

Appendix to Space Research in Finland, Report to COSPAR 2006

List of international peer-reviewed articles and Ph.D. theses in 2004 and 2005

Edited by Hannu Koskinen

Ionospheric and Magnetospheric Research	p. 1
Solar System Research (including cosmic rays)	p. 7
Astronomy and Cosmology	p. 12
Applications, Earth Observations, Geodesy, and Space Technology	p. 21

- Aikio, A.T. et al. (incl. Mursula, K., Amm, O.), 2004: Temporal evolution of two auroral arcs as measured by the Cluster satellite and coordinated ground-based instruments. *Ann. Geophys.*, 22, 4089-4101.
- Aksnes, A. et al. (incl. Amm, O., Sillanpää, I.), 2005: Ionospheric conductances derived from satellite measurements of auroral UV and X-ray emissions, and ground-based data: A comparison. *Ann. Geophys.*, 23, 343-358.
- Amm, O. et al. (incl. Viljanen, A.), 2005: Mesoscale ionospheric electrodynamics of omega bands determined from ground-based electromagnetic and satellite optical observations. *Ann. Geophys.*, 23, 325-342.
- Amm, O. et al. (incl. Aikio, A., Kauristie, K.), 2005: Coordinated studies of the Geospace environment using Cluster satellite and ground-based data: An interim review. *Ann. Geophys.*, 23, 2129-2170.
- Apatenkov, S.V., Sergeev, V.A., Pirjola, R., Viljanen, A., 2004: Evaluation of the geometry of ionospheric current systems related to rapid geomagnetic variations. *Ann. Geophys.*, 22, 63-72.
- Aruliah, A.L. et al. (incl. Jussila, J.), 2005: First direct evidence of meso-scale variability on ion-neutral dynamics using co-located tristatic FPIs and EISCAT radar in Northern Scandinavia. *Ann. Geophys.*, 23, 147-162.
- Asikainen, T., Mursula, K., 2005: Filling the South Atlantic anomaly by energetic electrons during a great magnetic storm. *Geophys. Res. Lett.*, 32, L16102.
- Asikainen, T., Mursula, K., 2005: Energetic particle fluxes in the exterior cusp and the high-latitude dayside magnetosphere: statistical results from the Cluster/RAPID instrument. *Ann. Geophys.*, 23, 2217-2230.
- Asikainen, T., Mursula, K., Kerttula, R. et al., 2005: Global view of energetic particles during a major magnetic storm. In: *The Inner Magnetosphere: Physics and Modelling*, edited by T.I. Pulkkinen, N.A. Tsyganenko, R.H.W. Friedel, AGU Monograph 155, AGU, Washington, DC, 97-104.
- Blagoveshchenskaya, N.F. et al. (incl. Bösinger, T.), 2005: Phenomena in the ionosphere-magnetosphere system induced by injection of powerful HF radio waves into nightside auroral ionosphere. *Ann. Geophys.*, 23, 87-100.
- Bösinger, T. et al., 2004: Fine structure in ionospheric Alfvén resonator spectra observed at low latitude ($L = 1.3$). *Geophys. Res. Lett.*, 31, L18802.
- Bösinger, T., Shalimov, S.L., 2004: Dispersive changes in magnetic background noise polarization at 0.1 to 6 Hz during sunset and sunrise at $L=1.3$. *Ann. Geophys.*, 22, 1989-2000.
- Bösinger, T. et al., 2004: Auroral E-region electron density height profile modification by electric field driven vertical plasma transport: some evidence in EISCAT CP-1 data statistic. *Ann. Geophys.*, 22, 901-910.

- Borålv, E. et al. (incl. Kauristie, K.), 2005: Correlation between ground-based observations of substorm signatures and magnetotail dynamics. *Ann. Geophys.*, 23, 997-1011.
- Clilverd, M.A. et al. (incl. Ulich, Th.), 2005: Reconstructing the long-term aa index. *J. Geophys. Res.*, 110, A07205, doi:10.1029/2004JA010762.
- Clilverd, M. A. et al. (incl. Ulich, T., Seppälä, A., Turunen, E.), 2005: Modeling a large solar proton event in the southern polar atmosphere. *J. Geophys. Res.*, 110, A09307, doi:10.1029/2004JA010922.
- Damtie, B., Lehtinen, M., and Nygren, T., 2004: Decoding of Baker-coded incoherent scatter measurements by means of mathematical inversion. *Ann. Geophys.*, 22, 3-13.
- Ebihara, Y. et al. (incl. Ganushkina, N.Yu.), 2004: Structure and dynamics of the proton energy density in the inner magnetosphere. *Adv. Space Res.*, 33, 711-718.
- Enell, C.-F., Kero, A., Turunen, E., Ulich, Th., Verronen, P., Seppälä, A. et al., 2005: Effects of D-region RF heating studied with the Sodankylä Ion Chemistry model, *Ann. Geophys.*, 23, 1575-1583.
- Ganushkina, N.Yu., Pulkkinen, T.I. et al., 2004: Event-oriented modelling of magnetic fields and currents during storms. *Adv. in Polar Upper Atmosphere Research*, 18, 105-110.
- Ganushkina, N.Yu., Korhonen, J., Pulkkinen, T.I. et al., 2004: Evolution of the ring current energy during May 2-4, 1998 magnetic storm. *Adv. in Polar Upper Atmosphere Research*, 18, 111-119.
- Ganushkina, N.Yu., Pulkkinen, T.I. et al., 2004: Long-term evolution of magnetospheric current systems during storms. *Ann. Geophys.*, 22, 1317-1334.
- Ganushkina, N.Yu., 2005: Drivers of the inner magnetosphere. In: *The Inner magnetosphere: physics and modeling*, edited by T.I. Pulkkinen, N.A. Tsytganenko, R.H.W. Friedel, AGU Monograph 155, AGU, Washington, DC, 135-145.
- Ganushkina, N.Yu., Pulkkinen, T.I., Fritz, T., 2005: Role of substorm-associated impulsive electric fields in the ring current development during storms. *Ann. Geophys.*, 23, 579-591.
- Ganushkina, N.Yu., Pulkkinen, T.I., et al., 2005: Proton isotropy boundaries as measured on mid- and low-altitude satellites. *Ann. Geophys.*, 23, 1839-1847.
- Guglielmi, A., Kangas, J., Kultima, J., Potapov, A., 2005: Solar wind dependence of the Pc1 wave activity. *Adv. Space Res.*, 36, 2413-2416.
- Gustavsson, B. et al., (incl. Kaila, K., Jussila, J., Holma, H.), 2005: The electron energy distribution during HF pumping, a picture painted with all colors. *Ann. Geophys.*, 23, 1747-1754.
- Hebden, S. R. et al. (incl Raita, T., Bösinger, T.), 2005: A quantitative analysis of the diurnal evolution of Ionospheric Alfvén resonator magnetic resonance features and calculation of changing IAR parameters. *Ann. Geophys.*, 23, 1711-1721.
- Holter, Ø. et al. (incl. Bösinger, T.), 2004: Two satellite study of substorm expansion near geosynchronous orbit. *Ann. Geophys.*, 22, 4299-4310.
- Huttunen, E., 2005: Interplanetary shocks, magnetic clouds and magnetospheric storms. *Finnish Meteorological Institute Contributions*, 48, 142 p. (Ph.D. thesis)
- Huttunen, K.E.J., Koskinen, H.E.J., 2004: Importance of post-shock streams and sheath regions as drivers of intense magnetospheric storms and high-latitude activity. *Ann. Geophys.*, 22, 1729-1738.

- Huttunen, K.E.J. et al. (incl. Koskinen, H.E.J.), 2005: Properties and geoeffectiveness of magnetic clouds in the rising, maximum and early declining phases of solar cycle 23. *Ann. Geophys.*, 23, 625-641.
- Huttunen, K.E.J. et al. (incl. Koskinen, H.E.J., Tanskanen, E.), 2005: Cluster observations of the rapid magnetic field increases in the magnetotail caused by interplanetary shocks and pressure increases. *Ann. Geophys.*, 23, 609-624.
- Janhunen, P., Olsson, A., Laakso, H., 2004: The occurrence frequency of auroral potential structures and electric fields as a function of altitude using Polar/EFI data. *Ann. Geophys.*, 22, 1233-1250.
- Janhunen, P. et al., 2004: Different Alfvén wave acceleration processes of electrons in substorms at $4-5 R_E$ and $2-3 R_E$ radial distance. *Ann. Geophys.*, 22, 2213-2227.
- Janhunen, P. et al., 2004: Middle-energy electron anisotropies in the auroral region rotations. *Ann. Geophys.*, 22, 237-249.
- Janhunen, P. et al., 2005: Latitude-energy structure of multiple ion beamlets in Polar/TIMAS data in plasma sheet boundary layer and boundary plasma sheet below $6 R_E$ radial distance: basic properties and statistical analysis. *Ann. Geophys.*, 23, 867-876.
- Janhunen, P. et al., 2005: Statistics of parallel Poynting vector in the auroral zone as a function of altitude using Polar EFI and MFE data and Astrid-2 EMMA data. *Ann. Geophys.*, 23, 1797-1806.
- Jussila, J.R.T., Aikio, A.T. et al., 2004: Cosmic radio noise absorption events associated with equatorward drifting arcs during a substorm growth phase, *Ann. Geophys.*, 22, 1675-1686.
- Kalegaev, V.V., Ganushkina, N.Yu., 2005: Global magnetospheric dynamics during magnetic storms of different intensities. In: *The Inner magnetosphere: physics and modeling*, edited by T.I. Pulkkinen, N.A. Tsyganenko, R.H.W. Friedel, AGU Monograph 155, AGU, Washington, DC, 293-300.
- Kalegaev, V.V., Ganushkina, N.Yu., Pulkkinen, T.I. et al., 2005: Relation between the ring current and the tail current during magnetic storms. *Ann. Geophys.*, 23, 523-533.
- Kangas, J., Kultima, J. et al., 2005: Magnetospheric and ionospheric manifestations of interplanetary foreshocks, *Adv. Space Res.*, 36, 2388-2391.
- Karinne, A., Mursula, K., 2005: A new reconstruction of the Dst index for 1932-2002, *Ann. Geophys.*, 23, No. 2, 475-485.
- Kerttula, R., Mursula, K., Asikainen, T. et al., 2005: Energetic particle acceleration during a major magnetic storm. *Adv. Space Res.*, 36, 1835-1839.
- Kleimenova, N. G., Kozyreva, O. V., Manninen, J., Ranta A., 2005: Unusual strong quasi-monochromatic ground Pc5 geomagnetic pulsations in the recovery phase of November 2003 superstorm. *Ann. Geophys.*, 23, 2621-2634.
- Koskinen, H.E.J., 2005: Energetic particle losses from the inner magnetosphere. In: *The Inner Magnetosphere. Physics and Modeling*, ed. by T.I. Pulkkinen, N.A. Tsyganenko, R.H.W. Friedel, AGU Monograph 155, AGU, Washington, D.C., 25-31.
- Kozlovsky, A. et al. (incl. Aikio, A.T., Turunen, T., Kauristie K.), 2005: On the field-aligned currents in the vicinity of pre-noon auroral arcs. *Geophys. Res. Lett.*, 32, L18104, doi:10.1029/2005GL023120.
- Kozlovsky, A. et al. (incl. Turunen, T., Jussila, J.), 2005: On the motion of dayside auroras caused by a solar wind pressure pulse. *Ann. Geophys.*, 23, 509-521.
- Kudela, K. and Usoskin, I.G., 2004: On magnetospheric transmissivity of cosmic rays, *Czech. J. Phys.*, 54, 239-254.

- Kullen, A., Janhunen, P., 2004: Relation of polar cap arcs to magnetotail twisting and IMF rotations: a systematic MHD simulation study. *Ann. Geophys.*, 22, 951-970.
- Laitinen, T.V., Pulkkinen, T.I., Palmroth M., Janhunen P., Koskinen H.E.J., 2005: The magnetotail reconnection region in a global MHD simulation. *Ann. Geophys.*, 23, 3753-3764.
- Lappalainen, H., Kauristie, K., Pirjola, R., 2005: Space weather and risk management. *Adv. Geosci.*, 3, 23-27.
- Lehtinen, M., Damtie, B., Nygrén, T., 2004: Optimal binary phase codes and sidelobe-free decoding filters with application to incoherent scatter radar. *Ann. Geophys.*, 22, 1623-1632.
- Makarevitch, R.A. et al. (including Uspensky, M.V.), 2004: Meridional motion of afternoon radar aurora, auroral electrojets, and absorption patches under variable IMF conditions. *Ann. Geophys.*, 22, 1649-1664.
- Manninen, J., 2005: Some aspects of ELF-VLF emissions in geophysical research, Sodankylä Geophysical Observatory Publications No. 98, pp. 1-177 (Ph. D. Thesis).
- Marchaudon, A. et al. (incl. Amm, O.), 2004: Quantitative modelling of the closure of meso-scale parallel currents in the nightside ionosphere. *Ann. Geophys.*, 22, 125.
- Milan, S.E. et al. (incl. Uspensky, M.V.), 2004: Evidence for high-aspect angle HF radar backscatter from E-region. *Ann. Geophys.*, 22, 829-847.
- Mursula, K., Karinen, A., 2005: Explaining and correcting the excessive semiannual variation in the Dst index. *Appl. Phys. Lett.*, 32, L14107.
- Mursula, K., Kerttula, R., Asikainen, T. et al., 2005: Cluster/Rapid energetic electron observations at the dayside magnetospheric boundary. *Adv. Space Res.*, 36, 1904-1908.
- Nakamura, R., Amm, O. et al., 2005: Localized fast flow disturbance observed in the plasma sheet and in the ionosphere. *Ann. Geophys.*, 23, 553-566.
- Nakamura, R. et al. (incl. Amm, O.), 2005: Cluster and Double Star observations of dipolarization. *Ann. Geophys.*, 23, 2915-2920, 2005.
- Nevanlinna, H., 2004: Historical space climate data from Finland: Compilation and analysis. *Sol. Phys.*, 224, 395-405.
- Nevanlinna, H., 2004: Results of the Helsinki magnetic observatory, 1844-1912. *Ann. Geophys.*, 22, 1691-1704.
- Nilsson, H., Kozlovsky, A. et al., 2005: Radar observations in the vicinity of pre-noon auroral arcs. *Ann. Geophys.* 23, 1785-1796.
- Olsson, A., Janhunen, P., 2004: Some recent developments in understanding auroral electron acceleration processes. *IEEE T. Plasma Sci.*, 31, 6, 1178-1191.
- Olsson, A., Janhunen, P., Peterson, W.K., 2004: Ion shell distributions as free energy source for plasma waves on auroral field lines mapping to plasma sheet boundary layer. *Ann. Geophys.*, 22, 2115-2133.
- Olsson, A., Janhunen, P., et al., 2004: Observational study of generation mechanism of substorm-associated low-frequency AKR emissions. *Ann. Geophys.*, 22, 3571-3582.
- Olsson, A., Janhunen, P., et al., 2004: Statistics of Joule heating in the auroral zone and polar cap using. *Ann. Geophys.*, 22, 4133-4142.
- Palmroth, M., Janhunen, P., Pulkkinen, T.I., Koskinen, H.E.J., 2004: Ionospheric energy input as a function of solar wind parameters: global MHD simulation results. *Ann. Geophys.*, 22, 549-566.

- Palmroth, M., Koskinen, H.E.J., Pulkkinen, T.I., Janhunen, P., 2004: Ionospheric power consumption in global MHD simulation predicted from solar wind measurements. *IEEE T. Plasma Sci.*, vol 32, 1511-1518.
- Palmroth, M., Pulkkinen, T.I., Janhunen, P., McComas, D.J., Smith, C. W., Koskinen, H.E.J., 2004: Role of solar wind dynamic pressure in driving ionospheric Joule heating. *J. Geophys. Res.*, 109, A11302, doi:10.1029/2004JA010529.
- Palmroth, M., Janhunen, P., Pulkkinen, T.I. et al., 2005: Assessment of ionospheric Joule heating by GUMICS-4 MHD simulation, AMIE, and satellite-based statistics: Towards a synthesis. *Ann. Geophys.*, 23, 2051-2068, 2005.
- Partamies, N., Janhunen, P., Kauristie, K., Mäkinen, S., Sergienko, T., 2004: Testing an inversion method for estimating electron energy fluxes from all-sky camera images. *Ann. Geophys.*, 22, 549-566.
- Partamies, N., 2004: Meso-scale auroral physics from ground-based observations. *Finnish Meteorological Institute Contributions*, 45, 122 p. (Ph. D. Thesis)
- Pilipenko, V., Fedorov, E., Mursula, K., Pikkarainen, T., 2005: Generation of magnetic noise bursts during distant rocket launches. *Geophysica*, 41, 57-71.
- Pirjola, R., 2005: Averages of geomagnetically induced currents (GIC) in the Finnish 400 kV electric power transmission system and the effect of neutral point reactors on GIC. *J. Atmos. Sol.-Terr. Phys.*, 67, 701-708.
- Pirjola, R., 2005: Effects of space weather on high-latitude ground systems. *Adv. Space Res.*, 36, 2231-2240.
- Pirjola, R., Kauristie, K., Lappalainen, H., Viljanen, A., Pulkkinen, A., 2005: Space weather risk. *Space Weather*, 3, S02A02, doi:10.1029/2004SW000112.
- Prikner, K., Mursula, K., Kangas, J., Kerttula, R., Feygin, F.Z., 2004: An effect of the ionospheric Alfvén resonator on multiband Pc1 pulsations. *Ann. Geophys.*, 22, 643-651.
- Pulkkinen, A., Lindahl, S., Viljanen, A., Pirjola, R., 2005: Geomagnetic storm of 29-31 October 2003: Geomagnetically induced currents and their relation to problems in the Swedish high-voltage power transmission system. *Space Weather*, 3, S08C03, doi: 10.1029/2004SW000123.
- Pulkkinen, T.I., Ganushkina, N.Yu. et al., 2005: Storm-substorm coupling during 16 hours of Dst steadily at -150 nT. In: *The Inner magnetosphere: physics and modeling*, edited by T.I. Pulkkinen, N.A. Tsyganenko, R.H.W. Friedel, AGU Monograph 155, AGU, Washington, DC, p. 155-162.
- Pulkkinen, T.I., Tsyganenko, N.A., Friedel, R.H.W. (editors), 2005: *The Inner Magnetosphere: Physics and Modeling*. Geophysical Monograph 155, AGU, Washington, DC, 312 pages.
- Ritter, P. et al. (incl. Viljanen, A.), 2004: High-latitude ionospheric currents during very quiet times: their characteristics and predictability. *Ann. Geophys.*, 22, 2001-2014.
- Ritter, P., Lühr, H., Viljanen, A., Amm, O., Pulkkinen, A., Sillanpää, I., 2004: Ionospheric currents estimated simultaneously from CHAMP satellite and IMAGE ground based magnetic field measurements: a statistical study at auroral latitudes. *Ann. Geophys.*, 22, 417-430.
- Rosenqvist, L. et al. (incl. Amm, O.), 2005: Extreme solar-terrestrial events of October 2003: High latitude and Cluster observations of the large geomagnetic disturbance on October 30. *J. Geophys. Res.*, 110, A09S23, doi:10.1029/2004JA010927.

- Safargaleev, V. V. et al (incl. Kozlovsky, A. E.), 2004; Propagation velocity of 0.25 Hz waves in the ionospheric waveguide. *Geomagnetism and Aeronomy*, 44, 559-566, (in Russian).
- Safargaleev, V. et al. (incl. Kozlovsky, A.), 2005: Combined optical, EISCAT and magnetic observations of the omega bands/Ps6 pulsations and an auroral torch in the late morning hours: a case study. *Ann. Geophys.*, 23, 1821-1838.
- Schwenn, R. et al. (incl. Huttunen, E.), 2005: The association of coronal mass ejections with their effects near the Earth. *Ann. Geophys.*, 23, 1033-1059
- Sergeev, V.A. et al. (incl. Amm, O., Pulkkinen, T.), 2005: Transition from substorm growth to substorm expansion phase as observed with a radial configuration of ISTP and Cluster spacecraft. *Ann. Geophys.*, 23, 2183-2198.
- Sillanpää, I., Lühr, H., Viljanen, A., Ritter, P., 2004: Quiet-time Magnetic Variations at High Latitude Observatories. *Earth, Planets and Space*, 56: 47-65.
- Tanskanen, E.I., Palmroth, M., Pulkkinen, T.I., Koskinen, H.E.J., Janhunen, P. et al., 2005: Energetics of a substorm on 15 August, 2001: Comparing empirical methods and a global MHD simulation. *Adv. Space Res.*, 36, 10, 1825.
- Tanskanen, E.I. et al., 2005: Magnetotail response to prolonged southward IMF B_z intervals: Loading, unloading, and continuous magnetospheric dissipation. *J. Geophys. Res.*, 110, doi:10.1029/2004JA010561.
- Tanskanen, E.I., Slavin, J.A., Tanskanen, A.J., Viljanen, A., Pulkkinen, T.I., Koskinen, H.E.J., Pulkkinen, A., Eastwood, J., 2005: Magnetospheric substorms are strongly modulated by interplanetary high-speed streams. *Geophys. Res. Lett.*, 32, doi: 10.1029/2005 GLO23318.
- Usoskin, I.G., Mursula, K., Solanki, S., Schüssler, M., Alanko, K., 2004: Reconstruction of solar activity for the last millennium using ¹⁰Be data. *Astron. Astrophys.*, 413, 745-751.
- Uspensky, M., Kustov, A., Janhunen, P., Nielsen, E., Kauristie, K., Amm, O., Pellinen, R., Opgenoorth, H., Pirjola, R., 2004: STARE velocities: 2. Evening westward electron flow. *Ann. Geophys.*, 22, 1077-1091.
- Uspensky, M., Koustov, A., Sofieva, V., Amm, O., Kauristie, K., Schmidt, W., Nielsen, E., Pulkkinen, T., Pellinen, R., Milan, S., Pirjola, R., 2005: Multipulse and double-pulse velocities of Scandinavian Twin Auroral Radar Experiment (STARE) echoes. *Radio Sci.*, 40, RS3008, doi:10.1029/2004RS003151.
- Vanhämäki, H., Viljanen, A., Amm, O., 2005: Induction Effects on Ionospheric Electric and Magnetic Fields. *Ann. Geophys.*, 23, 1735-1746.
- Viljanen, A., Pulkkinen, A., Amm, O., Pirjola, R., Korja, T. and BEAR Working Group, 2004: Fast computation of the geoelectric field using the method of elementary current systems and planar Earth models. *Ann. Geophys.*, 22, 101-113.
- Yahnin, A. G. et al. (incl. Manninen, J., Kultima, J. and Kangas, J.), 2004: Multiple sources as a possible cause of multiband spectra of Pc 1 geomagnetic pulsations. *Geomagnetism and Aeronomy*, 44, 288-291.
- Yahnin, A. G. et al. (incl. Manninen, J., Kultima, J. and Kangas, J.), 2004: Seasonal variations in the frequency of Pc 1 geomagnetic pulsations and variations in the latitude of localized proton precipitations. *Geomagnetism and Aeronomy*, 2004, 44, 282-287.

Solar System Research (including cosmic rays)

- Aittola M., Raitala J., 2005: Coronae and Novae in the Hecate Chasma Deformation Area. *Solar System Research* 39 (3), 199-213.
- Barrabes, E., Mikkola, S., 2005: Families of periodic horseshoe orbits in the restricted three-body problem. *Astron. Astrophys.*, 432, 1115-1129.
- Boehnhardt, H. et al. (incl. Muinonen, K.), 2004: Surface characterization of 28978 Ixion (2001 KX₇₆). *Astron. Astrophys.*, 415, L21-L25.
- Brandenburg A. et al. (incl. Käpylä P.J.), 2005.: The problem of small and large scale fields in the solar dynamo. *Astron. Nachr.* 326 (3-4), 174-185, 2005
- Brasser, R. et al. (incl. Mikkola, S.), 2004: Transient co-orbital asteroids, *Icarus* 171: 102-109.
- Brasser, R., Mikkola, S. et al., 2004: Long-term evolution of the Neptune Trojan 2001 QR322. *MNRAS*, 347, 833 -836.
- Brasser, R., Heggie, D.C., Mikkola, S., 2004: One to One Resonance at High Inclination. *Celestial Mechanics and Dynamical Astronomy*, 88, 123-152.
- Cellino, A., Muinonen, K., Tedesco, E. F., 2004: Rationale and orbital options for a dedicated space-based observatory for NEOs. *Adv. Space Res.*, 33, 1576-1583.
- Combi, M.R., Mäkinen, J.T.T., Bertaux, J.-L., Quémérais, E., 2005: Temporal deconvolution of the hydrogen coma II. Pre- and post-perihelion activity of Comet Hyakutake (1996 B2). *Icarus*, 177, 228-245.
- Connors, M. et al. (incl. Mikkola, S.), 2004: Discovery of Earth's quasi-satellite. *Meteoritics and Planetary Science* 39, 1251-1255.
- Cremonese, G. et al. (incl. J. Raitala), 2004: MEMORIS: a wide angle camera for the BepiColombo mission. *Adv. Space Res.*, 33, 2182-2188, doi:10.1016/S0273-1177(03)00448-4.
- Enqvist, T., Mattila, A., Fohr, V., Jämsen, T., Lehtola, M., Narkilahti, J., Joutsenvaara, J., Nurmenniemi, S., Peltoniemi, J., Remes, H., Sarkamo, J., Shen, C., Usoskin, I., 2005: Measurements of muon flux in the Pyhäsalmi underground laboratory, *Nucl. Instrum. Methods A*, 554, 286-290.
- Fulchignoni, M. et al. (incl. Harri, A.-M., Lehto, A.), 2004: A stratospheric balloon experiment to test the Huygens Atmospheric Structure Instrument (HASI). *Planet. Space Sci.*, Vol 52, pp 867-880.
- Fulchignoni, M. et al. (incl. Harri, A.-M., Lehto, A., Mäkinen, T.), 2005: In situ measurements of the physical characteristics of Titans environment. *Nature*, 438, 785-791.
- Granvik, M., Muinonen, K., 2005: Asteroid identification at discovery. *Icarus* 179, 109-127.
- Green, K., Lumme, K., 2005: Multiple scattering by the iterative Foldy-Lax scheme. *J. Opt. Soc. America A* 22, 1555-1558.
- Gunell, H. et al. (incl. Kallio, E., Janhunen, P.), 2004: X-rays from Solar Wind Charge Exchange at Mars: A Comparison of Simulations and Observations. *Geophys. Res. Lett.*
- Harri, A.-M., 2005: In situ observations of the atmospheres of terrestrial planetary bodies. *Finnish Meteorological Institute Contributions*, 50, 246 p. (Ph.D. Thesis)
- Hauber E. et al. (incl. Raitala J.), 2005: Discovery of a flank caldera and very young glacial activity at Hecates Tholus, Mars. *Nature* 434, 356-361.
- Head J.W. et al. (incl. Raitala J.), 2005: Tropical to mid-latitude snow and ice accumulation, flow and glaciation on Mars. *Nature* 434, 346-351.

- Hildebrand, A. R. et al. (incl. Muinonen, K.), 2005: Advantages of searching for asteroids from low Earth orbit: The NEOSSat mission. *Earth, Moon, and Planets*.
- Hupfer C., Käpylä P., Stix M., 2005: Reynolds stresses - dependence on latitude. *Astron. Nachr.* 326 (3-4), 223-226.
- Huttunen-Heikinmaa, K., Valtonen, E., Laitinen, T., 2005: Proton and helium release times in SEP events observed with SOHO/ERNE. *Astron. Astrophys.*, 442, 673-685.
- Ivanov M.A., Korteniemi J., Kostama V.-P., Aittola M., Raitala J. et al, 2005: Major episodes of the hydrologic history in the region of Hesperia Planum, Mars. *J. Geophys. Research, Planets*, 110, E12S21.
- Janhunen, P., Kallio, E., 2004: Surface conductivity of Mercury provides current closure and may affect magnetospheric symmetry. *Ann. Geophys.*, 22, 1829-1837.
- Kaasalainen, M., et al. (incl. Torppa, J., Virtanen, J., Kaasalainen, S.), 2004: Photometry and models of eight near-Earth asteroids. *Icarus*, 167, 178-196.
- Kaasalainen, M., Tanga, P., 2004: Photocentre offset in ultraprecise astrometry: Implications for barycentre determination and asteroid modelling. *Astron. Astrophys.*, 416, 367-373.
- Kaasalainen, S., Kaasalainen, M., and J. Piironen, 2005. Ground reference for space remote sensing: Laboratory photometry of an asteroid model. *Astron. Astrophys.*, 440, 1177-1182.
- Kallio, E., Sillanpää, I., Janhunen, P., 2004: Titan in subsonic and supersonic flow. *Geophys. Res. Lett.*, 31, L15703, doi: 10.1029/2004GL020344, 2004.
- Karjalainen, R., Salo, H., 2004: Gravitational accretion of particles in Satur's rings. *Icarus*, 172, 328-348.
- Khodachenko, M. L. et al. (incl. Urpo, S.), 2005: Low- frequency modulations in the solar microwave radiation as a possible indicator of inductive interaction of coronal magnetic loops. *Astron. Astrophys.*, 433, 691-699.
- Knaack R., Stenflo, J.O., Berdyugina, S.V., 2004: Periodic oscillations in the north-south asymmetry of the solar magnetic field. *Astron. Astrophys.*, 418, L17-L20.
- Knaack R., Stenflo, J.O., Berdyugina S.V., 2005: Evolution and rotation of large-scale photospheric magnetic fields of the Sun during cycles 21-23. Periodicities, north-south asymmetries and r-mode signatures. *Astron. Astrophys.* 438, 1067-1082.
- Kocharov, L., Kovaltsov, G.A., Torsti, J., Huttunen-Heikinmaa, K., 2005: Modeling the solar energetic particle events in closed structures of interplanetary magnetic field. *J. Geophys. Res.*, 110, A12S03.
- Kocharov, L., Lytova, M., Vainio, R., Laitinen, T., Torsti, J., 2005: Modeling the shock aftermath source of energetic particles in the solar corona, *Astrophys. J.* 620, 1052-1068.
- Korteniemi J., Kostama V.-P., Törmänen T., Aittola M., Öhman T., Lahtela H., Raitala J. and Neukum G., 2005: Complex geology of two large impact craters in Tyrrhena Terra, Mars: Detailed analysis using MEX HRSC camera data. *J. Geophys. Res., Planets* 110, E12S18.
- Kostama, V.-P., Aittola, M., 2004: Arcuate graben of Venusian volcano-tectonic structures: The last phase of tectonic activity? *Astron. Astrophys.*, 428, 235-240.
- Kovaltsov, G.A. Usoskin, I.G., Mursula, K., 2004: An upper limit on sunspot activity during the Maunder minimum. *Solar Phys.*, 224, Nos. 1-2, 95-101.

- Kraemer, K.E. et al. (incl., Mäkinen, T.), 2005: Midcourse Space Experiment Observations of Small Solar System Bodies. *Astronomical Journal*, 130, 2363-2382.
- Laitinen, T., 2005: A Simple Model for Reflection-Driven Spectral Evolution of Turbulence in the Corona and Inner Heliosphere. *Astrophysics and Space Sciences Transactions*, 1, 35-43.
- Lallement, R. et al. (incl. Pellinen, R.), 2005: Deflection of the interstellar neutral hydrogen flow across the heliospheric interface. *Science* 307, 1447-1449.
- Laukkanen, J., Lämsä, V., Salminen, A., Huovelin, J., Andersson, H., Alha, L., Hämäläinen, K., Nenonen, S., Sipilä, H., Tillander, M., 2005: Radiation hardness studies for the X-ray Solar Monitor (XSM) onboard the ESA SMART-1 mission. *Nuclear Instruments and Methods in Physics Research A*, 538, 496-515.
- Lehtinen, N.J., Pohjolainen, S. et al., 2005: Non-thermal processes associated with rising structures and waves during a 'halo' type CME. *Astron. Astrophys.*, 442, 1049-1058.
- Lintunen, J., Vainio, R., 2004: Solar energetic particle event onset as analyzed from simulated data, *Astron. Astrophys.*, 420, 343-350.
- Lisse, C.M. et al. (Mäkinen, T.), 2005: Chandra Observations of Comet 2P/Encke 2003: First Detection of a Collisionally Thin, Fast Solar Wind Charge Exchange System. *Astrophys. J.*, 635, 1329-1347.
- Lundin, R. et al. (incl. Koskinen, H., Kallio, E., Riihelä, P., Schmidt, W., Säles, T.), 2004: Solar wind induced atmospheric erosion at Mars-First results from ASPERA-3 on Mars-Express. *Science*, Vol. 305, 24, 1933-1936.
- Lytova, M., Kocharov, L., 2005: Charge States of Energetic Solar Ions From Coronal Shock Acceleration. *Astrophys. J. Letters*, 620, L55-L58.
- Määttänen, A., Savijärvi, H., 2004: Sensitivity tests with a one-dimensional boundary-layer Mars model. *Boundary-Layer Meteorology*, 113, 305-320.
- Määttänen, A., Vehkamäki, H., Lauri, A., Merikallio, S., Kauhanen, J., Savijärvi, H., Kulmala, M., 2005: Nucleation Studies in the Atmosphere of Planet Mars. *J. Geophys. Res.*, 110, E02002, doi: 10.1029/2004JE002308.
- Mäkelä, P., 2004: Energetic Particle Observations with the ERNE Experiment on Board the SOHO Spacecraft, *Annales Universitatis Turkuensis, Ser. AI*, Tom. 326, 1-119. (Ph. D. Thesis)
- Mäkinen, J.T.T., 2005: Particle accretion and dissipation simulator: Collisional aggregation of icy particles. *Icarus*, 177, 269-279.
- Mäkinen, J.T.T., Combi, M.R., 2005: Temporal deconvolution of the hydrogen coma I. A hybrid model. *Icarus*, 177, 217-227.
- Mandrini, C.H., Pohjolainen, S. et al., 2005: Interplanetary flux rope ejected from an X-ray bright point. The smallest magnetic cloud source-region ever observed. *Astron. Astrophys.*, 434, 725-740.
- McGhee C.A. et al. (incl. Salo H.J.), 2005: HST observations of spokes in Saturn's B ring. *Icarus* 173, 508-521.
- Mikkola, S. et al., 2004: Asteroid 2002 VE68, a quasi-satellite of Venus. *MNRAS*, 351, L63-L65.
- Morishima, R., H. Salo, H., 2004: Spin rates of small moonlets embedded in planetary rings. I. Three body calculations. *Icarus* 167, 330-346.
- Morishima, R., Watanabe, S., 2004: Co-accretion of the Earth-Moon system after the giant impact: reduction of the total angular momentum by lunar impact ejecta. *Icarus*, 168, 60-79.

- Muinonen, K., 2004: Coherent backscattering of light by complex random media of spherical particles: numerical solution. *Waves in Random Media*, 14, 365-388.
- Murray J.B. et al. (incl. Raitala J.), 2005: Evidence from the Mars Express High Resolution Stereo Camera for a frozen sea close to Mars' equator. *Nature* 434, 352-356.
- Mursula, K., Vilppola, J.H., 2004: Fluctuations of the solar dynamo observed in the solar wind and interplanetary magnetic field at 1 AU and in the outer heliosphere. *Solar Phys.*, 221, 337-349.
- Mursula, K., Hiltula, T., 2004: Systematically asymmetric heliospheric magnetic field: Evidence for a quadrupole mode and non-axisymmetry with polarity flip-flops. *Solar Phys.*, 224, Nos. 1-2, 133-143.
- Mursula, K., Martini, D., Karinen, A., 2004: Did open solar magnetic field increase during the last 100 years: A reanalysis of geomagnetic activity. *Solar Phys.*, 224, Nos. 1-2, 85-94.
- Näränen, J., Kaasalainen, S., Peltoniemi, J., Heikkilä, S., Granvik, M., Saarinen, V., 2004: Laboratory photometry of planetary regolith analogs. II. Surface roughness and extremes of packing density. *Astron. Astrophys.*, 426, 1103-1109.
- Neukum, G. et al. (incl. Raitala J.), 2004: Recent and episodic volcanic and glacial activity on Mars revealed by the High Resolution Stereo Camera. *Nature*, 432, No. 7020, 971-979.
- Nicholson P.H. et al. (incl. Salo H.J.), 2005: Radar imaging of Saturn's rings. *Icarus* 177, 32-62.
- Ostro, S. J., et al. (incl. Kaasalainen, M.), 2004: Radar observations of asteroid 25143 Itokawa (1998 SF36). *Meteoritics & Planetary Science*, 39, 407.
- Pelt J., Tuominen I., Brooke J., 2005: Century-scale persistence in longitude distribution in the Sun and in silico. *Astron. Astrophys.*, 429, 1093-1096.
- Penttilä, A., Lumme, K. et al., 2005: Statistical analysis of asteroidal and cometary polarization phase curves. *Astron. Astrophys.* 432, 1081-1090.
- Pinet, P. et al. (incl. Muinonen, K.), 2005: The advanced Moon micro-imager experiment (AMIE) on SMART-1: Scientific goals and expected results. *Planet. Space Sci.*, 53, 1309-1318.
- Pohjolainen, S. et al., 2005: Early signatures of large-scale field line opening. Multi-wavelength analysis of features connected to a 'halo' CME event. *Astron. Astrophys.*, 434, 329-341.
- Reiss D. et al. (incl. Raitala J.), 2005: Small rampart craters in an equatorial region on Mars: Implications for near-surface water or ice. *Geophys. Res. Lett.* 32, L10202.
- Salo, H., Karjalainen, R., and French, R.G., 2004: Photometric modeling of Saturn's rings. II. Azimuthal asymmetry in reflected and transmitted light. *Icarus* 170, 70-90.
- Savijärvi, H., Määttänen, A., Kauhanen, J., Harri, A.-M., 2004: Mars Pathfinder: new data and new model simulations. *Q J Roy Meteor Soc*, 130, 669-683.
- Savijärvi, H., Crisp, D., Harri, A.-M., 2005: Effects of CO₂ and dust on present-day solar radiation and climate on Mars, *Q J Roy Meteor Soc* 131. 2907-2922.
- Seidensticker, K.J. et al. (incl. Schmidt, W.), 2004: The Rosetta lander experiment sesame and the new target comet 67P/Churyumov-Gerasimenko. The New ROSETTA Targets - Observations, Simulations and Instrument Performances. *Astrophys. Space Sci. Library* 311, 297-307.

- Seiss M. et al. (incl. Salo H.), 2005: Structures induced by small moonlets in Saturn's rings: Implications for the Cassini Mission. *Geophys. Res. Lett.* 32, L11205.
- Shelyag, S. et al. (incl. Berdyugina, S.V.), 2004: G-band spectral synthesis and diagnostics of simulated solar magneto-convection. *Astron. Astrophys.*, 427, 335-343.
- Solanki, S. K. et al. (incl. Usoskin I. G.), 2004: An unusually active sun during recent decades compared to the previous 11,000 years. *Nature*, 431, 1084-1087.
- Solanki, S. K. et al. (incl. Usoskin I. G.), 2005: How unusual is today's solar activity? *Reply*, *Nature*, 436, E4-E5, doi:10.1038/nature04046.
- Starodubtsev, S.A., Usoskin, I.G., Mursula, K., 2004: Rapid cosmic ray fluctuations: Evidence for cyclic behaviour. *Solar Phys.*, 224, Nos. 1-2, 335-343.
- Szego, K., et al., (incl. Vilppola, J.), 2005: The global plasma environment of Titan as observed by Cassini Plasma Spectrometer during the first two close encounters with Titan. *Appl. Phys. Lett.*, 32, L20S05.
- Torsti, J., Riihonen, E., Kocharov, L., 2004: The May 2-3, 1998 magnetic cloud: An interplanetary "Highway" for solar energetic particles observed with SOHO/ERNE, *Astrophys. J. Lett.*, 600, L83-L86.
- Towner, M.C. et al. (Haapanala, S., Harri, A.-M., Polkko, J.), 2004: The Beagle 2 environmental sensors: science goals and instrument description. *Planet. Space Sci.*, 52, 1141-1156.
- Usoskin, I. G. et al. (incl. Mursula, K., Alanko, K.), 2004: Reconstruction of solar activity for the last millennium using ^{10}Be data. *Astron. Astrophys.*, 413, 745-751.
- Usoskin, I. G., Berdyugina, S.V. Poutanen, J., 2005: Preferred sunspot longitudes: Non-axisymmetry and differential rotation. *Astron. Astrophys.*, 441, 347-352.
- Usoskin, I.G., Alanko-Huotari, K., Kovaltsov, G.A., Mursula, K., 2005: Heliospheric modulation of cosmic rays: Monthly reconstruction for 1951-2004. *J. Geophys. Res. A*, 110, A12108.
- Usoskin, I.G., et al., (incl. Mursula, K.), 2005: Solar activity, cosmic rays, and Earth's temperature: A millennium-scale comparison. *J. Geophys. Res. A*, 110, A10102.
- Usoskin, I.G., Gladysheva, O.G. and Kovaltsov, G.A., 2004: Cosmic ray induced ionization in the atmosphere: Spatial and temporal changes, *J. Atm. Solar-Terr. Phys.*, 66, 1791-1796.
- Usoskin, I.G., et al. (incl. Mursula, K.), 2004: Latitudinal dependence of low cloud amount on cosmic ray induced ionization, *Geophys. Res. Lett.*, 31, L16109, doi:10.1029/2004GL019507.
- Usoskin, I. G., Kromer, B., 2005: Reconstruction of the ^{14}C production rate from measured relative abundance, *Radiocarbon*, 47, 31-37.
- Vainio, R., Khan, J.I., 2004: Solar energetic particle acceleration in refracting coronal shock waves. *Astrophys. J.* 600, 451-457.
- Valtonen, E., Laitinen, T., Huttunen-Heikinmaa, K., 2005: Energetic particle signatures of geoeffective coronal mass ejections. *Adv. Space Res.*, 36, 2295-2302.
- Vernova, E.S. et al., (incl. Mursula, K.), 2004: Long-term longitudinal asymmetries in sunspot activity: difference between the ascending and descending phase of the solar cycle. *Solar Phys.*, 221, 151-165.
- Virtanen, Jenni: Asteroid orbital inversion using statistical methods. Observatory Report 4/2005, University of Helsinki. (Ph.D. Thesis)

- Vokrouhlick'y, D. et al (incl. Kaasalainen, M.), 2004: Detectability of YORP rotational slowing of asteroid 25143 Itokawa. *Astron. Astrophys.*, 414, L21-L24.
- Young, D.T., et al. (incl. Tanskanen, P., Mursula, K., Vilppola, J.), 2004: Cassini plasma spectrometer investigation. *Space Sci. Rev.*, 114, No. 1, 1-112.
- Young, D.T. et al. (incl. Kelhä, V., Mursula, K., Tanskanen, P., Vilppola, J.), 2005: Composition and dynamics of plasma in Saturn's magnetosphere, *Science*, 307, No. 5713, 1262-1266.

Astronomy and Cosmology

- AMS collaboration (incl. Eronen, T., Laitinen, T., Riihonen, E., Torsti, J., Valtonen, E.), 2005: A study of cosmic ray secondaries induced by the Mir space station using AMS-01, *Nuclear Instr. and Methods in Physics Res. B*, 234, 321-332.
- Aerts, C., et al., (incl. Ilyin, I.), 2004: Asteroseismology of the α Cephei star v Eridani - II. Spectroscopic observations and pulsational frequency analysis. *Mon. Not. R. Astron. Soc.*, 347, (2), 463-470.
- Albert, I. et al. (incl. Lindfors, E., Pasanen, M., Sillanpää, A., Takalo, L.), 2005: Physics with a ground-based gamma-ray telescope of low-energy threshold. *Astroparticle Physics* 23: 493-509.
- Aungwerojwit, A. et al. (incl. Lehto, H., Katajainen, S.), 2005: HS 0139+0559, HS 0229+8016, HS 0506+7725, and HS 0642+5049: four new long-period cataclysmic variables. *Astron. and Astrophys.*, 443, 995-1005.
- Aungwerojwit, A. et al. (incl. Lehto, H.), 2005: Three new long-period CVs from the Hamburg Quasar Survey. In: Hameury J.-P. and Lasota, J.-P. *The Astrophysics of Cataclysmic Variables and Related Objects*. ASPC 330, 469-470.
- Babkovskaia, N., Poutanen, J., 2004: Water masers in dusty environments. *Astron. Astrophys.*, 418, 117-129.
- Baixereas, C et al. (incl. Lindfors, E., Pasanen, M., Sartori, P., Scalzotto, V., Sillanpää, A., Takalo, L.), 2004: Desing studies for ECO, The European Gamma-ray Observatory. [astro-ph/0403180](#)
- Barklem, P.S. et al. (incl. Holmberg, J.), 2005: The Hamburg/ESO R-process enhanced star survey (HERES). II. Spectroscopic analysis of the survey sample. *Astron. and Astrophys.*, 439, 129-151
- Berdyugin, A., Piironen, V., Teerikorpi, P., 2004: Interstellar polarization at high galactic latitudes from distant stars. VII A complete map for south latitudes $b < -70^\circ$. *Astron. Astrophys.*, 424, 873.
- Berdyugina, S.V., 2004: Tomography of stellar non-radial pulsations. *Astron. Nachr.* 325, No. 3, 237-240.
- Berdyugina, S.V., and D.M. Fluri, 2004: Evidence for the Hanle effect in molecular lines. *Astron. Astrophys.*, 417, 775-784.
- Berdyugina, S.V., 2004: Non-axisymmetric magnetic fields and flip-flops on the Sun and cool stars. *Sol. Phys.* 224 (1-2), 123-131.
- Berdyugina, S.V. et al., 2005: The molecular Zeeman effect and diagnostics of solar and stellar magnetic fields. III. Theoretical spectral patterns in the Paschen-Back regime. *Astron. Astrophys.*, 444, 947-960.
- Berdyugina, S.V., Järvinen, S.P., 2005: Spot activity cycles and flip-flops on young solar analogs, *Astron. Nachr.* 326 (3-4), 283-286.

- Blazejowski, M., et al.(incl. Teräranta, H.), 2005: A Multiwavelength View of the TeV Blazar Markarian 421: Correlated Variability, Flaring, and Spectral Evolution. *Astrophys. J.*, Vol. 630, 130-141.
- Bloom, S.D. et al. (Tornikoski, M.), 2004: An optical survey of the position error contours of unidentified high energy gamma-ray sources at galactic latitude $|b| > 20^\circ$, *Astronomical Journal*, Vol. 128, 56-61.
- Bonamente, M. et al., (incl. Nevalainen, J.), 2005: Thermal and Nonthermal Nature of the Soft Excess Emission from Sérsic 159-03 Observed with XMM-Newton. *Astrophys. J.* 629, 192-203.
- Böttcher, M. et al. (incl. Savolainen, T., Berdyugin, A., Ciprini, S., Ibrahimov, M., Lähteenmäki, A., Lindfors, E., Nilsson, K., Oksanen, A., Pasanen, M., Pursimo, T., Takalo, L., Teräranta, H., Wiik, K.), 2005: Coordinated Multiwavelength Observation of 3C 66A during the WEBT Campaign of 2003-2004. *Astrophys. J.*, Vol. 631, 169-186.
- Brandenburg, A., Käpylä, P.J., Mohammed, A., 2004: Non-Fickian diffusion and tau approximation from numerical turbulence. *Physics of Fluids* 16 (4), 1020-1027.
- Bridge, C. M., et al. (incl. Hakala, P.), 2004: Accretion stream mapping with genetically modified fireflies. *MNRAS*, 351, 1423-1429.
- Brocksopp, C., et al., (incl. Hannikainen, D.), 2005: The 2003 radio outburst of a new X-ray transient: XTE J1720-318. *MNRAS*, 356, 125-130.
- Brook, C.B. et al. (incl. Flynn, C.), 2004: Stellar halo constraints on simulated late-type galaxies, *MNRAS*, 349, 52 - 56.
- Brunthaler, A. et al. (incl. Teräranta, H.), 2005: The extreme flare in III Zw 2: Evolution of a radio jet in a Seyfert galaxy. *Astron. Astrophys.*, Vol. 435, 497-506.
- Buta, R., Laurikainen, E., Salo, H, 2004: The distribution of maximum relative gravitational torques in disk galaxies. *Astron. J.*, 127, 279-294.
- Buta, R., Vasylyev, S., Salo, H., Laurikainen, E., 2005: The distribution of bar and spiral arm strengths in disk galaxies, *Astron. J.*, 130, 506-523.
- Butkevich, A.G., Berdyugin, A.V., Teerikorpi, P., 2005: The absolute magnitude of K0V stars from Hipparcos data using an analytical treatment of the Malmquist bias. *Astron. Astrophys.*, 435, 949-954.
- Butkevich, A.G., Berdyugin, A.V., Teerikorpi, P., 2005: Statistical biases in stellar astronomy: the Malmquist bias revisited, *MNRAS*, 362, 321-330.
- Cabanac, C., et al., (incl. Hannikainen, D. C., Schultz, J., Lund, N.), 2005: Unveiling the nature of the new transient IGR J19140+0951. *Chinese Journal of Astronomy & Astrophysics* 5, Supplement, 93-98.
- Chernin, A. D., Karachentsev, I. D., Valtonen, M. J., et al., 2004, The very local Hubble flow: Computer simulations of dynamical history. *Astron. Astrophys.*, 415, 19.
- Cherepashchuk, A.M., et al. (incl. Postnov K.A.), 2005.: INTEGRAL observations of SS433: Results of a coordinated campaign. *Astron. Astrophys.*, 437, 561-573.
- Christlieb, N. et al. (incl. Flynn, C.), 2005: The stellar content of the Hamburg/ESO survey. III. Field-horizontal-branch stars in the Galaxy. *Astron. Astrophys.*, 431, 143-148.
- Ciaramella, A. et al. (incl. Lähteenmäki, A., Teräranta, H., Tornikoski, M. and Urpo, S.), 2004: A multifrequency analysis of radio variability of blazars. *Astron. Astrophys.*, 419, 485-500.

- Ciprini, S., Tosti, G., Teräsranta, H. and Aller, H.D., 2004: Radio-optical flux behavior and spectral energy distribution of the intermediate blazar GC 0109+224. *MNRAS*, 348, 1379-1387.
- Dieball, A., et al. (incl. Hannikainen, D. C.), 2005: An Ultracompact X-Ray Binary in the Globular Cluster M15 (NGC 7078). *Astrophys. J.*, 634, L105-L108.
- D'Onghia, E. et al. (incl. Portinari, L.), 2005: The Formation of Fossil Galaxy Groups in the Hierarchical Universe. *Astrophys. J.*, 630, L109-L112.
- Einasto, M. et al. (incl. Heinämäki, P.), 2005: Environmental enhancement of DM haloes. - *Astronomy & Astrophysics* 436: 17-24.
- Enqvist, K., Jokinen, A., Mazumdar, A., Multamäki, T. and Väihkönен, A., 2005: Non-Gaussianity from preheating, *Phys Rev Lett* 94, 161301
- Enqvist, K., Hannestad, S., and Sloth, M.S., 2005: Searching for a holographic connection between dark energy and the low ℓ CMB multipoles, *JCAP* 02, 004.
- Enqvist, K., Jokinen, A., Mazumdar, A., Multamäki, T., and Väihkönens, A., 2005: Non-Gaussianity from instant and tachyonic preheating, *JCAP* 03, 010.
- Enqvist, K. and Nurmi, S., 2005: Non-gaussianity in curvaton models with nearly quadratic potentials, *JCAP* 10, 013.
- Enqvist, K., Jokinen, A., Mazumdar, A., Multamäki, T., and Väihkönens, A., 2005: Cosmological constraints on string scale and coupling arising from tachyonic instability, *JHEP* 08, 084.
- Enqvist, K., Kasuya, S. and Mazumdar, A., 2004: Minimal supersymmetric Higgs bosons with extra dimensions as the source of reheating and all matter, *Phys Rev Lett* 93, 061301.
- Enqvist, K. and Sloth, M.S., 2004: Possible connection between the location of the cutoff in the cosmic microwave background spectrum and the equation of state of dark energy, *Phys Rev Lett* 93, 221302.
- Enqvist, K., Mazumdar, A. and Pérez-Lorenzana, A., 2004: Dumping inflation energy density out of this world, *Phys Rev D* 70, 103508.
- Enqvist, K., Jokinen, A. and Mazumdar, A., 2004: Dynamics of minimal supersymmetric standard model flat directions consisting of multiple scalar fields, *J Cosmology and Astroparticle Physics* 01, 008.
- Enqvist, K., and Väihkönens, A., 2004: Non-Gaussian perturbations in hybrid inflation, *J Cosmology and Astroparticle Physics* 09, 006.
- Enqvist, K., and Högdahl, J., 2004: Scalar condensate decay in a fermionic heat bath in the early universe, *J Cosmology and Astroparticle Physics* 09, 013.
- Enqvist, K., Jokinen, A. and Mazumdar, A., 2004: Seed perturbations for primordial magnetic fields from minimally supersymmetric standard model flat directions, *J Cosmology and Astroparticle Physics* 11, 001
- Falanga, M., et al. (incl. Poutanen J.), 2005: INTEGRAL spectroscopy of the accreting millisecond pulsar XTE J1807-294 in outburst. *Astron. Astrophys.* 436, 647-652.
- Falanga, M., et al. (incl. Poutanen J.), 2005: INTEGRAL and RXTE observations of accreting millisecond pulsar IGR J00291+5934 in outburst. *Astron. Astrophys.*, 444, 15-24.
- Falanga M., Bonnet-Bidaud J.M. and Suleimanov V., 2005: INTEGRAL broadband X-ray spectrum of the intermediate polar V709 Cassiopeiae. *Astron. Astrophys.*, 444, 561-564.
- Falomo, R., Kotilainen, J.K., et al., 2004: The cosmic evolution of quasar host galaxies. *Astrophys. J.*, 604, 495 - 507.

- Falomo, R., Kotilainen, J.K., et al., 2005: VLT adaptive optics imaging of QSO host galaxies and their close environment at $z = 2.5$: Results from a pilot program. *Astron. Astrophys.*, 434, 469-473.
- Ferrer, F., Räsänen, S. and Väliviita, J., 2004: Correlated isocurvature perturbations from mixed inflation-curvaton decay, *JCAP* 10, 010.
- Fluri D.M., Berdyugina, S.V., 2005: Flip-flops as observational signatures of different dynamo modes in cool stars, *Sol. Phys.* 224 (1-2), 153-160.
- Flynn, C., 2004: Cosmic Helium Production. - *Publications of the Astronomical Society of Australia*, 21, 126 - 128.
- Fort, J. et al. (incl. Ciprini, S., Lindfors, E., Pasanen, M., Sillanpää, A., Takalo, L.), 2005: Physics and astrophysics with a ground-based gamma-ray telescope of low energy threshold. *Astroparticle Physics* 23(5), 493-509.
- Fuentes-Carrera, I., et al. (incl. Salo, H., Laurikainen, E.), 2004: The isolated interacting galaxy pair NGC 5426/27 (Arp 271). *Astron. Astrophys.* 415, 451-469.
- Gänsicke, B. T. et al. (incl. Hakala, P.), 2005: A ZZCeti white dwarf in SDSSJ133941.11+484727.5. *MNRAS*, 365, 969-976.
- Gierlinski, M., Poutanen J., 2005: Physics of accretion in the millisecond pulsar XTE J1751-305, *MNRAS* 359, 1261-1276.
- Gromov, A., Baryshev, Yu., Teerikorpi, P., 2004: Two-fluid matter-quintessence FLRW models: energy transfer and the equation of state of the universe. *Astron. Astrophys.*, 415, 813-820.
- Hackman, Thomas: *Doppler imaging and photometric time series analysis of stellar spot activity. Report 1/2004*, Observatory, University of Helsinki
- Hagen-Thorn, V.A, Hagen-Thorn., E.I., Takalo, L.O., Sillanpää, A., 2005: Analysis of color variability of ON 231 in 1994 - 2002. *Astronomy Reports* 49: 368-373.
- Haikala, L. K., Harju, J., Mattila, K., Toriseva, M., 2005: Clumpy filaments of the Chamaeleon I cloud: C¹⁸O mapping with the SEST. *Astron. Astrophys.* 431, 149-163.
- Hakala, P.; Ramsay, G., 2004: XMM-Newton observations of OY Car III: OM light curve modelling, X-ray timing and spectral studies. *Astron. Astrophys.*, 416, 1047-1055.
- Hakala, P., Ramsay, G., Byckling, K., 2004: Monitoring the spin up in RX J0806+15. *MNRAS*, 353, 453-456.
- Hakala, P., et al., 2004: XMM-Newton observations of the dwarf nova YZ Cnc in quiescence. *Astron. Astrophys.* 420, 273-281.
- Hakala, P. et al. (incl. Muhli, P., Hannikainen, D., Vilhu, O., 2005: XMM-Newton observations of UW CrB: detection of X-ray bursts and evidence for accretion disc evolution. *MNRAS*, 356, 1133-1138.
- Hannikainen, D. C., et al. (incl. Hakala, P.) 2005: The X-ray source population of the globular cluster M15: Chandra high-resolution imaging. *MNRAS*, 357, 325-332.
- Hannikainen, D. C., et al. (incl. Vilhu, O., Hjalmarsdotter, L., Poutanen, J., Hakala, P.), 2005: Characterizing a new class of variability in GRS 1915+105 with simultaneous INTEGRAL/RXTE observations. *Astron. Astrophys.* 435, 995-1004.
- Hannikainen, D. C. et al. (incl. Schultz, J., Lund, N., Vilhu, O.), 2005: Discovery of a new INTEGRAL source: IGR J19140+0951. *Astron. Astrophys.* 423, L17-L20.
- Hänennen, J., Flynn, C., 2004. Numerical simulations of radial heating in the Galaxy. *Astron. Astrophys.* 421, 1001-1010.

- Harjunpää, P., Lehtinen, K., Haikala, L. K., 2004: The relationship of CO abundance to extinction and N(H₂). Observations of globules and the dependence on star formation activity. *Astron. Astrophys.* 421, 1087-1099.
- Harjunpää, Päivi: Carbon monoxide emission, optical extinction and polarization in nearby molecular clouds. Observatory Report 2/2005, University of Helsinki. (Ph.D. Thesis)
- Heidt, J., et al. (incl. Takalo, L., Rekola, R. and Sillanpää, A.) 2004: Evolution of BL Lac host galaxies. *Astron. Astrophys.*, Vol. 418, pp. 813-825.
- Heikkonen, J., Juujärvi J., Ridderstad M., Kotiaho T., Ketola R., Tarkiainen, V., 2004: A New Maximum Likelihood Approach with Asymmetric Error Function for Multicomponent Mass Spectra Analysis. *Eur. J. Mass Spectrom.* 10, 573-578.
- Holmberg, J., Flynn, C., 2004: The local surface density of disc matter mapped by Hipparcos. *MNRAS*, 352, 440-446.
- Holopainen, J., Flynn, C., 2004: Luminosity limits on white dwarfs in a Galactic shroud. *MNRAS* 351, 721-726.
- Hotzel, S., Harju, J., Walmsley, C. M., 2004: The NH₃/N₂H⁺ abundance ratio in dense cores. *Astron. Astrophys.* 415, 1065-1072
- Ibragimov, A., Poutanen, J., et al., 2005: Broad-band spectra of Cygnus X-1 and correlations between spectral characteristics, *MNRAS*, 362, 1435-1450.
- Järvinen, S.P., Berdyugina, S.V., Tuominen, I., et al., 2005: Magnetic activity in the young solar analog AB Dor - Active longitudes and cycles from long-term photometry. *Astron. Astrophys.* 432, 657-664.
- Järvinen, S.P., Berdyugina, S.V., Strassmeier, K.G., 2005: Spots on EK Draconis - Active longitudes and cycles from long-term photometry. *Astron. Astrophys.* 440, 735-741.
- Johansson, P. H.; Väisänen, P.; Vaccari, M., 2004: A population of extreme mid-to-near-infrared sources: Obscured AGN and dusty starbursts. *Astron. Astrophys.* 427, 795-801.
- Juvela, M., 2005: Efficient Monte Carlo methods for continuum radiative transfer. *Astron. Astrophys.* 440, 531-546.
- Juvela, M., Padoan, P., 2005: Multiresolution Radiative Transfer for Line Emission. *Astrophys. J.*, 618, 744-756.
- Käpylä, P.J., Korpi, M.J., Tuominen, I., 2004: Local models of stellar convection: Reynolds stresses and turbulent heat transport. *Astron. Astrophys.*, 422, 793-816
- Käpylä, P.J., Korpi, M.J., Ossendrijver, M., Tuominen, I., 2005: Estimates of the Strouhal number from numerical models of convection, *Astron. Nachr.* 326 (3-4), 186-189.
- Käpylä, P.J., Korpi, M.J., Stix, M., Tuominen, I., 2005: Local models of stellar convection II. Rotation dependence of the mixing length relations. *Astron. Astrophys.*, 438, 403-410.
- Keihänen, E., Kurki-Suonio, H., Poutanen, T., 2005: MADAM - a map-making method for CMB experiments, *MNRAS*, 360, 390-400.
- Keihänen, E., Kurki-Suonio, H., Poutanen, T., et al., 2004: A maximum likelihood approach to the destriping technique, *Astron. Astrophys.*, 428, 287-298.
- Koivisto, T., Kurki-Suonio, H., Ravndal, F., 2005: CMB spectrum in Cardassian models, *Phys Rev D* 71, 064027.
- Kotilainen, J.K., Hyvönen, T., Falomo, R., 2005: The luminous host galaxies of high redshift BL Lac objects. *Astron. Astrophys.*, 440, 831-843.

- Korhonen H., Berdyugina, S.V., Tuominen, I., 2004: Spots on FK Com: active longitudes and "flip-flops". *Astron. Nachr.* 325 (5), 402-407.
- Korpi, M.J., 2004: Modelling the turbulent magnetized ISM, *Astrophysics and Space Science* 289 (3-4), 449-457.
- Kotilainen, J.K., Falomo,R., 2004: The optical-near-infrared colour of the host galaxies of BL Lacertae objects. *Astron Astrophys.*, 424, 107-118.
- Kotilainen, J.K., et al., 2004: The cosmic evolution of quasar host galaxies. In: Storchi-Bergmann,T., Ho,L.C., Schmitt,H.R. (eds.), *The interplay among Black Holes, Stars and ISM in Galactic Nuclei*, Cambridge University Press, 497-500.
- Kotilainen, J.K., Falomo, R., 2004: Blue colours of BL Lac host galaxies. - In: Storchi-Bergmann, T., Ho, L.C., Schmitt, H.R. (eds.), *The interplay among Black Holes, Stars and ISM in Galactic Nuclei*, Cambridge University Press, 527-528.
- Kurki-Suonio, H., Muonenen, V., Väliviita, J., 2005: Correlated primordial perturbations in light CMB and large scale structure data, *Phys Rev D* 71, 063005.
- La Franca, F. et al. (incl. Kotilainen, J.K.), 2004: The nature of the mid-infrared population from optical identifications of the ELAIS-S1 sample. *Astron. J.*, 127, 3075-3088.
- Laine, S., Zheng, J.-Q., Valtonen, M.J., 2004: Improved Models for the Evolution of the Coma Cluster of Galaxies, *Astronomical Journal*, 127, 765
- Laurikainen, E., Salo, H., Buta, R., 2004: Comparison of bar strengths and fractions of bars in active and nonactive galaxies. *Astrophys. J.*, 607, 103-124.
- Laurikainen, E., Salo, H., et al., 2004: Bar-induced perturbation strengths of the galaxies in the Ohio State University Bright Galaxy Survey – I. *MNRAS*, 355, 1251-1271.
- Laurikainen, E., Salo, H., Buta, R., 2005: Multicomponent decompositions for a sample of S0 galaxies, *MNRAS* 362, 1319-1347.
- Lee, H.-C., et al. (incl. Holopainen, J., Flynn, C.), 2004: Photometric Properties of White Dwarf Dominated Halos. *Publications of the Astronomical Society of Australia*, 21, 153-156.
- Lee, H.-C. et al. (incl. Flynn, C.), 2004: Is the initial mass function of low surface brightness galaxies dominated by low-mass stars? *MNRAS*, 353, 113-117.
- Lehtinen, K., Russeil, D., Juvela, M., Mattila, K., Lemke, D., 2004: ISO far infrared observations of the high latitude cloud L 1642. I. The density and temperature structure. *Astron. Astrophys.* 423, 975-982.
- Lehtinen, K., Mattila, K., Lemke, D., 2005: A cold globule with a Class 0/I embedded source. *Astron. Astrophys.* 437, 159-168.
- Lindfors, E. J., Valtaoja, E., Türler, M., 2005: SSC mechanism in the gamma-ray blazar 3C 279. *Astron. Astrophys.*, 440, 845-853.
- Maffei, P., Ciprini, S., Tosti, G., 2005: Blue and infrared light curves of the mysterious pre-main-sequence star V582 Mon (KH 15D) from 1955 to 1970. *MNRAS*, 357, 1059-1067.
- Mäkinen, K., Lehto, H.J., Vainio, R. and Johnson, D.R.H., 2004: Proper motion analysis of the jet of R Aquarii, *Astron Astrophys* 424, 157-164.
- Marsden, S.C., Berdyugina S.V., et al., 2005: A sun in the spectroscopic binary IM Pegasi, the guide star for the Gravity Probe B mission. *ApJ* 634, L173-L176.
- Misra, R., et al. (incl. B. Mukhopadhyay), 2004: The chaotic behavior of the black hole system GRS 1915+105. *Astrophys. J.*, 609, 313-316.

- Myltari, A., Lehto, H., Valtonen, et al., 2004: Symbolic Dynamics and Chaos in the Three-Body Problem, ASP Conf. Ser. 316: Order and Chaos in Stellar and Planetary Systems, 316, 57.
- Nevalainen, J. et al., 2005: XMM-Newton EPIC Background Modeling for Extended Sources. *Astrophys. J.*, 629, 172-191.
- Nurmi, P., 2004: Observational Properties of Synthetic Visual Binary Catalog. Rev. *Mex. Astronomy & Astrophysics*, 21, 263.
- Nurmi, P., 2005: Combining Gaia Windows: The Method and Simulations. *Astrophys. Space Sci.*, 298, 559-575.
- Ogle, P.M. et al. (incl. Tornikoski, M.), 2005: Multiwavelength observations of radio galaxy 3C 120 with XMM-Newton. *Astrophys. J.*, 618, 139-154.
- Padoan, P., et al. (incl. Juvela, M.), 2004: The Average Magnetic Field Strength in Molecular Clouds: New Evidence of Super-Alfvénic Turbulence. *Astrophys. J.* 604, L49-L52.
- Padoan, P., et al. (incl. Juvela, M.), 2004:: Electron abundance in protostellar cores. *Astrophys. J.* 614, 203-210.
- Padoan, P., Juvela, M., Pelkonen, V.-M., 2005: High-Resolution Mapping of Interstellar Clouds by Near-Infrared Scattering. *Astrophys. J.*, 636, L101-L104.
- Paizis, A., et al., (incl. Tikkanen, T., Vilhu, O., 2005: Resolving the hard X-ray emission of GX 5-1 with INTEGRAL. *Astron. Astrophys.* 443, 599-608.
- Paturel, G., Teerikorpi, P., 2004: The extragalactic Cepheid distance bias: Numerical simulations. *Astron. Astrophys.*, 413, L31.
- Paturel, G., Teerikorpi, P., 2005: The extragalactic Cepheid Bias: significant influence on the cosmic distance scale. - *Astronomy & Astrophysics* 443: 883-889.
- Penttilä, A., Lumme, K., 2004: The effect of particle shape on scattering - a study with a collection of axisymmetric particles and sphere clusters. *Journal of Quantitative Spectroscopy and Radiative Transfer*, 89, 303-310.
- Pian, E. et al. (incl. Sillanpää, A., Takalo, L., Lindfors, E., Nilsson, K., Pasanen, M., Pursimo, T., Savolainen, T., Tornikoski, M., Valtaoja, E.), 2005: INTEGRAL observations of the field of the BL Lacertae object S5 0716+714. *Astron. Astrophys.*, 429, 427-431.
- Piironen, V., Berdyugin, A., Mikkola, S., Coyne, G.V., 2005: Polarimetric Study of the Massive Interacting Binary W Serpentis: Discovery of High-Latitude Scattering Spot/Jet. *Astrophys. J.*, 632, 576 - 589.
- Poutanen, J., Gierlinski, M., 2004: Modelling the pulse profiles of accreting millisecond pulsars and X-ray bursters. *Nuclear Physics B (Proc. Suppl.)* 132, 640-643.
- Poutanen, J., Stern, B.E., 2005: Gamma-ray burst spectra from continuously accelerated electrons, *Il Nuovo Cimento C* 28, N3, 443-446.
- Poutanen, T., Maino, D., Kurki-Suonio, H., Keihänen, E. and Hivon, E., 2004: Cosmic microwave background power spectrum estimation with the destriping technique, *MNRAS*, 353, 43-58.
- Prieto, M.A. et al. (incl. Reunanen, J., Kotilainen, J.). 2004: Unveiling the central parsec region of an AGN: the Circinus nucleus in the near-infrared with the VLT. *Astrophys. J.* 614, 135 - 141.
- Raiteri, C.M., et al. (incl. Ibrahimov, M.A., Nilsson, K., Pursimo, T., Teräsranta, H., Tornikoski, M., Berdyugin, A., Byckling, K., Ciprini, S., Hakala, P., Lähteenmäki, A., Lindfors, E., Ostorero, L., Pasanen, M., Sillanpää, A., Takalo, L.O.), 2005: The WEBT campaign to observe AO 0235+16 in the 2003-2004

- observing season. Results from radio-to-optical monitoring and XMM-Newton observations. *Astron. Astrophys.*, 438, 39-53.
- Ramsay, G., et al., (incl. Hakala, P.), 2005: XMM-Newton observations of AM CVn binaries. *Astron. Astrophys.* 440, 675-681.
- Ramsay, G., Hakala, P., 2005: RApid Temporal Survey (RATS) - I. Overview and first results. *MNRAS*, 360, 314-321.
- Ramsay, G., Hakala, P. et al., 2005: XMM-Newton observations of the ultra-compact binary RX J1914+24. *MNRAS*, 357, 49-55.
- Rautiainen, P., Salo, H., Buta, R., 2004: Dynamical modelling of a remarkable four-armed barred spiral galaxy ESO 566-24. *MNRAS*, 349, 933-944.
- Rautiainen, P., Salo, H., Laurikainen, E., 2005: The pattern speeds of 38 barred galaxies, *ApJ* 631, L129-L132.
- Rawlings, M. G., Juvela, M., Mattila, K., Lehtinen, K., Lemke, D., 2005: ISO observations of 3-200 μm emission by three dust populations in an isolated local translucent cloud. *MNRAS*, 356, 810-828.
- Rekola, R., Richer, M.G., McCall, M.L., Valtonen, M.J., Kotilainen, J.K., Flynn, C., 2005: Distance to NGC 253 based on the planetary nebula luminosity function. *MNRAS*, 361, 330-336.
- Rekola, R., Jerjen, H., Flynn, C., 2005: New distances of unresolved dwarf elliptical galaxies in the vicinity of the Local Group. *Astron. Astrophys.*, 437, 823-835.
- Renda, A. et al. (incl. Flynn, C., Brook, C.B.), 2005: The stellar halo metallicity-luminosity relationship for spiral galaxies. *MNRAS*, 363, L16-20.
- Rocha-Pinto, H.J. et al. (incl. Flynn, C., Hänninen, J.), 2004: Chemical enrichment and star formation in the Milky Way disk. III. Chemodynamical constraints. *Astron. Astrophys.*, 423, 517-535.
- Rocha-Pinto, H. J., et al. (incl. Flynn, C., Hänninen, J.), 2004: Velocities of Galactic disk late-type stars (Rocha-Pinto+, 2004). - VizieR Online Data Catalog.
- Rodriquez-Gil, P. et al. (incl. Lehto, H.), 2005: HS 0943+1404, a true intermeidate polar. *Astron. Astrophys.* 440, 701-709.
- Rodriguez, J., et al., (Hannikainen, D. C., Schultz, J.), 2005: Unveiling the nature of the high energy source IGR J19140+0951. *Astron. Astrophys.* 432, 235-247.
- Romeo, A.D., Portinari, L., 2005: Simulating galaxy clusters - III. Properties of the intracluster stars. *MNRAS*, 357, 478-488.
- Romeo, A.D., Sommer-Larsen, J., Portinari, L., 2005: Simulating galaxy clusters - II. Global star formation histories and the galaxy populations. *MNRAS*, 361, 983-996.
- Rowan-Robinson, M. et al. (incl. Vaisanen, P., Kotilainen, J.K.,), 2004: The European Large Area ISO Survey (ELAIS): the final band-merged catalogue. *MNRAS*, 351, 1290-1306.
- Sadat, R., et al., (incl. Nevalainen, J.), 2005: The XMM-Newton _ project. *Astron. Astrophys.* 437, 31-38.
- Sbarufatti, B. et al. (incl. Kotilainen, J.), 2005: ESO Very Large Telescope Optical Spectroscopy of BL Lacertae Objects. I. New Redshifts. *Astron. J.* 129, 559-566.
- Scarpa, R. et al. (incl. Kotilainen, J.K.), 2005: Resolving the host galaxies of quasars at $z = 2.5$ with VLT + NACO. *The Messenger*, 120, 40-41.
- Schultz, J., Hakala, P., Huovelin, J., 2004: Polarimetric survey of low-mass X-ray binaries. *Baltic Astronomy*, 13, 581-595.
- Schultz, Juho: Studies of Accretion Disks in X-ray Binaries. Observatory Report 5/2005, University of Helsinki. (Ph.D. Thesis)

- Stern, B.E., Poutanen, J., 2004: Gamma-ray bursts from synchrotron self-Compton emission. MNRAS, 352, L35-L39.
- Stern, B.E., Poutanen, J., 2005: Blind search for the real sample: application to the origin of ultra-high-energy cosmic rays. ApJ, 623, L33-L36.
- Suleimanov, V., et al., 2005: RXTE broadband X-ray spectra of intermediate polars and white dwarf mass estimates, A&A, 435, 191-199.
- Szell, A., Merritt, D., Mikkola, S., 2005: Evolution of Binary Supermassive Black Holes via Chain Regularization. In: Nonlinear Dynamics in Astronomy and Physics, A Workshop Dedicated to the Memory of Professor Henry E. Kandrup, ed. J. R. Buchler, S. T. Gottesman and M. E. Mahon. Annals of the New York Academy of Sciences, 1045, 225-231.
- Teegarden, B. J., et al., (incl., Hannikainen, D. C.), 2005.: INTEGRAL SPI Limits on Electron-Positron Annihilation Radiation from the Galactic Plane. Astrophys. J. 621, 296-300.
- Teerikorpi, P., 2004: A generalized Eddington bias and galaxy counts. Astron. Astrophys., 424, 73-78.
- Teerikorpi, P., Chernin, A., Baryshev, Yu., 2005: The quiescent local Hubble flow, pairwise velocity dispersion, and local tests in $a = 1$ universe. Astron. Astrophys. 440, 791-797.
- Teräsranta, H., Achren, J., Hanski, M., Heikkilä, J., Holopainen, J., Joutsamo, O., Juhola, M., Karlamaa, K., Katajainen, S., Keinänen, P., Koivisto, P., Koskimies, M., Könönen, P., Lainela, M., Lähteenmäki, A., Mäkinen, K., Niemelä, T., Nurmi, P., Pursimo, T., Rekola, R., Savolainen, T., Tornikoski, M., Torppa, J., Valtonen, T., Varjonen, N., Vilenius, E., Virtanen, J., Wiren, S., 2004: Twenty years monitoring of extragalactic sources at 22, 37 and 87 GHz. Astron. Astrophys., 427, 769-771.
- Teräsranta, H., Wiren, S., Koivisto, P., Saarinen, V., Hovatta, T., 2005: 24 year monitoring of extragalactic sources at 22 and 37 GHz. Astron. Astrophys., 440, 409-410.
- Thom, C. et al. (incl. Flynn, C., Hänninen, J., Holmberg, J.), 2005: Kinematics of the Galactic halo from horizontal branch stars in the Hamburg/ESO survey. MNRAS, 360, 354-359.
- Thomsen, B., et al. (incl. Laurikainen, E., Pursimo,T.), 2004: The supernova 2003Iw associated with X-ray flash 031203. Astron. Astrophys., 419, L21-L25.
- Torniainen, I., Tornikoski, M., Teräsranta, H., et al., 2005: Long term variability of inverted-spectrum sources and candidates. Astron. Astrophys. 435, 839-856.
- Tóth, L. V., et al. (incl. Mattila, K.), 2004: Very cold cores in the Taurus Molecular Ring as seen by ISO. Astron. Astrophys. 420, 533-546.
- Tóth, L. V. et al., 2004: A Faint ISO Globule Isoss J 20380+6352. Baltic Astronomy 13, 439-442.
- Umbreit, S. et al. (incl. Mikkola, S.), 2005: The Decay of Accreting Triple Systems as Brown Dwarf Formation Scenario. Astrophys. J., 623, 940-951.
- Umbreit, S. et al. (incl. Mikkola, S.), 2005: Brown dwarfs from decaying accreting triple systems. Memorie della Societa Astronomica Italiana, 76, 217-222
- Väisänen, P., Johansson, P.H., 2004: An overdensity of extremely red objects around faint mid-IR galaxies. Astron. Astrophys., 422, 453-463.
- Väisänen, P., Johansson, P.H., 2004: Number counts of bright extremely red objects: Evolved massive galaxies at $z \sim 1$. Astron. Astrophys., 421, 821-832.
- Vainio, R., Spanier, F., 2005: Evolution of Alfvén waves by three-wave interactions in super-Alfvénic shocks, Astron Astrophys, 437, 1-8.

- Vainio, R., et al., 2004: Conversion of bulk kinetic energy into radiation in AGNs and GRBs: Particle transport effects, *Astron Astrophys* 414, 463-474.
- Valtonen, M., Karttunen, H., 2005: The Three-Body Problem. Cambridge University Press, UK. ISBN 0521852242., 348 p.
- Valtonen, M., Mylläri, A., et al., 2005: Dynamics of rotating triple systems: statistical escape theory versus numerical simulations. *MNRAS*, 364, 91-98.
- Viironen, K., Poutanen, J., 2004: Light curves and polarization of accretion- and nuclear-powered millisecond pulsars. *Astron. Astrophys.*, 426, 985-997.
- Villar-Sbaffi, A. et al. (incl. Piironen, V.), 2005: First Ever Polarimetric Detection of a Wind Interaction Region and a Misaligned Flattening of the Wind in the Wolf-Rayet Binary CQ Cephei. *Astrophys. J.* 623, 1092-1104.
- Villata, M. et al. (incl. Takalo, L.O., Sillanpää, A., Ciprini, S., Karttunen, H., Lainela, M., Nillson, K., J., Pasanen, M., Pursimo, T.), 2004: The WEBT BL Lac campaign 2001 and its extension. Optical light curves and colour analysis 1994-2002. *Astron. Astrophys.*, 421, 103.
- Villata, M. et al. (incl. Teräranta, H., Koivula, P., Wieren, Takalo, L.O., Sillanpää, A.), 2004: The WEBT campaigns on BL Lacertae, Time and cross-relation analysis of optical and radio light curves 1968-2003. *Astron. Astrophys.*, 424, 497-507.
- Virtanen, J.J.P., Vainio, R., 2005: Particle acceleration in thick parallel shocks with high compression ratio, *Astron. Astrophys.* 439, 461-464.
- Virtanen, J.J.P., Vainio, R., 2005: Stochastic acceleration in relativistic parallel shocks, *Astrophys. J.*, 621, 313-323.
- Wilke, K., et al., (incl. Mattila, K.), 2004: The Small Magellanic Cloud in the far infrared. II. Global properties. *Astron. Astrophys.*, 414, 69-78.
- You, J., Duemmler, R., 2005: Photometric periods of HN Peg from multichannel analysis, *Astron. Astrophys.*, 433, 297-304.
- Zheng, J.Q., Flynn, C. et al., 2004: M Dwarfs from Hubble Space Telescope Star Counts. V. The I-Band Luminosity Function. *Astrophys. J.*, 601, 500-501.

Applications, Earth Observations, Geodesy, and Space Technology

- Ahokas, E., Yu, X., Oksanen, J., Hyppä, J., Kaartinen, H., Hyppä, H., 2005: Optimization of the Scanning Angle for Countrywide Laser Scanning. The Netherlands, International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, XXXVI (Part 3/W19), 115-119.
- Anttila, P., 2005: Assessment of manual and automated methods for updating stand level forest inventories based on aerial photography. *Dissertationes forestales* 9. 42 p.
- Arslan, A., Hallikainen, M., Pulliainen, J., 2005: Investigation of snow wetness parameter using a two-phase backscattering model, *IEEE Transactions on Geoscience and Remote Sensing*, vol. 43, no. 8, pp. 1827-1833.
- Bais, A. F., et al. (incl. Koskela, T.), 2005: Portable device for characterizing the angular response of UV spectroradiometers. *Applied Optics*, 44, 7136-7143.
- Bertaux, J.L., et al. (incl. Kyrölä, Tamminen, J., Leppelmeier, G.W., Sofieva, V., Hassinen, S., 2004: First results on GOMOS/Envisat. *Adv. Space Res.*, 33, 1029-1035.
- Blaschke, T., Burnett, C., Pekkarinen, A., 2004: New contextual approaches using image segmentation for objectbased classification. In: De Meer, F. & de Jong,

- S. (eds.). Remote sensing image analysis: Including the spatial domain. Kluwer Academic Publishers, Dordrecht. 211-236.
- Chen, Q., Zhang, Y., Ekroos, A., Hallikainen, M., 2004: The role of remote sensing technology in the EU Water Framework Directive (WFD), Environmental Science and Policy, 7 (4), 267-276.
- Colliander, A., Tauriainen, S., Auer, T., Kainulainen, J., Uusitalo, J., Toikka, M., Hallikainen, M., 2004: MIRAS reference radiometer: a fully polarimetric noise injection radiometer. IEEE Geoscience and Remote Sensing Letters, vol. 1, no. 3, pp. 228-231.
- Colliander, A., Tauriainen, S., Auer, T., Kainulainen, J., Uusitalo, J., Toikka, M., Hallikainen, M., 2005: MIRAS Reference Radiometer: A fully polarimetric noise injection radiometer, IEEE Transactions on Geoscience and Remote Sensing, vol. 43, no. 5, pp. 1135-1143.
- Corbella, I., Torres, F., Camps, A., Colliander, A., Martín-Neira, M., Ribó, S., Rautiainen, K., Duffo, N., Vall-llossera, M., 2005: MIRAS end-to-end calibration. Application to SMOS L1 processor, IEEE Transactions on Geoscience and Remote Sensing, vol. 43, no. 5.
- Corbella, I., Torres, F., Camps, A., Duffo, N., Vall-llossera, M., Rautiainen, K., Martín-Neira, M., Colliander, A., 2005: Analysis of correlation and total power radiometer front-ends using noise waves, IEEE Transactions on Geoscience and Remote Sensing, vol. 43, no. 11, pp. 2452-2459.
- Engdahl, E., Pulliainen, J., Hallikainen, M., 2004: Boreal forest coherence-based measures of interferometric pair quality for operational stem volume retrieval. IEEE Geoscience and Remote Sensing Letters, vol. 1, no. 3, pp. 228-231.
- Fioletov, V. E., et al. (incl. Kaurola, J.), 2004: UV index climatology over the United States and Canada from ground-based and satellite estimates. J. Geophys. Res., 109, D22308, doi:10.1029/2004JD004820.
- Fussen, D., et al. (incl., Kyrölä, E., Tamminen, J., Sofieva, V., Hassinen, S., Seppälä, A., Verronen, P.), 2004: Global measurement of the mesospheric sodium layer by the star occultation instrument GOMOS. Geophys. Res. Lett., 31, L24110, 10.1029/2004GL021618.
- Fussen, D., F. et al. (incl. Kyrölä, E., Tamminen, J., Sofieva, V., Hassinen, S., Seppälä, A., Verronen, P.T.), 2005: GOMOS serendipitous data products: The mesospheric sodium layer and. Adv. Space Res., doi:10.1016/j.asr.2005.03.009.
- Fussen, D., F. et al. (incl. Kyrölä, E., Tamminen, J., Sofieva, V., Hassinen, S., Seppälä, A., Verronen, P.T.), 2005: Autoregressive smoothing of GOMOS transmittances. Adv. Space Res., doi:10.1016/j.asr.2005.04.007.
- Gröbner, J., et al. (incl. Koskela, T.), 2005: Traveling reference spectroradiometer for routine quality assurance of spectral solar ultraviolet irradiance measurements. Applied Optics, 44, , 5321-5331.
- Gurvich, A.S., Dalaudier, F., Sofieva, V.F, 2005: Study of stratospheric air density irregularities based on two-wavelength observation of stellar scintillation by Global Ozone Monitoring by Occultation of Stars (GOMOS) on Envisat. J. Geophys. Res., 110, D11110, doi: 10.1029/2004JD005536.
- Haario, H., Laine, M., Lehtinen, M., Saksman, E., Tamminen, J., 2004: Markov chain Monte Carlo methods for high dimensional inversion in remote sensing, J. R. Statist. Soc. B, 66, 591-607.
- Haario, H., Laine, M., Lehtinen, M., Saksman, E., Tamminen, J., 2004: MCMC methods for high dimensional inversion in remote sensing (with discussion). Journal of the Royal Statistical Society B, 66, 3, 591-607.
- Haario, H., Saksman, E., Tamminen, J., 2005: Componentwise adaptation for high dimensional MCMC. Computation. Stat., 20, 265-274.

- Häkli, J., Ala-Laurinaho, J., Räisänen, A.V., 2005: Numerical synthesis method for designing a shaped dual reflector feed system. IEEE Proc. on Microwaves, Antennas and Propagation, 152, 5, 311-318.
- Häkli, J., Koskinen, T., Lönnqvist, A., Säily, J., Viikari, V., Mallat, J., Ala-Laurinaho, J., Tuovinen, J., Räisänen, A.V., 2005: Testing of a 1.5 m reflector antenna at 322 GHz in a CATR based on a hologram, IEEE Trans. on Antennas and Propagation, 53, 10, 3142-3150.
- Häkli, J., Koskinen, T., Ala-Laurinaho, J., Räisänen, A.V., 2005: Dual reflector feed system for hologram based compact antenna test range, IEEE Trans. on Antennas and Propagation, 53, 10, 3940-3948.
- Hendriks, J., Pellikka, P., 2004: Estimation of reflectance from a glacier surface by comparing spectrometer measurements with satellite-derived reflectances. Zeitschrift für Gletscherkunde und Glazialgeologie 38(2), 139-154.
- Honkavaara, E., 2004: Calibration in direct georeferencing: theoretical considerations and practical results. Invited article in Direct Georeferencing Column, Photogrammetric Engineering & Remote Sensing, 79, 1207-1208.
- Huttunen S., Taipale, T., Lappalainen, N.M., Kubin, E., Lakkala, K., Kaurola, J., 2005: Environmental specimen bank samples of Pleurozium schreberi and Hylocomium splendens as indicators of the radiation environment at the surface. Environmental Pollution, 133, 315-326.
- Hyvönen, P., Pekkarinen, A., Tuominen, S., 2005: Segment-level stand inventory for forest management. Scandinavian Journal of Forest Research 20(1), 75-84.
- Hyypää, J., Mielonen, T., Hyypää, H., Maltamo, M., Yu, X., Honkavaara, E., Kaartinen, H., 2005: Using individual tree crown approach for forest volume extraction with aerial images and laser point clouds. International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences XXXVI(Part 3/W19) : 144-149.
- Hyypää, H., Yu, X., Hyypää, J., Kaartinen, H., Honkavaara, E., Rönnholm, P., 2005: Factors affecting the quality of DTM generation in forested areas. International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, XXXVI(Part 3/W19): 85-90.
- Janhunen, P., 2004: Electric sail for spacecraft propulsion. AIAA Journal of Propulsion and Power, 20, 4, 763-764.
- Kaartinen, H., et al. (incl. Hyypää, J., Hyypää, H., Matikainen, L.), 2005: Accuracy of 3D city models: EuroSDR comparison. The Netherlands, International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, XXXVI(Part 3/W19): 227-232.
- Kaasalainen, S., Hyypää J., T. Mielonen, T., 2005: Laboratory calibration of backscattered intensity for laser scanning land targets. The Netherlands, International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, XXXVI(Part 3/W19): 13-17.
- Kaasalainen, S., Ahokas, E., Hyypää, J., Suomalainen, J., 2005 Study of surface brightness from backscattered laser intensity: calibration of laser data. IEEE Geoscience and Remote Sensing Letters, 2(3), 255-259.
- Kaasalainen, S., Peltoniemi, J., Näränen, J., Suomalainen, J., Kaasalainen, M., Stenman, F., 2005: Small-angle goniometry for backscattering measurements in the broadband spectrum. Applied Optics, 44(8), 1485-1490.
- Kaasalainen, S., Rautiainen, M., 2005: Hot spot reflectance signatures of common boreal lichens. J. Geophys. Res., D. 110, D20102.

- Kallio, K., Pulliainen, J., Ylöstalo, P., 2005: MERIS, MODIS and ETM+ channel configurations in the estimation of lake water quality from sub-surface reflectance using semi-analytical and empirical algorithms, *Geophysica*, no 41, pp. 31-55.
- Karvonen, A., Varis, J., Hakojärvi, H., and Tuovinen, J. 2004: Accuracy Considerations of Cryogenic Noise Temperature Measurements at V-band. In: Technical Digest of the International Joint Conference of the 6th Topical Symposium on Millimeter Waves - TSMMW2004, K. Mizuno and J.-W. Ra (eds.). Yokosuka, Japan. 180-183.
- Karvonen, K., Similä, M., Mäkinen, M., 2005: Open water detection from Baltic Sea ice using Radarsat-1 SAR imagery, *IEEE Geoscience and Remote Sensing Letters*, vol. 2, no. 3, pp. 275-279.
- Katila, M. 2004. Controlling the estimation errors in the Finnish multisource National Forest Inventory. The Finnish Forest Research Institute, Research Papers 910. (Ph.D. Thesis).
- Katila, M. 2005. Error variations at the pixel level in the k-nearest neighbor prediction of the Finnish multi-source national forest inventory. In: *Remote sensing and Geographical Information Systems for environmental studies. Applications in forestry*, Kleinn, C., Nieschule, J., Sloboda, B. (eds.). Schriften aus der Forstlichen Fakultät der Universität Göttingen und der Niedersächsischen Forstlichen Versuchsanstalt. Band 138. J.D. Sauerländer's Verlag, Frankfurt am Main, 265-274.
- King, D.J., et al. (incl. Pellikka, P.K.E.), 2005. Modelling and mapping forest ice storm damage using remote sensing and environmental data. *Natural Hazards*, 35, 321-342.
- Koistinen, P., Holmström, L. & Tomppo, E. 2005. Using local linear smoothing for predicting regional averages in multi-source forest inventory. In: Kleinn, C., Nieschule, J. & Sloboda, B. (eds.). *Remote sensing and Geographical Information Systems for environmental studies. Applications in forestry*. Schriften aus der Forstlichen Fakultät der Universität Göttingen und der Niedersächsischen Forstlichen Versuchsanstalt. Band 138. J.D. Sauerländer's Verlag, Frankfurt am Main, 275-283.
- Koponen, S., Kallio, K., Pulliainen, J., Vepsäläinen, J., Pyhälähti T., Hallikainen, M., 2004: Water Quality Classification of Lakes Using 250-m MODIS Data. *IEEE Geoscience and remote sensing letters* 1(4), 287-291.
- Koponen, S., Pulliainen, J., Kallio, K., Vepsäläinen, J., Pyhälähti, T., Hallikainen, M., 2004: Water quality classification of lakes using 250-m MODIS data, *Geoscience and Remote Sensing Letters*, vol. 1, no. 4, pp. 287- 291.
- Korpela, I., Anttila, P., 2004: Appraisal of the mean height of trees by means of image matching of digitised aerial photographs. *Photogrammetric Journal of Finland*, 19, 23-36.
- Koskinen, T., Ala-Laurinaho, J., Säily, J., Lönnqvist, A., Häkli, J., Mallat, J., Tuovinen, J., Räisänen, A.V., 2005: Experimental study on a hologram-based compact antenna test range at 650 GHz, *IEEE Trans. on Microwave Theory Techniques*, vol. 53, 10, 2999-3006.
- Kozlovskaya, E., et al. (incl. Yliniemi, J.), 2004: Density-velocity relationship in the upper lithosphere obtained from P- and S-wave velocity models along the EUROBRIDGE'97 wide-angle reflection and refraction profile and gravity data, *Acta Geophysica Polonica*, 52, 397-424.

- Kutser, T., Pierson. D. C., Kallio, K.Y., Reinart, A., Sobek, S, 2005: Mapping lake CDOM by satellite remote sensing. *Remote sensing of Environment*, 94, 535-540.
- Kutser T., Pierson, D., Tranvik, L., Reinart, A., Sobek, S., Kallio, K., 2005: Estimating the colored dissolved organic matter absorption coefficient in lakes using satellite remote sensing. *Ecosystems* 8, 709-720.
- Kyrölä, E., Tamminen, J., Leppelmeier, G. W., Sofieva, V., Hassinen, et al., 2004: GOMOS on Envisat: An overview. *Adv. Space Res.*, 33, 1020-1028.
- Kyrölä, E., Tamminen, J., Leppelmeier, G. W., Sofieva, V., Hassinen, S., et al., 2004: Envisat/GOMOS stellar occultation: Inversion schemes and first analyses of real data. In: *Occultations for Probing Atmosphere and Climate*, edited by G. Kirchengast, U. Foelsche, and A. Steiner, Springer Verlag, 275-287.
- Laine, V., 2004: Arctic sea ice regional albedo variability and trends, 1982-1998. *J. Geophys. Res.*, 109, C06027.
- Lakkala, K., et al. (incl. Meinander, O., Koskela, T., Taalas, P.), 2005: Quality Assurance of the Solar UV Network in the Antarctic. *J. Geophys. Res.*, 110, D15101, doi:10.1029/2004JD005584.
- Lindfors, A., Vuilleumier, L., 2005: Erythemal UV at Davos (Switzerland), 1926-2003, estimated using total ozone, sunshine duration, and snow depth. *J. Geophys. Res.*, Vol. 110, D02104.
- Lönnqvist, A., Koskinen, T., Häkli, J., Säily, J., Ala-Laurinaho, J., Mallat, J., Viikari, V., Tuovinen, J., Räisänen, A.V., 2005: Hologram-based compact range for submillimeter wave antenna testing, *IEEE Trans. on Antennas and Propagation*, 53, 10, 3151–3159.
- Luque, S., Riutta, T., Joensuu, J., Tomppo, E. 2004: Spatial analysis and remote sensing for biodiversity monitoring and planning at the forest landscape level. In: *Actes Hermes-science CASSINI'04 - 7ème Conference GDR SIGMA - Géomatique et Analyse Spatiale*, June 2004, Grenoble, France. 149-155.
- Luque, S., Riutta, T., Joensuu, J., Rautjärvi, N. & Tomppo, E. 2004. Multi-source forest inventory data for biodiversity monitoring and planning at the forests landscape level. In: *Monitoring and Indicators of Forest Biodiversity in Europe - From Ideas to Operability*. Marchetti, M. (ed.). EFI Proceedings, 51, 431-444.
- Mäkelä, H., Pekkarinen, A. 2004: Estimation of forest stand volumes by Landsat TM imagery and stand-level field-inventory data. *Forest Ecology and Management*, 196, 245-255.
- Mäkynen, M., Hallikainen, M., 2004: Investigation of C- and X-band backscattering signatures of the Baltic Sea ice. *International Journal of Remote Sensing*, vol. 25, no. 11, pp. 2061-2086.
- Mäkynen, M., Hallikainen, M., 2005: Passive microwave signature observations of the Baltic Sea ice. *International Journal of Remote Sensing*, vol. 26, no. 10, pp. 2081-2106.
- Maltamo, M., Eerikäinen, K., Pitkänen J., Hyypä, J., Vehmas, M., 2004: Estimation of timber volume and stem density based on scanning laser altimetry and expected tree size distribution functions. *Remote Sensing of Environment* 90, 319-330.
- Maltamo, M., Mustonen, K., Hyypä, J., Pitkänen, J., Yu, X., 2004: The accuracy of estimating individual tree variables with airborne laser scanning in a boreal nature reserve. *Canadian Journal of Forest Research* 34, 1791-1801.
- Maltamo, M., Packalén, P., Yu, X., Eerikäinen, K., Hyypä, J., Pitkänen, J., 2005: Identifying and quantifying structural characteristics of heterogeneous boreal forests using laser scanner data. *Forest Ecology and Management*, 216, 41-50.

- Manninen, T., Stenberg, P., Rautiainen, M., Voipio P., Smolander, H., 2005: Leaf Area Index estimation of Boreal Forest using ENVISAT ASAR. *IEEE Trans. Geoscience and Remote Sensing*, 43, 2627-2635.
- Markkanen, J., Lehtinen, M., Landgraf, M., 2005: Real-Time space debris monitoring with EISCAT. *Adv. Space Res.*, 35, 1197-1209.
- Mateshvili, N. et al (incl. Kyrölä, E.), 2005: Twilight sky brightness measurements as a useful tool for stratospheric aerosol investigations. *J. Geophys. Res.*, 110, D09209, doi: 10.1029/2004JD005512.
- Milne, G.A. et al. (incl. Koivula, H., Vermeer, M.), 2004: Continuous GPS measurements of postglacial adjustment in Fennoscandia: 2. Modelling results. *J. Geophys. Res.*, 109, B02412.
- Möttönen, V.S., Räisänen, A.V., 2004: Novel wideband coplanar waveguide-to-rectangular waveguide transition. *IEEE Trans. Microwave Theory Techniques*, 52, 8, 1836-1842.
- Muukkonen, P., Heiskanen, J., 2005: Estimating biomass for boreal forest using ASTER satellite data combined with standwise forest inventory data. *Remote Sensing of Environment*, 99, 434-447.
- Næsset, E., et al. (incl. Hyppä, J., Hyppä, H., Maltamo, M.), 2004: Laser scanning of forest resources: the Scandinavian experience. *Scandinavian Journal of Forest Research* 19, 482-499.
- Pekkarinen, A. 2004. Image segmentation in multi-source forest inventory
Metsäntutkimuslaitoksen tiedonantoja. The Finnish Forest Research Institute,
Research Papers 926. (Ph.D. Thesis)
- Peltoniemi, J., Kaasalainen, S., Näränen, J., Matikainen, L., Piironen, J., 2005:
Measurement of directional and spectral signatures of light reflectance by snow.
IEEE Transactions on Geoscience and Remote Sensing, 43, 2294-2304.
- Peltoniemi, J. I., Kaasalainen, S., Näränen, J., Rautiainen, M., Stenberg, P.,
Smolander, H., Smolander, S., Voipio, P., 2005: BRDF measurement of
understory vegetation in pine forests: dwarf shrubs, lichen and moss. *Remote
Sensing of Environment*, 94, 343-354.
- Poutanen M., Jokela, J., Ollikainen, M., Koivula, H., Bilker, M., Virtanen, H., 2005:
Scale variation of GPS time series. In F. Sansò (Ed.) *A Window on the Future
of Geodesy*. IAG General Assembly in Sapporo, Japan 2003. pp. 15-20. IAG
Symposia 128, Springer Verlag.
- Poutanen M., Ollikainen, M., Koivula, H., Bilker, M., Jokela, J., Virtanen, H., 2004:
Global periodic effects in GPS time series. In: *The state of GPS vertical
positioning precision: Separation of Earth processes by space geodesy*.
Luxembourg 2003. (Ed. T. van Dam and O. Francis) Cahiers du Centre
Européen de Géodynamique et de Séismologie. Vol. 23. p. 137-142.
- Pulliainen, J., Vepsäläinen, J., Kaitala, S., Hallikainen, M., Kallio, K., Fleming, V.,
Maunula, P., 2004: Regional water quality mapping through the assimilation of
spaceborne remote sensing data to ship-based transect observations, *Journal of
Geophysical Research*, vol. 109, C12009, doi:10.1029/2003JC002167.
- Rajaniemi, S., Tomppo, E., Ruokolainen, K., Tuomisto, H., 2005: Estimating and
mapping pteridophyte and Melastomataceae species richness in western
Amazonian rainforests. *International Journal of Remote Sensing* 26, 475-493.
- Rauste, Y., 2005: Multi-temporal JERS SAR data in boreal forest biomass mapping.
Remote Sensing of Environment, 97, 263 - 275. doi:10.1016/j.rse.2005.05.002
- Rautjärvi, N., Luque, S., Tomppo, E., 2005: Mapping spatial patterns from national
forest inventory data: A regional conservation planning pool. In: *Remote
sensing and Geographical Information Systems for environmental studies*.

- Applications in forestry, Kleinn, C., Nieschule, J., Sloboda, B. (eds.). Schriften aus der Forstlichen Fakultät der Universität Göttingen und der Niedersächsischen Forstlichen Versuchsanstalt. Band 138. J.D. Sauerländer's Verlag, Frankfurt am Main, p. 293-302.
- Rautjärvi N., Luque, S., Tomppo, E., 2004: Mapping spatial patterns from National Forest Inventory data: a regional conservation planning tool. In: Remote Sensing and Geographical Information Systems for Environmental Studies – Applications in Forestry, Kleinn C., Nieschulze J., Sloboda B. (editors), Remote Sensing and Geographical Information Systems for Environmental Studies – Applications in Forestry, 293-302.
- Ricaud, P., et al. (incl. Kyrölä, E., Leppelmeier, G.W., Auvinen, H., Hassinen, S. Hauchecorne, C. Jimenez, E. Kyrö, N. Lautié, E. Le Flochmoën, N. D. Lloyd, J. Seppälä, A., Taalas, P.), 2005: Polar vortex evolution during the 2002 Antarctic major warming as observed by the Odin satellite. *J. Geophys. Res.*, 110, D05302, doi:10.1029/2004JD005018.
- Roscoe, H.K., et al., (incl. Karhu, J.A., Taalas, P.), 2005: Measurements from ground and balloons during APE-GAIA - A polar ozone library. *Adv. Space Res.*, 36, 835-845, doi:10.1016/j.asr.2005.03.016.
- Schmalwieser, A.W., et al (incl. Koskela, T), 2005: Global forecast model to predict the daily dose of the solar erythemally effective UV radiation. *Journal of Photochemistry and Photobiology*, 81, 154-162.
- Säily, J., Räisänen, A.V., 2004: Characterization of submillimeter wave absorbers from 200-600 GHz. *International Journal of Infrared and Millimeter Waves*, 25, 71-88.
- Seppälä, A., Verronen, P.T., Kyrölä, E., Hassinen, S., Backman, L., et al., 2004: Solar Proton Events of October-November 2003: Ozone depletion in the Northern hemisphere polar winter as seen by GOMOS/Envisat. *Geophys. Res. Lett.*, 31, L19107.
- Sofieva, V.F., Kyrölä, E., 2004: Abel integral inversion in occultation measurements. In: *Occultations for Probing Atmosphere and Climate*, edited by G. Kirchengast, U. Foelsche and A. Steiner , Springer Verlag, 77- 86.
- Sofieva, V.F., Kyrölä, E., 2004: Information approach to channel selection for stellar occultation measurements. In: *Occultations for Probing Atmosphere and Climate*, edited by G. Kirchengast, U. Foelsche and A. Steiner, Springer Verlag, 309-318.
- Sofieva, V.F., Kyrölä, E., Tamminen, J., Ferraguto, M., 2004: Atmospheric density, pressure and temperature profile reconstruction from refractive angle measurements in stellar occultation. In: *Occultations for Probing Atmosphere and Climate*, edited by G. Kirchengast, U. Foelsche and A. Steiner, Springer Verlag, 289-298.
- Sofieva, V.F., Kyrö, E., Kyrölä, E., 2004: Smoothness of ozone profiles: analysis of 11-years of ozone sonde measurements at Sodankylä. *Ann. Geophys.*, Vol.8, pp. 2723-2727.
- Sofieva, J.F., Tamminen, J., Haario, H., Kyrölä, E., Laine M., Lehtinen, M., 2004: Ozone profile smoothness a priori information in the inversion from limb measurements, *Ann. Geophys.*, 22, 3411-3420.
- Sofieva, V., 2005: Inverse problems in stellar occultation. Finnish Meteorological Institute Contributions, No. 49. (Ph.D. Thesis)
- Tamminen, J., 2004: Adaptive Markov chain Monte Carlo algorithms with geophysical applications. Finnish Meteorological Institute Contributions. (Ph.D. Thesis)
- Tamminen, J., 2004: Validation of nonlinear inverse algorithms with Markov chain Monte Carlo method. *J. Geophys. Res.*, D, 109, doi: 10.1029/2004JD004927.

- Tamminen, J., Kyrölä, E., Sofieva, V., 2004: Does prior information improve measurements? In: *Occultations for Probing Atmosphere and Climate*, edited by G. Kirchengast, U. Foelsche and A. Steiner , Springer Verlag, pp. 87-98.
- Thessler, S., Ruokolainen, K., Tuomisto, H., Tomppo, E. 2005: Mapping gradual landscape-scale floristic changes in Amazonian primary rain forests by combining ordination and remote sensing. *Global Ecology and Biogeography* 14, 315-325.
- Tedesco, M., Pulliainen, J., Takala, M., Hallikainen, M., Pampaloni, P., 2004: Artificial neural network-based techniques for the retrieval of snow depth from SSM/I data. *Remote Sensing of Environment*, vol. 90, pp. 76-85.
- Tomppo, E. 2004: Resource assessment: Forest resources. In: *Encyclopedia of forest sciences*, Burley, J., Evans, J., Youngquist, J.A. (eds.). Elsevier, 965-973.
- Tomppo, E., Halme, M. 2004: Using coarse scale forest variables as ancillary information and weighting of variables in k-NN estimation: a genetic algorithm approach. *Remote Sensing of Environment* 92, 1-20.
- Tuominen, S., Pekkarinen, A. 2004: Local radiometric correction of digital aerial photographs for multi source forest inventory. *Remote Sensing of Environment* 89, 72-82.
- Tuominen, S., Haakana, M. 2005: Landsat TM imagery and high altitude aerial photographs in estimation of forest characteristics. *Silva Fennica* 39, 573-584.
- Tuominen, S., Pekkarinen, A. 2005: Performance of different spectral and textural aerial photograph features in multi-source forest inventory. *Remote Sensing of Environment* 94, 256-268.
- Tuominen, S., Pekkarinen, A. 2005: Selecting the combination of aerial photograph features for multi-source forest inventory. In: *Remote sensing and Geographical Information Systems for environmental studies. Applications in forestry*, Kleinn, C., Nieschule, J., Sloboda, B. (eds.). Schriften aus der Forstlichen Fakultät der Universität Göttingen und der Niedersächsischen Forstlichen Versuchsanstalt. Band 138. J.D. Sauerländer's Verlag, Frankfurt am Main, 214-223.
- Tuovinen, J., Varis, J., Hughes, N., Jukkala, P., Sjöman, P., Ovaska, S., Laaninen, M., et al., 2004: Planck Mission With Advanced Cryogenic mm- and Submm-Wave Receiver Arrays. In: *2004 IEEE Aerospace Conference Proceedings*, D. Williamson and M. Fischman (eds.), vol. 2. Big Sky. MT, USA, 741-746.
- Urban, J., et al. (incl. Kyrölä, E), 2004: The northern hemisphere stratospheric vortex during the 2002-03 winter: Subsidence, chlorine activation and ozone loss observed by the Odin Sub-Millimetre Radiometer. *Geophys. Res. Lett.*, 31, L07103.
- Valta-Hulkonen, K., Kanninen, A., Pellikka, P., 2004: Remote sensing and GIS for detecting changes in aquatic vegetation of a rehabilitated lake. *International Journal of Remote Sensing* 25, 5745-5758.
- Valta-Hulkonen, K., Pellikka, P., Peltoniemi, J., 2004: Assessment of bidirectional effects over aquatic macrophyte vegetation in CIR aerial photographs. *Photogrammetric Engineering & Remote Sensing*, 70, 581-588.
- Valtonen, E., 2005: Space weather effects on technology, in *Space Weather: The Physics Behind a Slogan*, eds., K. Scherer, H. Fichtner, B. Heber, and U. Mall, Lecture Notes in Physics, Springer-Verlag, Berlin Heidelberg, 656, 241-274.
- Vanhellemont, F., et al (incl. Kyrölä, E., Tamminen, J., Sofieva, V., Hassinen, S., Verronen, P., Seppälä, A.) 2005: A 2003 stratospheric aerosol extinction and PSC climatology from GOMOS measurements on Envisat. *Atmospheric Chemistry and Physics*, 5, 2413-2417, SRef-ID: 1680-7324/acp/2005-5-2413.

- Vdovin, V.F., et al. (incl. Mujunen, A., Oinaskallio, E., Peltonen, J., Urpo, S.), 2005: A two-frequency two-polarization superconduction receiver for radio-astronomical investigations in the millimeter wave band. *Journal of Communications Technology and Electronics*, 50, 1118-1122.
- Vepsäläinen, J., Pyhälähti, T., Rantajärvi, E., Kallio, K., Pertola, S., Stipa, T., Kiirikki, M., Pulliainen, J., 2005: The combined use of optical remote sensing data and unattended flow-through fluorometer measurements in the Baltic Sea. *International Journal of Remote Sensing*, 26, 261-282.
- Verronen, P.T., Kyrölä, E., Tamminen, J., et al., 2005: A comparison of night-time GOMOS and MIPAS ozone profiles in the stratosphere and mesosphere. *Adv. Space Res.*, 36, 958-966.
- Verronen, P.T., Seppälä, A., Clilverd, M.A., Rodger, C.J., Kyrölä, E., Enell, C.-F., Ulich, Th., Turunen, E., 2005: Diurnal variation of ozone depletion during the October-November 2003 solar proton events. *J. Geophys. Res.*, 2005, 110, A09S32, doi:10.1029/2004JA010932.
- Viikari, V., Häkli, J., Ala-Laurinaho, J., Mallat, J., Räisänen, A.V., 2005: A feed scanning based APC technique for compact antenna test ranges. *IEEE Trans. on Antennas and Propagation*, 53, 10, pp. 3160–3165.
- Wang, Y., et al. (incl. Voipio, P., Smolander, H., Häme, T.), 2004: Evaluation of the MODIS LAI algorithm at a coniferous forest site in Finland. *Remote Sensing of Environment*, 91, 114-127. doi: 10.1016/j.rse.2004.02.007.
- Weatherhead, B., et al. (incl. Tanskanen, A., Arola, A., Kyrö, E., Lindfors, A., Taalas, P.), 2005: Chapter 5: Ozone and Ultraviolet Radiation. *ACIA 2005. Arctic Climate Impact Assessment*. Cambridge University Press, 151-182.
- Yu, X.W., Hyppä, J., Kaartinen, H., Maltamo, M., 2004: Automatic Detection of Harvested Trees and Determination of Forest Growth using Airborne Laser Scanning. *Remote Sensing of Environment* 90, 451-462.
- Yu, X., Hyppä, J., Kaartinen, H., Hyppä, H., Maltamo, M., Rönnholm, P., 2005: Measuring the growth of individual trees using multitemporal airborne laser scanning point clouds. The Netherlands, *International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences XXXVI(Part 3/W19)*, 204-208.
- Yu, X., Hyppä, H., Kaartinen, H., Hyppä, J., Ahokas, E., Kaasalainen, S., 2005: Applicability of first pulse derived digital terrain models for boreal forest studies. *International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences*, XXXVI(Part 3/W19), 97-102. *Journal of Remote Sensing*, vol. 26, pp. 261-282.
- Zhang, B., Zhang, Y., Song, K., Zhang, B., Wang, Z., Li, F., Duan, H., 2005: The optical properties of the eutrophic water: a case study of Nanhу Lake in Changchun, China, *Journal of Electromagnetic Waves and Applications*, 19 (3), pp. 389-400.
- Zhang, Y., Guan, Y., Guo, S., Nie, Y., Lin, Q., 2004: Sandstorm detection using space-borne optical sensors data over the Northern China, *Journal of Electromagnetic Waves and Applications*, 18 (2), pp. 153-160.
- Zhang, B., Zhang, Y., Song, K., Zhang, B., 2004: Detection of sea surface temperature (SST) and salinity using thermal infrared data of AVHRR and MODIS in the Gulf of Bohai Sea of China, *International Journal of Infrared and Millimeter Waves*, 25 (1), 129-137.
- Zheng, D., Prince, S. Häme, T., 2004: Estimating net primary production of boreal forests in Finland and Sweden from field data and remote sensing. *Journal of Vegetation Science.*, 15, pp. 161-170.