Yasuhito Narita

Last name, first name Narita, Yasuhito
Academic title Privatdozent Dr. rer. nat.

Group Leader
Heliospheric Plasma Physics Group
Space Research Institute
Austrian Academy of Sciences
Schmiedlstraße 6, A-8042 Graz, Austria
Phone +43 316 4120 574 Fax +43 316 4120 590
Email: yasuhito.narita@oeaw.ac.at

Academic track

- 2016 Habilitation (Astrophysics) at University of Graz
- 2011 Habilitation (Extraterrestrial Physics) at Technische Universität Braunschweig, Germany
- 2006 PhD in physics with distinction at Technische Universität Braunschweig, Germany
- 2002 Master in Earth and planetary science at University of Tokyo, Japan
- 2000 Thesis work at Swedish Institute of Space Physics, Kiruna, Sweden
- 2000 Bachelor in physics, Tokyo Metropolitan University, Japan

Professional career

- 2012 Group leader, Space Research Institute, Austrian Academy of Sciences, Graz
- 2011 Faculty member, Physics, Technische Universität Braunschweig, Germany
- 2011-2012 Senior scientist Institut für Geophysik und extraterrestrische Physik, Germany
- 2011 Visiting researcher at Kavli Institute for Theoretical Physics, Santa Barbara, California, USA
- 2002-2011 Scientific staff at Institut für Geophysik und extraterrestrische Physik, Germany
- 2000-2002 Research assistant, Institute of Space and Astronautical Science, Japan
- 1999-2000 Research assistant, Swedish Institute of Space Physics, Kiruna, Sweden

Recognition

- 2017 JSPS invitation fellowship to Japan
- 2010 Zeldovich medal, COSPAR and Russian Academy of Sciences
- 2010 ESA Outstanding Scientist Award for the outstanding science contributions to the Cluster mission
- 2007 Heinrich Buessing Prize, Braunschweigischer Hochschulbund for the outstanding PhD thesis

Publications

101 peer-reviewed publications, 2 monographs
45 refereed papers as the first author

Contribution to science community

- Editorial board member, Frontiers in Physics (Editor in 2013)
- Associate editor, Earth Planets Space (since 2016)
- Guest editor, Nonlinear Processes in Geophysics, Special issue on nonlinear waves and chaos workshop, 2017
- Convener, Asia-Oceania Geosciences Society, ST15-08: Multi-scale physics of magnetospheric and solar wind plasmas, Sapporo, Japan, July 2014
- Organization committee, Nonlinear Waves and Chaos Workshop, La Jolla, California, USA, March 2013 and March 2017

Spacecraft mission contributions

- Fluxgate magnetometer Co-Investigator (THEMIS, BepiColombo, JUICE)
- Radio and plasma wave instriument Co-Investigator (Solar Orbiter)
- ESA THOR mission Science Study Team (SST) member
- Hermean Environment Working Group

Grants

- ASAP12 (Austrian Space Application Program, 12th call), SOPHIE (Solar Orbiter wave observation program in the heliosphere), single proposer, 170,000 EUR, 2016-2019
- DFG CRC963 Astrophysical Flows, Instabilities and Turbulence (co-proposer), 2012-2015, Collaborative Research Center at German Science Foundation, 2012-2015, funding 1.6 Mio. EUR per year
- FP7-SPACE 2012-1 Collaborative 313038 STORM (co-proposer), 2013-2015, Solar system plasma turbulence: observations, intermittency, and multifractals, funding 2.0 Mio EUR total
- RO12/2014, ULF-MAG (Ultra-Low-Frequency waves in the Earth magnetosphere), PI of bilateral project Austria-Romania, funding 14,000 EUR total, 2014-2015

Invited talks

- Narita Y., Glassmeier, K.-H., and Treumann, R. A.: Magnetic turbulence spectra upstream of the terrestrial bow shock, Western Pacific Geophysics Meeting, Beijing, China, July 2006.
- Narita, Y.: What did Cluster discover in the solar wind? American Geophysical Union Fall Meeting, San Francisco, December 2010.
- Narita, Y.: 3D spatial structure of solar wind turbulence, Cluster 10-year anniversary workshop, Corfu, Greece, September-October 2010.
- Narita, Y.: What is the role of dispersion relation in transition to solar wind turbulence?

invited talk, Asia-Oceania Geoscinces Society (AOGS), Taipei, Taiwan, August 2011.

- Narita, Y.: Sun-planet connections: lessons from theories and observations, invited talk, Rock'n'stars conference, Goettingen, Germany, October 2012.
- Narita, Y.: The THOR mission, International Conference of Plasma Physics (ICPP), invited talk, Kaosihung, Taiwan, June-July 2016.
- Narita, Y.: Solar wind turbulence, invited talk, JPL colloquium, Pasadena, USA, November 2016.

Teaching activity

Year	Lecture title	University or school	Lecture type
2006	Introduction to plasma physics	Tech. Univ. Braunschweig	regular graduate course (EN)
2007	Turbulence in astrophysical systems	Tech. Univ. Braunschweig	regular graduate course (EN)
2008	Planetary magnetospheres	Tech. Univ. Braunschweig	regular graduate course (EN)
2008	Plasma astrophysics	Tech. Univ. Braunschweig	regular graduate course (EN)
2008	Exercise to solar physics course	International Max-Planck Research School	intensive course for PhD students (EN)
2009	Solar physics	Tech. Univ. Braunschweig	regular graduate course (DE)
2009	Sun-planet connections	International Max-Planck Research School	intensive course for PhD students (EN)
2010	Excise to general relativity course	Tech. Univ. Braunschweig	regular graduate course (DE)
2010	Modern physics introduction (planets)	Tech. Univ. Braunschweig	regular undergraduate course (DE)
2011	Astro-particle physics	Tech. Univ. Braunschweig	regular graduate course (DE)
2011	Modern physics introduction (magnetospheres)	Tech. Univ. Braunschweig	regular undergraduate course (DE)
2012	Mathematical methods in physics	Tech. Univ. Braunschweig	regular undergraduate course (DE)
2012	Modern physics introduction (neutrino astrophysics)	Tech. Univ. Braunschweig	regular undergraduate course (DE)
2013	Astro-particle physics	Tech. Univ. Braunschweig	intensive graduate course (DE)
2013	Sun-planet connections	International Max-Planck Research School	intensive course for PhD students (EN)
2014	Plasma astrophysics	Tech. Univ. Braunschweig	intensive graduate course (DE)
2015	Plasma astrophysics	Univ. Graz	regular graduate course (DE)
2015	Introduction to astro-particle physics	Tech. Univ. Braunschweig	intensive graduate course (DE)
2015	Preparatory course in mathematics	Tech. Univ. Braunschweig	intensive undergraduate course (DE)
2016	Magnetism and Earth's magnetic field	Univ. Graz	regular graduate course (DE)
2016	Preparatory course in mathematics	Tech. Univ. Braunschweig	intensive undergraduate course (DE)
2017	Solar plasma physics	Univ. Graz	regular graduate course (DE)
2017	Introduction to astro-particle physics	Tech. Univ. Braunschweig	intensive graduate course (DE)
2018	Cosmology	Tech. Univ. Braunschweig	intensive graduate course (DE)
2018	Earth and planetary magnetic fields	Univ. Graz	regular graduate course (DE)

DE: in German, EN: in English

Publication list

Statistics

books	2
regular (peer-reviewed)	91
review (peer-reviewed)	6
proceeding (reviewed)	4
proceeding (not reviewed)	2
articles total	103
articles total peer-reviewed	101
first author	45 (37 regular articles, 5 reviews, 3 reviewed proceedings)
lecture scripts	7

Textbook / Monograph

1. Narita, Y.: Plasma Turbulence in the Solar System, SpringerBriefs in Physics, Springer-Verlag, Heidelberg, 2012.
2. Narita, Y.: Multi-Point Measurements of Turbulence in Space Plasma, uni-edition, Berlin, 2011.

Regular articles (peer-reviewed)

1. Roberts, O., Narita, Y., and Escoubet, P.: Three-dimensional density and compressible magnetic structure in solar wind turbulence, Ann. Geophys., 36, 527-539, doi:10.5194/angeo-36-527-2018, 2018.
2. Bourdin, Ph.-A., Hofer, B., and Narita, Y.: Inner structure of CME shock fronts revealed by the electromotive force and turbulent transport coefficients in Helios-2 observations, Astrophys. J., in press
3. Narita, Y., and Vörös, Z.: Evaluation of electromotive force in interplanetary space, Ann. Geophys., 36, 101--106, doi:10.5194/angeo-36-101-2018, 2018.
4. Roberts, O., Narita, Y., and Escoubet, C. P.: Multi-scale analysis of compressible fluctuations in the solar wind, Ann. Geophys., 36, 47--52, doi:10.5194/angeo-36-47-2018, 2018.
5. Roberts, O., Narita, Y., and Escoubet, C. P.: Direct measurement of anisotropic and asymmetric wavevector spectrum in ion-scale solar wind turbulence, Astrophys. J. Lett., 851, L11, doi:10.3847/2041-8213/aa9bf3, 2017.
6. Plaschke, F., Goetz, C., Volwerk, M., Richter, I., Fruehauff, D., Narita, Y., Glassmeier, K.-H., and Dougherty, M. K.: Fluxgate magnetometer offset vector determination by the 3D mirror mode method, Mon. Not. Royal Astron. Soc., 469, S675--S684, doi:10.1093/mnras/stx2532, 2017.
7. Vörös, Z., Yordanova, E., Varsani, A., Genestreti, K., Khotyaintsev, Y., Li, W., Graham, D., Norgren, C., Nakamura, R., Narita, Y., Plaschke, F., Magnes, W., Baumjohann, W., Fischer, D., Vaivads, A.,Eriksson, E., Lindqvist, P.-A., Marklund, G., Ergun, R., Leitner, M., Leubner, M., Strangeway, R., Le Contel, O., Pollock, C., Giles, B., Toebert, R., Burch, J., Avanov, L., Dorelli, J., Gershman, D., Paterson, W., Lavraud, B., Saito, Y.: MMS observation of

magnetic reconnection in the turbulent magnetosheath, J. Geophys. Res. Space Physics, 122, 11,442--11,467, doi:10.1002/2017JA024535, 2017.

8. Narita, Y., and Vörös, Z.: Lifetime estimate for plasma turbulence, Nonlin. Processes Geophys., 24, 673--679, doi:10.5194/npg-24-673-2017, 2017.
9. Narita, Y.: Scaling laws of wave-cascading superfluid turbulence, AIP Adv., 7, 065009, doi:10.1063/1.4985725, 2017.
10. Narita, Y.: Spectral moments for the analysis of frequency shift, broadening, and wavevector anisotropy in a turbulent flow, Earth Planets Space, 69, 73, doi:10.1186/s40623-017-0658-7, 2017.
11. Narita, Y., Nishimura, Y., and Hada, T.: Minimum variance projection for direct measurements of power-law spectra in the wavenumber domain, Ann. Geophys., 35, 639--644, doi:10.5194/angeo-35-639-2017, 2017.
12. Narita, Y.: Error estimate of Taylor's frozen-in flow hypothesis in the spectral domain, Ann. Geophys., 35, 325-331, doi:10.5194/angeo-35-325-2017, 2017.
13. Roberts, O., Narita, Y., Li, X., Escoubet, C. P., and Laakso, H.: Multi-point analysis of compressive fluctuations in the fast and slow solar wind, J. Geophys. Res. Space Physics, 122, doi:10.1002/2016JA023552, 2017.
14. Narita, Y.: Kinetic extension of critical balance to whistler turbulence, Astrophys. Lett., 831, 83, doi.19.3847/0004-637X/831/1/83, 2016.
15. Narita, Y., Nakamura, R., Baumjohann, W., Glassmeier, K.-H., Motschmann, U., Giles, B., Magnes, W., Fischer, D., Torbert, R. B., Russell, C. T., Strangeway, R. J., Burch, J. L., Nariyuki, Y., Saito, S., and Gary, S. P.: On electron-scale whistler turbulence in the solar wind, Astrophys. J. Lett., 827, L8, doi:10.3847/2041-8205/827/1/L8, 2016.
16. Narita, Y., Comişel, H., and Motschmann, U.: Critical pitch angle for electron acceleration in a collisionless shock layer, Ann. Geophys., 34, 591-593, doi:10.5194/angeo-34-591-2016, 2016.
17. Narita, Y., Plaschke, F., Nakamura, R., Baumjohann, W., Magnes, W., Fischer, D., Vörös, Z., Torbert, R. B., Russell, C. T., Strangeway, R. J., Leinweber, H. K., Bromund, K. R., Anderson, B. J., Le, G., Chutter, M., Slavin, J. A., Kepko, E. L., Burch, J. L., Motschmann, U., Richter, I., and Glassmeier, K.-H.: Wave telescope technique for MMS magnetometer, Geophys. Res. Lett., 43, 4774-4780, doi:10.1002/2016GL069035, 2016.
18. Narita, Y.: Cluster observation of magnetohydrodynamic turbulence in the plasma sheet boundary layer, Earth Planets Space, 68, 69, doi:10.1186/s40623-016-0442-0, 2016.
19. Narita, Y., Marsch, E., Perschke, C., Glassmeier, K.-H., Motschmann, U., and Comişel, H.: Wave-particle resonance condition test for ion-kinetic waves in the solar wind, Ann. Geophys., 34, 393-398, doi:10.5194/angeo-34-393-2016, 2016. Correction doi:10.5194/angeo-34-393-2016-corrigendum, 2016.
20. Narita, Y., Nakamura, R., Baumjohann, W., Glassmeier, K.-H., Motschmann, U., and Comişel., H.: Ion Bernstein waves in the magnetic reconnection region, Ann. Geophys., 34, 85-89, doi:10.5194/angeo-34-85-2016, 2016.
21. Plaschke, F., and Narita, Y.: On determining flux-gate magnetometer spin axis offsets from mirror mode observations, Ann. Geophys., 34, 759-766, doi:10.5194/angeo-34-759-2016, 2016.

22. Marsch, E., and Narita, Y.: Fundamental fermion interactions via vector bosons of unified SU(2) x SU(4) gauge fields, Fron. Phys., 4, 5, doi:10.3389/fphy.2016.00005, 2016.
23. Comişel, H., Nariyuki, Y., Narita, Y., and Motschmann, U.: On the role of ion-scale whistler waves in space and astrophysical plasma turbulence, Ann. Geophys., 34, 975-984, doi:10.5194/angeo-34-975-206, 2016.
24. Lhotka, C., Bourdin, P., and Narita, Y.: Charged dust grain dynamics subject to solar wind, Poynting-Robertson drag, and the interplanetary magnetic field, Astrophys. J. 828, 19, doi:10.3847/0004-637X/828/1/10, 2016.
25. Nakamura, T. K. M., Nakamura, R., Narita, Y., Baumjohann, W., and Daughton, W.: Multi-scale structures of turbulent magnetic reconnection, Phys. Plasmas, 23, 052116, doi:10.1063/1.4951025, 2016.
26. Treumann, R. A., Baumjohann, W., and Narita, Y.: Inverse scattering problem in turbulent magnetic fluctuations, Ann. Geophys., 34, 673-689, doi:10.5194/angeo-34-673-2016, 2016.
27. Volwerk, M., Schmid, D., Tsurutani, B. T., Delva, M., Plaschke, F., Narita, Y., Zhang, T., and Glassmeier, K.-H.: Mirror mode waves in Venus magnetosheath: solar minimum vs. solar maximum, Ann. Geophys., 34, 1099-1108, doi:10.5194/angeo-34-1099-2016, 2016.
28. Vaivads, A., Retinò, A., Soucek, J., Khotyaintsev, Yu V., Valentini, F., Escoubet, C. P., Alexandrova, O., André, M., Bale, S. D., Balikhin, M., Burgess, D., Camporeale, E., Caprioli, D., Chen, C. H. K., Clacey, E., Cully, C. M., De Keyser, J., Eastwood, J. P., Fazakerley, A. N., Eriksson, S., Goldstein, M. L., Graham, D. B., Haaland, S., Hoshino, M., Ji, H. , Karimabadi, H., Kucharek, H., Lavraud, B., Marcucci, F., Matthaeus, W. H., Moore, T. E., Nakamura, R., Narita, Y., Nemecek, Z., C. Norgren, Opgenoorth, H., Palmroth, M., Perrone, D., Pinçon, J.-L., Rathman, P., Rothkaehl, H., Sahraoui, F., Servidio, S., Sorriso-Valvo, L., Vainio, R., Vörös, Z., Wimmer-Schweingruber, R. F.: Turbulence Heating ObserveR - satellite mission proposal, J. Plasma Phys., 82, 905820501, doi:10.1017/S0022377816000775, 2016.
29. Schmid, D., Nakamura, R., Volwerk, M., Plaschke, F., Narita, Y., Baumjohann, W., Magnes, W., Fischer, D., Eichelberger, H. U., Torbert, R. B., Russell, C. T., Strangeway, R. J., Leinweber, H. K., Le, G., Bromund, K. R., Anderson, B. J., Slavin, J. A., and Kepko, E. L.: A comparative study of dipolarization fronts at MMS and Cluster, Geophys. Res. Lett., 43, doi:10.1002/2016GL069520, 43, 6012-6019, doi:10.1002/2016GL069520, 2016.
30. Yordanova, E., Vörös, Z., Varsani, A., Graham, D. B., Norgren, C., Yu. V. Khotyaintsev, Vaivads, A., Eriksson, E., Nakamura, R., Lindqvist, P.-A., Marklund, G., Ergun, R. E., Magnes, W., Baumjohann, W., Fischer, D., Plaschke, F., Narita, Y., Russell, C. T., Strangeway, R. J., Le Contel, O., Pollock, C., Torbert, R. B., Giles, B. J., Burch, J. L., Avanov, L. A., Dorelli, J. C., Gershman, D. J., Paterson, W. R., Lavraud, B., and Saito, Y.: Electron scale structures and magnetic reconnection signatures in the turbulent magnetosheath, Geophys. Res. Lett., 43, 5969-5978, doi:10.1002/2016GL069191, 2016.
31. Vörös, Z., Yordanova, E., Echim, M., Consolini, G., and Narita, Y.: Turbulence generated proton-scale structures in the terrestrial magnetosheath, Astrophys. J. Lett., 819, L15, doi.10.3847/2041-8205/819/1/L15, 2016.
32. Narita, Y.: Non-elliptic wavevector anisotropy for magnetohydrodynamic turbulence, Ann. Geophys., 33, 1413-1419, doi:10.5194/angeo-33-1413-2015, 2015.

33. Narita, Y., and Marsch, E.: Kinetic slow-mode waves in the solar wind and their possible role in turbulence dissipation and ion heating, Astrophys. J., 805, 24, doi:10.1088/0004-637X/805/1/24, 2015.
34. Marsch, E., and Narita, Y.: Fermion unification model based on the intrinsic SU(8) symmetry of a generalized Dirac equation, Front. Phys., 3, 82, doi:10.3389/fphy.2015.00082, 2015.
35. Comişel, H., Narita, Y., and Motschmann, U.: Adaptation of the de Hoffmann-Teller frame for quasi-perpendicular collisionless shocks, Ann. Geophys., 33, 345--350, doi:10.5194/angeocom-33-345-2015, 2015.
36. Comişel, H., Narita, Y., and Motschmann, U.: Dispersion relation as a channel of plasma turbulence evolution, Earth Planets Space, 67, 32, doi:10.1186/s40623-015-0191-5, 2015.
37. Dwivedi, N. K., Schmid, D., Narita, Y., P. Kovacs, Vörös, Z., Delva, M., and Zhang, T. L.: Statistical investigation on the power-law behaviour of magnetic fluctuations in the Venusian magnetosheath, Earth Planet Space, 67, doi:10.1186/s40623-015-0308-x, 2015.
38. Vörös, Z., Leitner, M., Narita, Y., Consolini, G., Kovacs, P., Toth, A., Lichtenberger, J.: Probability density functions for the variable solar wind near the solar cycle minimum, J. Geophys. Res. Space Physics, 120, 6152-6166, doi:10.1002/2015JA021257, 2015.
39. Treumann, R. A., Baumjohann, W., and Narita, Y.: Ideal MHD turbulence: the inertial range spectrum with collisionless dissipation, Front. Phys., 3, 22, doi:10.3389/fphy.2015.00022, 2015.
40. Bunescu, C., Marghitu, O., Constantinescu, O. D., Narita, Y., Vogt, J., and Blăgău, A.: Multi-scale field-aligned current analyzer, J. Geophys. Res. Space Physics, 120, 9563-9577, doi:10.1002/2015JA021670, 2015.
41. Comişel, H., Motschmann, U., Büchner, J., Narita, Y., and Nariyuki, Y.: Ion-scale turbulence in the inner heliosphere: radial dependence, Astrophys. J., 812, 175, doi:10.1088/0004-637X/812/2/175, 2015.
42. Narita, Y., Comişel, H., and Motschmann, U.: Spatial structure of ion-scale plasma turbulence, Front. Physics, 2, 13, doi:10.3389/fphy.2014.0013, 2014.
43. Narita, Y., Four-dimensional energy spectrum for space-time structure of plasma turbulence, Nonlin. Processes Geophys., 21, 41-47, doi:10.5194/npg-21-41-2014, 2014.
44. Comişel, H., Narita, Y., and Motschmann, U.: Wavevector anisotropy of plasma turbulence at ion kinetic scales: Solar wind observations and hybrid simulations, Nonlin. Processes Geophys., 21, 1075-1083, doi: 10.5194/npg-21-1075-2014, 2014.
45. Perschke, C., Narita, Y., Motschmann, U., and Glassmeier, K.-H.: Multi-spacecraft observations of linear modes and sideband waves in ion-scale solar wind turbulence, Astrophys. J. Lett., 793, L25, doi:10.1088/2041-8205/793/2/L25, 2014.
46. Comişel, H., Constantinescu, V., and Narita, Y.: Origin of the filamentary structure in space plasmas, Geosci. Lett., 1, 12, doi:10.1186/s40562-014-0012-x, 2014.
47. Wilczek, M., Xu, H., and Narita, Y.: A note on Taylor's hypothesis under large-scale flow variation, Nonlin. Processes Geophys., 21, 645-649, doi:10.5194/npg-21-645-2014, 2014.
48. Zaqarashvili, T. V., Vörös, Z., Narita, Y., and Bruno, R.: Twisted magnetic flux tubes in the solar wind, Astrophys. J. Lett., 783, L19, doi:10.1088/2041-8205/783/1/19, 2014.
49. Schmid, D., Volwerk, M., Plaschke, F., Vörös, Z., Zhang, T., Baumjohann, W., and Narita,

Y.: Mirror mode structures near Venus and Comet P/Halley, Ann. Geophys., 651-657, doi:10.5194/angeo-32-651-2014, 2014.

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51. Narita, Y., Glassmeier, K.-H., Motschmann, U., and Wilczek, M.: Doppler shift and broadening in solar wind turbulence, Earth Planets Space, 65, e5-e8, doi: 10.5047/eps.2012.12.002, 2013.
52. Perschke, C., Narita, Y., Gary, S. P., Motschmann, U., and Glassmeier, K.-H., Dispersion relation analysis of turbulent magnetic field fluctuations in fast solar wind, Ann. Geophys., 31, 1949-1955, doi:10.5194/angeo-31-1949-2013, 2013.
53. Comişel, H., Verscharen, D., Narita, Y., and Motschmann, U.: Spectral evolution of two-dimensional kinetic plasma turbulence in the wavenumber-frequency domain, Phys. Plasmas, 20, 090701, doi:10.1063/1.4820936, 2013.
54. Wilczek, M., and Narita, Y.: Wave-number frequency spectrum for turbulence from a random sweeping hypothesis with mean flow, Phys. Rev. E, 86, 066308, doi:10.1103/PhysRevE.86.066308, 2012.
55. Guicking, L., Glassmeier, K.-H., Auster, H.-U., Narita, Y., and Kleindienst, G.: Low-frequency magnetic field fluctuations in Earth's plasma environment observed by THEMIS, Ann. Geophys., 30, 1271-1283, doi:10.5194/angeo-30-1271-2012, 2012.
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