

Curriculum Vitae

Name Rami Olavi VAINIO
Year of birth 1969
Nationality Finnish

Contact information

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Finland

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Education and training

6/2002 Adjunct professor of astrophysics, University of Turku, Finland

6/1998 Doctor of Philosophy (physics), University of Turku, Finland

9/1993 Master of Science (theoretical physics), University of Turku, Finland

2/1993 Bachelor of Science (physical sciences), University of Turku, Finland

5/1988 Graduated from high school, Luostarivuoren lukio, Turku, Finland

Presently held position

8/2004– University lecturer of theoretical physics (space physics), Department of Physics, University of Helsinki, Finland. (On leave of absence 9/2008-7/2009)

Previous professional appointments

9/2008–7/2009 Academy Research Fellow, Research Council for Natural Sciences and Engineering, Academy of Finland.

8/2001–7/2004 Doctoral assistant of theoretical physics, Department of Physical Sciences, Theoretical physics division, University of Helsinki, Finland. (On leave of absence 8/2001–7/2002)

1–4/2003 Part-time lecturer, Department of Physics, University of Turku, Finland

6–8/2001 Research scientist (wissenschaftlicher Mitarbeiter), Institut für Theoretische Physik IV, Ruhr-Universität Bochum, Germany

12/1999–9/2000 Senior Research Physicist (part time), Aboa Space Research Oy, Turku, Finland

8/1999–7/2002 Postdoctoral researcher, Research Council for Natural Sciences and Engineering, Academy of Finland. (On leave of absence 6–8/2001)

- 3/1997–2/2002 Assistant of physics, Department of Physics, Space Research Laboratory, University of Turku, Finland. (On leave of absence 3–7/1997 and 8/1999–2/2002)
- 6/1995–7/1997 Research scientist, Department of Physics, Space Research Laboratory, University of Turku, Finland
- 9/1993–5/1995 Research assistant, Department of Physics, Space Research Laboratory, University of Turku, Finland
- 6–8/1992 Research trainee, Department of Physics, Space Research Laboratory, University of Turku, Finland

Research experience

- 2007– Studies of flare- and CME-related coronal MHD waves.
- 2006– Studies of interplanetary transport and solar injection of near-relativistic electrons.
- 2000–2003 Studies of coronal heating and solar wind acceleration.
- 1999– Space-radiation studies and top-level instrument design.
- 1999– Studies of plasma-wave generation by energetic particles.
- 1997–2006 Studies of turbulence transmission in shock waves.
- 1997– Studies of energetic particle transport and acceleration in collisionless shock waves.
- 1996– Development of numerical tools for studies of coronal and interplanetary transport and acceleration of energetic particles.
- 1995–1998 Design and implementation of software for the data analysis of the ERNE instrument.
- 1993–1998 Analysis of galactic, anomalous, and solar cosmic-ray observations.

Teaching experience

- Lectures of*
- Klassinen mekaniikka*, University of Helsinki, 2010
 - Hydrodynamics*, University of Helsinki, 2010
 - Introduction to Plasma Physics*, University of Barcelona, 2008
 - Continuum Mechanics*, University of Helsinki, 2008, 2009
 - Shock Waves and Energetic Particles in Space Plasmas*, Univ. Helsinki, 2007
 - Solar Physics*, University of Helsinki, 2006, 2009, 2011
 - Solar Astronomy from Space and Space Weather*, University of Barcelona, 2006
 - Advanced Space Physics*, University of Helsinki, 2005
 - Mekaniikka*, University of Helsinki, 2004–2007
 - Astrophysical Shock Waves*, University of Turku, 2003
 - Space Applications of Plasma Physics*, University of Helsinki, 2002–2003, 2009
 - Introduction to Plasma Physics*, University of Helsinki, 2002–2003, 2006
 - Plasmafysiikka*, University of Turku, 2001
- Excercises of*
- Plasmafysiikka*, University of Turku, 2001
- Laboratory assistant for*
- Laboratory Physics II and III*, University of Turku, 1997–1999
- Tutoring of*
- several undergraduate and graduate students of space physics and astronomy, University of Turku, University of Helsinki, and University of Barcelona, 1997–

Supervised academic theses

- PhD-level* Arto Sandroos: 2010, theoretical physics, University of Helsinki
Neus Agueda: 2008, space physics, University of Barcelona
Joni Tammi (né Virtanen): 2006, astronomy, University of Turku
Timo Laitinen: 2003, physics, University of Turku
- MSc-level* Timothy Kodikara: 2011, space sciences, University of Helsinki
Minttu Uunila: 2007, astronomy, University of Helsinki
Jukka-Pekka Saarikko: 2006, physics, University of Helsinki
Jens Pomoell: 2006, theoretical physics, University of Helsinki
Panu Viitanen: 2006, physics, University of Helsinki
Arto Sandroos: 2005, theoretical physics, University of Helsinki
Ari Harjunmaa: 2004, theoretical physics, University of Helsinki
Joni Virtanen: 2002, astronomy, University of Turku
Timo Laitinen: 1997, physics, University of Turku
- BSc-level* Pasi Ritaluoto: 2011, theoretical physics, University of Helsinki
Joel Röntynen: 2010, theoretical physics, University of Helsinki
Aki Kutvonen: 2010, theoretical physics, University of Helsinki
Marjo Pantsar: 2008, theoretical physics, University of Helsinki
Jani Helenius: 1999, physics, University of Turku
Jussi Raittila: 1998, physics, University of Turku

Other academic and professional merits and activities

- Coordinator* *Data Services and Analysis Tools for Solar Energetic Particle Events and Related Electromagnetic Emissions – SEPServer* (European Union, Seventh Framework Programme, Collaborative Project, Grant Agreement 262773), 2010/12–2013/11.
- Principal Investigator*
PiC Simulations of Plasma Emission in Astrophysical and Heliospheric Plasmas, (CSC Grand Challenge project), 2011.
Solar Eruptions, energetic particles and the induced radiation (Academy of Finland, project 124837), 2008–2009.
Energetic particles and high-frequency plasma waves in the solar corona (Academy of Finland, project 121650), 2008–2011.
Collective Processes in Astrophysical Plasmas: Waves, Heating and Accelerated Particles (Academy of Finland, project 54625), 2002–2004.
Nonlinear Effects in Cosmic-Ray Transport and Acceleration (Academy of Finland, project 46331), 1999–2002.
- Co-PI* *High and Low Energy Particles: Solar wind expansion and its effects on planetary atmospheres* (Academy of Finland, project 133723), 2010–2013.
- Co-Investigator* *Solar Intensity X-ray and particle Spectrometer for BepiColombo*, ESA, 2004–
Energetic Particle Detetector for Solar Orbiter, ESA, 2008–
Magnetometer for Solar Orbiter, ESA, 2008–
- Instrument scientist*
Solar Intensity X-ray and particle Spectrometer for BepiColombo, ESA, 2004–
- Instrument manager*
Radiation Monitor for Aalto-1 satellite – RADMON, 2011–
- National representative in*
Management Committee of COST Action 724: *Developing the scientific basis for monitoring, modelling and predicting space weather*, 2003–2007

- Leader of** Working Group 2 of COST-724: *Radiation Environment of the Earth*, 2003–2007
- National coordinator of**
International Heliophysical Year 2007, 2006–2009
- Editorial board member of**
Advanced Science Letters, 2008–
- Editor for** *Astrophysics and Space Sciences Transactions (ASTRA)*, 2004–
- Guest editor for** *Acta Geophysica*, 2008
- Co-editor of** J. Pomoell & R. Vainio (eds.): *Abstracts of the 22nd European Cosmic Ray Symposium*, University of Helsinki, Espoo, 2010.
J. Liliensten, A. Belehaki, M. Messerotti, R. Vainio, J. Waterman, S. Poedts (eds.): *Developing the scientific basis for monitoring, modelling and predicting Space Weather*, COST Office, Luxembourg, 2008.
R. Vainio, J. Pomoell, & M. Louhivuori (eds.): *Proceedings of the XLI Annual Conference of the Finnish Physical Society*, University of Helsinki, Tallinn, 2007.
- Referee for** *The Astronomical Journal*, *Astronomy & Astrophysics*, *The Astrophysical Journal*, *Advances in Space Research*, *Annales Geophysicae*, *Geophysical Research Letters*, *Journal of Atmospheric and Solar–Terrestrial Physics*, *Journal of Geophysical Research*, *Solar Physics*, *AGU Geophysical Monograph -series*, *AIP Conference Proceedings -series*
- Reviewer for** *National Science Foundation*, USA, 2004, 2006, 2008, 2009, 2010, 2011
Natural Sciences and Engineering Research Council of Canada, 2011
- Member of** *PhD Thesis Committee* of M. Angels Aran i Sensat, University of Barcelona, 2007
- Co-Convener of** Sessions on *Solar and Heliospheric Cosmic Rays* and *High Energy and Ultra High Energy Cosmic Ray Theory*, 22nd European Cosmic Ray Symposium, Turku, 2010
Session on *Energy transport and conversion in space plasmas*, EGU General Assembly, Vienna, 2009
Session on *Scientific Challenges and Recent Advances*, 4th European Space Weather Week, Brussels, 2007
- Convener of** Several meetings of the *Working Group 2 of COST Action 724*, 2004–2007
- Rapporteur for** Sessions *SH1: Sun and Solar Emissions*, *SH2.1: Interplanetary transport of solar energetic particles*, and *SH4: Cosmic Rays at Earth and in Planetary Environments* of the *32nd International Cosmic Ray Conference*, Beijing, 2011
- Member of** Scientific Organizing Committee, *22nd European Cosmic Ray Symposium*, Turku, 2010
Local Organizing Committee, *XLI Annual Meeting of the Finnish Physical Society*, Tallinn, 2007
Scientific Organizing Committee, *Cosmic ray dynamics: from turbulent to Galactic-scale magnetic fields*, NORDITA, Copenhagen, 2004
Local Organizing Committee, *Chapman Conference on Solar Energetic Plasmas and Particles*, University of Turku, 2004
Local Organizing Committee, *High Energy Blazar Astronomy* conference, Tuorla Observatory, 2002
- Member of** *Working Group for Student Admission*, Department of Physics, University of Helsinki, 2010–
Steering Group of the Master’s Program of Space Sciences, secretary, Faculty of

Science, University of Helsinki, 2007–

Working Group for the Researcher Study Line, Department of Physics, University of Helsinki, 2007–

Working Group for the Development of Teaching, Department of Physics, University of Helsinki, 2007–2009

Admission Committee, Faculty of Science, University of Helsinki, 2004– (vice chair, 2008–)

Committee for the Degree Program of Physical Sciences, University of Turku, 1999–2001

Member of American Geophysical Union, 2003–

Finnish Physical Society, 2003–

COSPAR Associate, 2004–