows Committee

2004-2006, Member, Fellows Committee

2000-2002, Member, James B Macelwane Medal Committee

1998-2000, Member, Meetings Committee

COSPAR (Committee on Space Research):

2012-2018, Chair, Finnish National Committee

2012-2018, Member, COSPAR Council

2007-2011, Member, Finnish National COSPAR Committee

1998-2000, Chair, Subcommission D3

1993-1996, Vice-chair, Subcommission D3

EGU (European Geosciences Union):

2016-2022, Member, Chair, Jean Dominique Cassini Medal Committee

2010-2011, Vice-President (past president), European Geosciences Union

2008-2010, President, European Geosciences Union

2007-2008, Vice-President (president-elect), European Geosciences Union

2005-2007, Member, EGU President's Advisory Group

2003-2007, President, Solar-Terrestrial Sciences Division

1999-2003, Secretary, Magnetosphere Subsection

IAGA (International Association for Geomagnetism and Aeronomy):

1995-1999, Reporter on “Dynamics of the geomagnetic tail”, Division III, IAGA

1995-1999, Chair, Working group IIF/III4, IAGA

IUGG (International Union of Geodesy and Geophysics):

2006-2011, Member, Finnish National Committee

SCAR (Scientific Committee on Antarctic Research):

2000-2004, Member, Solar-Terrestrial and Astrophysical Research working group

SCOSTEP:

1994-, Scientific Discipline Representative

URSI (Union Radio-Scientifique Internationale):

2014-2018, Member, Finnish Commission H

2006-2018, Member, Finnish National Committee, Representative of the Finnish Academy of Sciences

Editorial and reviewer tasks

Editor in Journals:

2022 Frontiers in Astronomy and Space Sciences, associate editor

2011-2017, Surveys of Geophysics, member of the editorial board

2011-2014, Space Science Reviews, member of the editorial board

2003-2005, Annales Geophysicae (Magnetospheric physics), topical editor

Editor in Volumes:

2009, *Maan ytimeista avaruuteen*, eds Ilmari Haapala and Tuija Pulkkinen, Bidrag till kannedom av Finlands Natur och Folk, Publications of the Finnish Society of Sciences and Letters, Sastamala

2005, *Inner Magnetosphere: Physics and Modeling*, eds T. I. Pulkkinen, N. A. Tsyganenko, and R. W. H. Friedel, AGU Monograph 155, AGU, Washington DC, 2005

2004, *Substorms-7*, eds N. Y. Ganushkina and T. I. Pulkkinen, FMI Publications

2001, *Validation of Magnetospheric models*, Adv. Space Res. Vol 28, No 12, eds T. Pulkkinen and R. Wolf

Organization of scientific meetings

Main organizational responsibility:

2009, Programme committee chair, EGU General Assembly, Vienna, Austria

2008, Programme committee chair, ”Maan ytimeista avaruuteen”, Symposium by the Finnish Academy of Sciences and Letters, Helsinki, Finland

2008, Programme committee chair, EGU General Assembly, Solar Terrestrial Sciences programme, Vienna, Austria

2007, Programme committee chair, EGU General Assembly, Solar Terrestrial Sciences programme, Vienna, Austria

2005, Programme committee chair, EGU General Assembly, Solar Terrestrial Sciences programme, Vienna, Austria

2004, Programme committee chair, EGU General Assembly, Solar-Terrestrial Sciences programme, Nice, France

2004, Programme committee chair, International Conference on Substorms VII, Finland

2003, Programme committee chair, AGU Chapman conference on Physics and Modeling of the Inner Magnetosphere, Helsinki, Finland

Convener of international scientific meetings:

Inner Magnetosphere Conference III, Los Angeles, USA, 2015

Inner Magnetosphere Conference II, Los Angeles, USA, 2013

Geomagnetic storms: toward a coupled systems-level understanding, IAGA III021, Perugia, Italy, 2007.

D3.2, Global magnetospheric dynamics and energetic particles, COSPAR, China, 2006.

GAI07, Geomagnetic disturbances, storms and radiation belts, IAGA, France, 2005.

Invited reviews on solar system and magnetospheric plasmas, EGU, Austria, 2005.

Open session on the magnetosphere, EGU, France, 2004.

Open session on the magnetosphere, EGS, France, 2003.
 Open session on the magnetosphere, EGS, France, 2002.
 Open session on the magnetosphere, EGS, France, 2001.
 Open session on the magnetosphere, EGS, France, 2000.
 Validation of Magnetospheric Models, COSPAR, Poland, 2000.
 Energetic electrons and ions in the inner magnetosphere during geomagnetic storms, EGS, France, 2000.
 Comparison of observations and simulations of global magnetospheric structure, S-RAMP, Japan, 2000.
 S311, Space weather: Models, near real-time monitoring and predictions, IUGG, Sweden, 1997.
 S314, Magnetospheric models and their critical evaluation, IUGG, USA, 1995.

Program committee member:

Chapman conference on Scientific challenges pertaining to space weather forecasting including extremes, Pasadena, CA, USA, 11-15 Feb, 2019.
 Physics Days: Annual Meeting of the Finnish Physical Society, Helsinki, March, 2015
 Physics Days: Annual Meeting of the Finnish Physical Society, Joensuu, March, 2012.
 Scientific Organizing Committee of D3.2 session "Magnetic Substorms and Tail Dynamics", COSPAR 39th Assembly, 14-22 July, 2012.
 Earth observation and water cycle science, Frascati, Italy, 2009.
 Inner magnetosphere workshop, Korpilampi, Espoo, Finland, 2008.
 Eighth International Space Plasma Simulation School, Hawaii, 2007.
 Eighth International Conference on Substorms, Canada, 2006.
 Seventh International Conference on Substorms, Finland, 2004.
 Fifth International Conference on Substorms, Russia, 2000.
 Fourth International Conference on Substorms, Japan, 1998.
 Symposium "Particle acceleration in space plasmas", COSPAR Scientific Assembly, France, 1996.

Acquired research funding

2021, NASA, Ionosphere-Thermosphere-Magnetosphere coupling during storm and substorm recovery phases (ITM-Recovery), \$749,231
 2021, NASA, High resolution SWMF Geospace simulations during geomagnetic storms, \$241,103
 2020, NSF, Magnetosheath Transport: From Local Kinetics to Global Dynamics (MAST), \$426,406
 2020, NASA, Drive Center proposal SOLSTICE, \$1 202 162 (PI Tamas Gombosi)
 2018, Academy of Finland, Competence Center for the Materials Bioeconomy, 4 666 400 Euro
 2018, Academy of Finland, Aalto University Research Profile funding for Quantum technology, Smart mobility, Future of work, and Experience design, 11 700 000 Euro
 2017, Academy of Finland, Aalto University Research Profile funding for Digital technology ecosystems, Sustainable production and consumption, and Marine and Arctic technology, 10 800 000 Euro
 2016, Academy of Finland, Aalto University Research Profile funding for Advanced energy solutions, Human-centered living environments, and Health and wellbeing, 13 600 000 Euro
 2016, Academy of Finland, Shocks and Magnetosheaths in the Heliosphere, 400 000 Euro
 2016, Tekes, Aalto Innovation Scout, 431 512 Euro
 2016, Tekes, KINO-Aalto, 681 337 Euro
 2015, Academy of Finland, Profiling of Finnish Universities, 12 012 000 Euro
 2013, Academy of Finland, Missing links in space weather driving, 521 068 Euro
 2005, Academy of Finland, Solar wind - magnetosphere transport, 149 800 Euro
 2002, Academy of Finland, Space plasma simulations and their applications, 180 000 Euro
 2001, Academy of Finland, Cluster II and MIRACLE, 1 714 500 FIM
 2001, EU high-level conferences, Interball and beyond, 37 660 Euro
 2001, Academy of Finland, Chapman Conference on Inner Magnetosphere, 32 000 FIM
 2001, Finnish Academy of Sciences, Chapman Conference on Inner Magnetosphere, 4000 Euro
 2000, Academy of Finland, Theory of MHD simulation, 1 497 200 FIM
 2000, Academy of Finland, Solar maximum in Sun-Earth connections, 750 000 FIM

1999, Academy of Finland, Upgrading the FMI all-sky camera network, 270 000 FIM
1998, Academy of Finland, Building of a radar to examine plasma flows over Antarctic, 250 000 FIM
1997, Suomalainen Tiedekatemia, Visit to University of Colorado, 20 000 FIM
1997, Academy of Finland, Visit to University of Colorado, 192 000 FIM
1996, Suomen Kulttuurirahasto, Visit to University of Colorado, 30 000 FIM
1996, Finnish Fulbright Association, Visit to University of Colorado, 18 000 USD
1996, Academy of Finland, Visit to University of Colorado, 92 000 FIM
1991, Sohlberg delegation, Thesis work, 9 000 FIM
1991, Vilho, Yrjö ja Kalle Väisälän rahasto, Thesis work, 18 000 FIM

Diversity, Equity and Inclusion

2022/02/10, U-M ADVANCE/ Office of Provost Workshop, Invisible Service and Service Equity (1.5 hours)
2022/02/09 U-M ADVANCE/ Office of Provost Campus Leadership Program Roundtable, Kickstarting Culture Change (1.5 hours)
2021/10/25, U-M STRIDE workshop on handling bias in faculty recruitment (1.5 hours)
2021/11/17 Rackham Minority Serving Institutions Initiative Coffee Chat, Fostering Belonging Through Equity-Minded, Anti-Racist Course Design, Prof. Royel M. Johnson (1 hour) 2021/11/18 Pride in STEM discussion on "Coming out in STEM" by Bryce Hughes (1 hour)
2021, Chair, CoE Computer Science and Engineering Division Climate Assessment Committee

University of Michigan teaching

Fall 2022 Space 574 Space physics (graduate level)
Fall 2021 Space 370 Solar Terrestrial Relations (undergraduate level)
Fall 2020 Space 370 Solar Terrestrial Relations
Fall 2019 Climate 501 Space science seminar (graduate level)

University of Michigan supervisory/mentor roles

2022-, Sanjay Kumar, Post-doctoral fellow
2022-, Matti Ala-Lahti, Post-doctoral fellow
2019-, Qusai Al Shidi, Post-doctoral fellow

University of Michigan PhD advisor roles

2022-, Connor DiMarco
2020-, Austin Brenner (Department of Aerospace Engineering)
2019-, Shannon Hill (Rackham Merit Fellowship)

University of Michigan PhD Thesis Committee member

2020, Brian Zwiger
2020, Zihan Wang
2022, Xiantong Wang

University of Michigan Qualifying Exam Committee member

2019, Samar Minallah
2019, Janelle Holmes
2019, Brian Swiger
2019, Mojtaba Akhavan-Tafti

MSc thesis advisor roles in Finland

2014, Reza Naderpour, MSc, Aalto University
2008, Gisela Baumann, MSc, University of Zurich
1998, Katariina Korhikoski, MSc, University of Helsinki
1996, Mikko Syrjäsuu, MSc, Helsinki University of Technology

PhD thesis advisor roles in Finland

2007, Tiera Laitinen, PhD, University of Helsinki
2003, Minna Palmroth, PhD, University of Helsinki
2001, Mikko Syrjäsoo, PhD (Engineering), Helsinki University of Technology
2001, Teemu Mäkinen, PhD, University of Helsinki
1998, Petri Toivanen, PhD, University of Helsinki
1997, Kirsti Kauristie, PhD, University of Helsinki

Thesis examiner roles

2017, Lauri Holappa, PhD, University of Oulu
2017, Sanni Hoilijoki, PhD, University of Helsinki
2009, Johnny Lonnroth, Helsinki University of Technology
2002, Alexander Kozlovsky, PhD, University of Oulu
2000, Emilia Huttunen, MSc, University of Helsinki
1999, Arja Pajunpää, Ph Lic, University of Helsinki
2002, Alexander Kozlovsky, PhD thesis opponent, University of Oulu, Finland
2003, Eva Borälv, PhD thesis opponent, Uppsala University, Sweden
2003, Anita Kullen, PhD thesis committee member, Royal Institute of Technology, Alfvén Laboratory, Sweden

Support for young scientists

2007-2012, Jury member, Viksu - Academy of Finland national science contest for young scientists
2002, 2004, Jury member, TuKoKe - Finnish national science contest for young scientists
1999-2001, Jury member, European Union Contest for Young Scientists

Publications

Author of 250 publications listed in ISI Web of Knowledge database
Editor for four conference proceedings volumes
Author of two encyclopedia articles
Author of over 90 papers in conference proceedings
Author of about 600 conference presentations including over 100 invited presentations.
H-index 47, ~7,800 citations (ISI Web of Knowledge), H-index 55, ~10,800 citations (Google scholar)