KENICHI NISHIKAWA

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Nationality US citizen

Education

1981	Ph. D., Nagoya University, (Physics)
1975	M. Eng., Nagoya University, (Applied Physics)
1973	B. Eng., Nagoya University, (Applied Physics)

Professional Experience

2018-present	**Adjunct Professor**, Department of Physics, Alabama A&M University
2015-2018	**Principal Research Scientist II**, Department of Physics,
2010-2015	**Associate Research Professor**, Department of Physics,
2006-2013	**Research Scientist III**, CSPAR, University of Alabama in Huntsville
2005-2006	**Research Scientist**, Department of Physics and Astronomy, University of Alabama Tuscaloosa
2002-2005	**NRC Senior Research Fellow**, MSFC/NSSTC
1999-2002	**Research Assistant Professor**, Department of Physics and Astronomy, Rutgers University
1996-1999	**Assistant Professor–Research**, Department of Physics and Astronomy, Louisiana State University
1995-1996	**Research Scientist**, Department of Space Physics and Astronomy, Rice University
1990-1995	**Associate Research Scientist**, Department of Physics and Astronomy, The University of Iowa
1984-1990	**Assistant Research Scientist**, Department of Physics and Astronomy, The University of Iowa
1982-1984	**Research Physicist I**, Princeton Plasma Physics Laboratory, Princeton University
1981-1982	**Research Fellow**, Institute of Plasma Physics, Nagoya University
1980-1981	**Research fellow** supported by Japan Society for the Promotion of Science, Institute of Plasma Physics, Nagoya University
1979-1980	**Research Fellow**, Division of Thermonuclear Fusion Research,

Japan Atomic Energy Research Institute

Visiting Scientist

April - June 2008	The Observatoire de Paris, Meudon, France
Nov. 2000	Max-Plank-Institut für Aeronomie, Lindau, Germany
Sept. 2000	CETP, Paris, France
May 2000	CETP, Paris, France
Jan. - March 1997	The University of Tsukuba, Japan
Sept. - Oct. 1996	Max-Plank-Institut für Extraterrestrische Physik Berlin, Germany
Jan. - March 1995	Max-Plank-Institut für Extraterrestrische Physik Berlin, Germany
March - June 1990	Max-Plank-Institut Für Extraterrestrische Physik Garching, Germany

Teaching Experience

April 1981-March 1982	Teaching Assistant, Chubu University, Nagoya
Fall 2011	PH 789 Computational Methods for Kinetic Processes in Plasma Physics, at UAH

Professional Membership

American Physical Society
American Astronomical Society
National Union Radio Science
Committee on Space Research (COSPAR)
International Astronomical Union

Recent Professional Activities

Referee, Journals:	Journal of Geophysical Research
	Geophysical Research Letters
	Physics of Plasmas
	Solar Physics
	Astrophysical Journal
	Monthly Notices of the Royal Astronomical Society
	Astronomy and Astrophysics
	Advances in Space Research
Offices:	National Aeronautics and Space Administration (NASA)
	National Science Foundation (NSF)
	French National Research Agency (ANR)
	Czech Science Foundation (GACR)
	Ministry of Education, Lifelong Learning and Religious Affairs (Greece)

Advised Students

Graduate students

1. Jie Zhao, Ph.D. March, 1997, (with Professor Jun-ichi Sakai, Toyama University)
   "Coalescence of Two Parallel Current Loops in a Nonrelativistic Electron-Positron Plasma"
   (presently at Lucent Technology)

2. Tadashi Kitanishi, Ph.D. March, 1997, (with Professor Jun-ichi Sakai, Toyama University)
   "The Dynamics of Electron-Positron Plasma Cloud moving across a Magnetic Field"
   (presently at Electric Co.)
3. Jianxiang Wang, Ph.D. October, 2005, "Simulations of Galaxy Dynamics"
   (with Professor David Merritt, Rutgers University)
   (served on thesis committee for one year)
4. XiaoYang Yan, Ph.D. March, 2005 "Particle entry into inner magnetosphere
   through "cross-tail S," (with Professor Dong Sheng Cai, University of Tsukuba)
   (presently at South China University of Technology, GuangZhou, China)
5. Christian Hededal, Ph.D. May, 2005, "Gamma-Ray Bursts, Collisionless Shocks
   and Synthetic Spectra" (astro-ph/0506559),
   (with Prof. Åke Nordlund at Niels Bohr Institute)
   "The influence of an ambient magnetic field on relativistic collisionless plasma shocks"
   published in ApJ, 623, L89, 2005 (visited from 15 January through 14 May 2004)
6. Ioana Dutan, Ph.D. January, 2011 "Jets from Spinning Black Holes in Active Galactic Nuclei"
   (http://hss.ulb.uni-bonn.de/2011/2419/2419.htm)
   at the Max-Planck-Institut für Radioastronomie Bonn,
   (Prof. Peter Birmann) worked on jet formation with GRMHD simulations
   presently Institute of Space Science (http://www2.spacescience.ro/)
7. Adam Goldstein, Ph.D. December, 2012, ÒTHE USE OF THE BULK PROPERTIES
   OF GAMMA-RAY BURST PROMPT EMISSION SPECTRA FOR THE STUDY
   OF COSMOLOGYÓ, at UAHuntsville (thesis committee)
8. Helen H. Kang, Ph.D. February 2013, ÒPIC simulation study on the magnetic field generation
   by the anisotropic kinetic energy of plasmaÓ, at POSTEC (Prof. Chang-Mo Ryu) (adviser),
   presently at the National Fusion Research Institute (NFRI) in Daejeon, South Korea
9. Eun-Jin Choi, Ph.D. February, 2015, ÒStudy of the Evolution of Double Layer and Electrostatic
   Shock using PIC simulationsÓ, at KAIST (Prof. Kyoung Min) (adviser)
   presently working at GSFC
10. Joshua Woods, Ph.D., May, 2015, Multidimensional Simulations of Non-linear Cosmic Ray
    Production in Supernova Remnant Evolution, at Clemson University
    (Prof. Dieter Hartmann) (adviser)
11. Kazem Ardaneh, Ph.D. May, 2016, 3D Parallel Electromagnetic PIC Simulation of
    Relativistic Jets, at University of Tsukuba (Prof. Dong-Sheng Cai) (adviser) presently
    working at FEMTO-ST Institute, University of Franche-Comte, 25030 Besancon, France
12. Sarthak Dasadia, Ph.D. May 2017, Physics (Prof. M. Sun) (thesis committee)
    presently working at Shareablee, New York

Graduate student (Master)

1. Akito Kawamura, M.S. Thesis, May 2012,ÒTHREE DIMENSIONAL TEST PARTICLE
   SIMULATION OF INTERSTELLAR OXYGEN INTERACTION WITH THE HELIOSPHERE
   AND ANALYSES FOR THE IBEX MISSIONÓ, PHYSICS, UAHuntsville (thesis committee),
   graduated December 2012 (presently at Kyoto University)
2. Sai Chandu Radavaram, M.S. Thesis, November 2015, ÒSIMULATION OF THE PROPAGATION

OF AN ELECTROMAGNETIC WAVE IN DIELECTRIC MEDIUM WITH A TIME VARYING DIELECTRIC CONSTANT?, The Department of Electrical and Computer Engineering, UAHuntsville (adviser)

Undergraduate students

1. Timothy P. Van Vliet for Honor Program April 2001 "Jet Generation from Black Holes" at Rutgers University, (graduated from University of Colorado Boulder)
2. Steven Crew for Honor Program, "Particle Simulation Studies of Reconnection" at Rutgers University
3. Hiroaki Tanaka for Honor Program, "Particle Simulation Studies of Kinetic Kelvin-Helmholtz Instability"
4. Joshua M. McMurray worked on his senior project on ÒAnalysis of a Round KickÓ. He presented his research and reposted a short journal. Spring of 2014.
5. Kyle Rattle and Qiana Hunt: Short workshop on kinetic study of astrophysical jets with particle-in-cell code: From introduction to recent research with 3-D illustration of jets with current filaments and magnetic field lines to understand the physics involved. They presented 15 minute talk using Powerpoint. They also prepared a short reports.
6. Qiana Hunt for Honor Program PH499), ÒParticle Simulation Studies of Global Jets with the Weibel and kinetic Kelvin-Helmholtz InstabilityÓ Spring 2015

Collaborators

Dong-Sheng Cai (Univ. of Tsukuba), Ioana Dutan (ISS), Bruno Giacomazzo (Univ. Trento), Jose L. Gomez (IAA), Kouich Hirotani (ASIAA), Dieter Hartmann (Clemson Univ.), Oleh Kobar (DESY), Bertrand Lembege (LAMOS/IPSL), Mikhail Medvedev (Univ. Kansas), Yosuke Mizuno (Goethe Univ.), Shigehiro Nagataki (RIKEN), Jacek Niemiec (INP, PAN, Cracow), Åke Nordlund (NBI), Asaf Pe'er (Univ. Coll. Cork), Martin Pohl (Posdam Univ./DESY), Helene Sol (Obs. de Paris-Meudon), Michael Watson (Fisk Univ.), Bing Zhang (UNLV), Kinhaw Wu (Univ. Coll. London)

Research Articles in refereed journals (Ken-Ichi Nishikawa) (as of August 11, 2021)

123. Meli, A., Nishikawa, K.-I., Pohl, M., Niemiec, J., Dutan, I., Mizuno, Y., Gómez, J. L., O., Köhn, C., MacDonald, N., Hirotani, K., Particle Acceleration in Relativistic Jets with Toroidal Magnetic Field, under revision, 2022

122. Review: Particle-in-Cell Simulations of Astrophysical Relativistic Jets, Meli, A., Nishikawa, K.-I., Universe, 7(11), 450, 2921, https://doi.org/10.3390/universe7110450

121. MacDonald, R. N. & Nishikawa, K., From Electrons to Janskys: Full Stokes Polarized Radiative Transfer in 3-D Relativistic Particle-in-Cell Jet Simulations, Astronomy & Astrophysics, in press, 2021, DOI: https://doi.org/10.1051/0004-6361/201937241

120. Hirotani, K., Krasnopolsky, R., Shang, H., Nishikawa, K., Watson, M., Two-dimensional Particle-in-Cell simulations of axisymmetric black hole, ApJ, 908:88 (19pp), 2021, https://doi.org/10.3847/1538-4357/abd3a6

119. Köhn, C., Heumesser, M., Chanrion, O., Nishikawa, K., Reglero, V., Østgaard, N., Neubert, T., The Emission of Terrestrial Gamma Ray Flashes From Encountering Streamer Coronae Associated to the Breakdown of Lightning Leaders, Geophysical Review Letters, 47, e2020GL089749. https://doi.org/10.1029/2020GL089749

118. Nishikawa, K., Duţan, I., Köhn, C., Mizuno, Y., PIC methods in Astrophysics: PIC simulations of relativistic jets, Living Review in Computational Astrophysics, 7, Article number: 1 2021

117. Koehn, C., Chanrion, O., Nishikawa, K., Babich, L., Neubert, T., The emission of energetic electrons from the complex streamer corona adjacent to leader stepping, Plasma Sources Sci. Technol., 29, 035023 (13pp), 2020

116. Nishikawa, K., Mizuno, Y., Gómez, J. L., Dutan, I., Niemiec, J., Kobzar, O., MacDonald, N., Meli, A., Pohl, M., Hirotani, K., Rapid Particle Acceleration due to Re-collimation in Injected Jets with Helical Magnetic Fields, MNRAS, 493, 2652 - 2658, 2020 (https://doi.org/10.1093/mnras/staa421)

115. Nishikawa, K.-I., Mizuno, Y., Gómez, J. L., Dutan, I., Meli, A., White, C., Niemiec, J., Kobzar, O., Pohl, M., Pe'er, A., Sol, H., MacDonald, N., Hartmann, D. H., Relativistic Jet Simulations of the Weibel Instability in the Slab Model to Cylindrical Jets with Helical Magnetic Fields, Galax., 7, 29;doi:10.3390/galaxies7010029, 2019

114. Cai, D., Lembège, B., Hasegawa, H., & Nishikawa, K.-I., Identifying 3D vortex structures at/around the magnetopause using a tetrahedral satellite configuration, JGR: Space Physics, 123, 10,158?10,176. https://doi.org/10.1029/2018JA025547, 2018

113. Nishikawa, K.-I., Mizuno, Y., Gómez, J. L., Dutan, I., Meli, A., White, C., Niemiec, J., Kobzar, O., Pohl, M., Pe'er, A., Frederiksen, J. T., Nordlund, Å., Sol, H., Hardee, P. E., Hartmann, D. H., Microscopic Processes In Global Relativistic Jets Containing Helical Magnetic Fields, Galax., 5, 58, 2017

112. Mizuno, Y., Gómez, J., Nishikawa, K.-I., Meli, A., Hardee, P., Rezzolla, L., Singh, C., Pino, E., Magnetic Dissipation in Relativistic Jets, Galax., 4, 40, 2016

111. Nishikawa, K.-I., Mizuno, Y., Niemiec, J., Kobzar, O., Pohl, M., Gómez, J., Dutan, I., Pe'er, A., Frederiksen, J., Nordlund, Å., Meli, A., Sol, H., Hardee, P. E., Hartmann, D. H., Microscopic Processes in Global Relativistic Jets Containing Helical Magnetic Fields, Galax., 4, 38, 2016

110. Ardaneh, Kazem, Cai, Dongsheng, and Nishikawa, Ken-Ichi, Collisionless electron-ion shocks in relativistic unmagnetized jet-ambient interactions: Non-thermal electron injection by double layer, ApJ, 827, 124, 2016 (arXiv:1604.04388) (part of ArdanehÕs Ph.D. Thesis)

109. Niemiec, J., Florinski, V., Heerikhuisen, J., and Nishikawa, K.-I. The IBEX ribbon and the pickup ion ring stability in the outer heliosheath II. Monte-Carlo and PIC model results, ApJ, 826, 198, 2016

108. Nishikawa, K.-I., Frederiksen, J. T., Nordlund, A., Mizuno, Y., Hardee, P. E., Niemiec, J., Gomez, J. L., Pe'er, A., Dutan, I., Meli, A., Sol, H., Pohl, M. & Hartmann, D. H., Evolution of Global Relativistic Jets: Collimations and Expansion with kKHI and the Weibel Instability, ApJ, 820, 94, 2016 (arXiv:1511.03581)

107. Wieland, V., Pohl, M., Niemiec, J., Rafighi, I., Nishikawa, K.-I., Non-relativistic Perpendicular Shocks in Supernova Remnants, ApJ, 820, 62, 2016 (arXiv:1602.05064)

106. Cai, D. Esmaeili, B. Lembège, K-I, Nishikawa, Cusp dynamics under northward IMF using three-dimensional global particle-in-cell simulations, J. Geophys. Res. Space Physics, 120, doi:10.1002/2015JA021230, 2015

105. Ardaneh, K., Cai, D.S. Nishikawa, K.-I., & Lembege, B., Collisionless Weibel shocks and electron acceleration in gamma-ray bursts, ApJ, 811, 57, 2015 (arXiv:1507.05374) (part of ArdanehÕs Ph.D. Thesis)

104. Mizuno, Y., G/'omez, J., Nishikawa, K.-I., Meli, A., Hardee, P. E. & Rezzolla, L., Recoolimation shocks in magnetized relativistic jets, ApJ, 809, 38, 2015

103. Nishikawa, K.-I., P. Hardee, I. Dutan, J. Niemiec, M. Medvedev, Y. Mizuno, A. Meli, H. Sol, B. Zhang, M. Pohl, & D. H. Hartmann, Magnetic field generation via the kinetic Kelvin-Helmholtz instability in core-sheath jets, ApJ, 793, 60, 2014 (arXiv:1405.5247)

102. Choi, E. J., K. Min, K.-I. Nishikawa, & C. R. Choi, A Study on the Evolution of Relativistic Electron-Ion Shock Using 3D PIC Simulations, Physics of Plasmas, 21, 072905, 2014 (arXiv:1407.4540) (part of ChoiÕs Ph.D. Thesis)

101. Ardaneh, K., Cai, D.S. & Nishikawa, K.-I., Amplification of Weibel instability in the relativistic beam plasma, interactions due to ion streaming, New Astronomy, 33, 1, 2014

100. Mizuno, Y., Hardee, P. E. & Nishikawa, K.-I., Spatial Growth of the Current-Driven Instability in Relativistic Jets, ApJ, 784, 167, 2014

99. Nishikawa, K.-I., P. Hardee, Y. Mizuno, I. Dutan, B. Zhang, M. Medvedev, A. Meli, E. J. Choi, K. W. Min, J. Niemiec, A. Nordlund, J. T. Frederiksen, H. Sol, M. Pohl, D. H. Hartmann, A.

Marscher, & J. Gomez, Particle Acceleration and Magnetic Field Generation in Shear-Flows, International Journal of Modern Physics: Conference Series, 28, 1460195, 2014

98. Mizuno, Y., Pohl, M., Niemiec, J., Zhang, B., Nishikawa, K.-I., & Hardee, P. E., Magnetic field amplification and saturation in turbulence behind a relativistic shock, MNRAS, 439, 3490, 2014

97. Nishikawa, K.-I., B. Zhang, I. Dutan, M. Medvedev, P. Hardee, E.-J. Choi, K. Min, J. Niemiec, Y. Mizuno, A. Nordlund, J. Frederiksen, H. Sol, M. Pohl, and D. H. Hartmann, Magnetic field generation in a jet-sheath plasma via the kinetic Kelvin-Helmholtz instability, Ann. Geophys., 31, 1535-1541, 2013

96. Mizuno, Y., Y. Lyubarsky, K.-I. Nishikawa, & P. E Hardee, Three-Dimensional Relativistic Magnetohydrodynamic Simulations of Current-Driven Instability. III. Rotating Relativistic Jets, ApJ, 757, 16 (14pp), 2012

95. Hardee, P. E., Y. Mizuno, K.-I. Nishikawa, Current Driven Instability of a Sub-Alfvénic Relativistic Jet, Proceedings for High Energy Phenomena in Relativistic Outflow III, Int. J. of Mod. Phys. Conf. Ser., 8, 340, 2012

94. Mizuno, Y., Y. Lyubarsky, K.-I. Nishikawa, & P. E Hardee, Relaxation of Pulsar Wind Nebula via Current-Driven Kink Instability, Proceedings for High Energy Phenomena in Relativistic Outflow III, Int. J. of Mod. Phys. Conf. Ser., 8, 368, 2012

93. Mizuno, Y., M. Pohl, J. Niemiec, B. Zhang, K.-I. Nishikawa, & P. E Hardee, Magnetic Field Amplification by Relativistic Shocks in an Inhomogeneous Medium, Proceedings for High Energy Phenomena in Relativistic Outflow III, Int. J. of Mod. Phys. Conf. Ser., 8, 364, 2012

92. Nishikawa, K.-I., J. Niemiec, B. Zhang, M. Medvedev, P. Hardee, Y. Mizuno, Å. Nordlund, J. Frederiksen, H. Sol, M. Pohl, D. H. Hartmann, G. J. Fishman, Simulation of relativistic shocks and associated radiation, Proceeding of High Energy Phenomena in Relativistic Outflows III, Int. J. Mod. Phys. Conf. Ser., 8, 259, 2012

91. Nishikawa, K.-I., B. Zhang, E.-J. Choi, K. Min, P. Hardee, Y. Mizuno, J. Niemiec, M. Medvedev, A. Nordlund, J. Frederiksen, H. Sol, M. Pohl, D. H. Hartmann, J. F. Fishman, Radiation from accelerated particles in shocks and reconnection regions, IAU Symposium 279: Death of Massive Stars: Supernovae & Gamma-Ray Bursts, 371, 2012

90. Nishikawa, K.-I., J. Niemiec, M. Medvedev, B. Zhang, P. Hardee, A. Nordlund, J. Frederiksen, Y. Mizuno, H. Sol, M. Pohl, D. H. Hartmann, M. Oka, G. J. Fishman, Radiation from relativistic shocks with turbulent magnetic fields, Advances in Space Research, 47, pp. 1434 - 1440, 2011

89. Mizuno, Y., Y. Lyubarsky, K.-I. Nishikawa, & P. H. Hardee, Three-Dimensional Relativistic Magnetohydrodynamic Simulations of Current-Driven Instability. II. Relaxation of Pulsar Wind Nebula by Current-Driven Kink Instability, ApJ, 728, 90 (7pp), 2011

88. Mizuno, Y., M. Pohl, J. Niemiec, B. Zhang, K.-I. Nishikawa, P. Hardee, Magnetic Field Amplification by Relativistic Shocks in An Inhomogeneous Medium, ApJ, 726, 62 (11pp), 2011

87. Mizuno, Y., P. E. Hardee, & K.-I. Nishikawa, Three-Dimensional Relativistic Magnetohydrodynamic Simulations of Current-Driven Instability with A Sub-Alfvénic Jet: Temporal Properties, ApJ, 734, 19 (18pp), 2011

86. Watson, M. & K.-I. Nishikawa, A Method for Incorporating the Kerr-Schild Metric in Electromagnetic Particle-in-Cell Code, Comput. Phys. Commun., 181, 1750-1757, 2010

85. Mizuno, Y., B. Zhang, B. Giacomazzo, K.-I. Nishikawa, P. Hardee, S. Nagataki, and H. Hartmann, Magnetohydrodynamic Effects in Relativistic Jets, Intern. J. of Mod. Phys. D, 19, 991, 2010

84. Nishikawa, K.-I., Nimiec, J., Medvedev, M., Zhang, B., Hardee, P., Mizuno, Y., Nordlund, Å. Frederiksen, J., Sol, H., Pohl, M., Hartmann, D. H., Oka, M., & Fishman, J. F., Radiation from Relativistic Shocks with Turbulent Magnetic Fields, Intern. J. of Mod. Phys. D, 19, 715, 2010

83. Mizuno, Y., Hardee, P. E., Lyubarsky, Y., Nishikawa, K.-I., Current-Driven Kink Instability in Relativistic Jets, IJMPD, 19, 683, 2010

82. Mizuno, Y., Y. Lyubarsky, K.-I. Nishikawa, & P. H. Hardee, Three-Dimensional Relativistic Magnetohydrodynamic Simulations of Current-Driven Instability. I. Instability of a Static Column, ApJ, 700, 684, 2009

81. Nishikawa, K. -I., J. Niemiec, P. Hardee, M. Medvedev, H. Sol, Y. Mizuno, B. Zhang, M. Pohl, M. Oka, D. H. Hartmann, Weibel instability and associated strong fields in a fully 3D simulation of a relativistic shock, ApJ, 698, L10, 2009

80. Cai, D. S., W. Tao, X. Yan, B. Lembege, & K.-I. Nishikawa, Bifurcation and hysteresis of magnetospheric structure with a varying Southward IMF: Field topology and global three-dimensional full particle simulations, JGR, 114, A12210, 2009

79. Mizuno, Y., B. Zhang, B. Giacomazzo, K.-I. Nishikawa, P. Hardee, S. Nagataki, and H. Hartmann, Magnetohydrodynamic Effects in Propagating Relativistic Jets: Reverse Shock and Magnetic Acceleration, ApJ, 690, L47, 2009

78. Oka, M., Fujimoto, M., Nakamura, T. K. M., Shinohara, I., and Nishikawa, K.-I., Magnetic Reconnection by a Naturally Retreating X-Line, PRL, 101, 205004, 2008

77. Tao, W. F., D. S. Cai, X. Y. Yan, K.-I. Nishikawa, B. Lembege, Scalability analysis of parallel Particle-In-Cell codes on computational grids, Comp. Phys. Comm., 179, 855, 2008

76. Niemiec, J., M. Pohl, T. Stroman, and K.-I. Nishikawa, Production of Magnetic Turbulence by Cosmic Rays Drifting Upstream of Supernova Remnant Shocks, ApJ, 684, 1174, 2008 (arXiv:astro- ph/0802.2185)

75. Nishikawa, K.-I., Mizuno, Y., Fishman, G. J., Hardee, P., Particle Acceleration, Magnetic Field Generation, and Associated Emission in Collisionless Relativistic Jets, Int. J. Mod. Phys. D, 17, 1761, 2008 (arXiv:0801.4390 [astro-ph])

74. Mizuno, Y., P. Hardee, D. Hartmann, K.-I. Nishikawa, & B. Zhang, Magnetohydrodynamic Boost for Relativistic Jets, ApJ, 672, 72, 2008 (arXiv:0709.1839 [astro-ph])

73. Wu, K., S. V. Fuerst, Y. Mizuno, K.-I. Nishikawa, G. Brandurdi-Raymont, & K.G. Lee, General Relativistic Radiative Transfer: Applications to Black-Hole Systems, Chin. J. Astron. Astrophys, Supplement, 8, 226, 2008

72. Ramirez-Ruiz, E., K.-I. Nishikawa,& C. B. Hededal, $e^{\pm}$ Loading and the origin of the upstream magnetic field in GRB shocks, ApJ, 671, 1877, 2007 (arXiv:0707.4381 [astro-ph])

71. Hardee, P., Y. Mizuno, & K.-I. Nishikawa, GRMHD/RMHD Simulations and Stability of Magnetized Spine-Sheath Relativistic Jets, AstroPhys. & Space Sci., 311, 281-286, 2007 (arXiv:0706.1916 [astro-ph])

70. Mizuno, Y., P. Hardee, & K.-I. Nishikawa, 3D Relativistic Magnetohydrodynamic Simulations of Magnetized Spine-Sheath Relativistic Jets, ApJ, 662, 835-850, 2007

69. Cai, D. S., K.-I. Nishikawa, & B. Lembege, Magnetotail Field Topology in a Three-dimensional Global Particle Simulation, Plasma Phys. and Controlled Fusion, 48, B123 - B135, 2006

68. Nishikawa, K.-I., E. Ramirez-Ruiz, C. B. Hededal, P. Hardee, Y. Mizuno, G. J. Fishman, Simulation study of jitter radiation associated with afterglows observed with Swift, Il Nuovo Cimento B, 121, 1543, 2006

67. Nishikawa, K.-I., C. B. Hededal, P. Hardee, G. J. Fishman, C. Kouveliotou, & Y. Mizuno, 3-D RPIC Simulations of Relativistic Jets: Particle Acceleration, Magnetic Field Generation, and Emission, *Astrophys. Space Sci.*, 307, 319-323, 2007 (DOI 10.1007/s10509-006-9234-5)

66. Nishikawaa, K.-I., P. Hardee, C.B. Hededal, G. Richardson, R. Preece, H. Sol, G.J. Fishman, Particle acceleration, magnetic field generation, and emission in relativistic shocks, Advances in Space Research, 38, 1316, 2006

65. Nishikawa, K.-I., P. Hardee, C. B. Hededal, & G. J. Fishman, Acceleration Mechanics in Relativistic Shocks by the Weibel Instability, *Astrophys. J.*, 642, 1267, 2006

64. Cai, D. S., X. Y. Yan, K.-I. Nishikawa, & B. Lembege, Particle entry into the inner magnetosphere during duskward IMF $B_{\rm y}$: Global three-dimensional electromagnetic full particle simulations, *Geophys. Res. Lett.*, 33, L12191, 2006.

63. Nishikawa, K.-I., P. Hardee, C. B. Hededal, H. Sol, G. Richardson, R. Preece, & G. J. Fishman, Particle acceleration, magnetic field generation, and emission in relativistic pair jets, Il Nuovo Cimento C¡/i¿, vol. 28, Issue 3, p.435, 2005

62. Hededal, C. B., & K.-I. Nishikawa, The influence of an Ambient Magnetic field on Relativistic Collisionless Plasma Shocks, *Astrophys. J.*, 623, L89, 2005.

61. Nishikawa, K.-I., P. Hardee, G. Richardson, R. Preece, H. Sol, & G. J. Fishman, Particle Acceleration and Magnetic Field Generation in Electron-Positron Relativistic Shocks, *Astrophys. J.*, 622, 927, 2005.

60. Nishikawa, K.-I., G. Richardson, S. Koide, K. Shibata, T. Kudoh, P. Hardee, & G. J. Fishman, A General Relativistic Magnetohydrodynamics Simulation of Jet Formation, *Astrophys. J.*, 625, 60, 2005.

59. Nishikawa, K.-I., P. Hardee, G. Richardson, R. Preece, H. Sol, & G. J. Fishman, Particle Acceleration in Relativistic Jets due to Weibel Instability, *Astrophys. J.*, 595, 555, 2003.

58. Cai, D.-S., Y. Li, K.-I. Nishikawa, C. Xiao, X. Yan, & Z. Pu, Parallel TRISTAN code using High Performance Fortran, *Space Plasma Simulation*, eds. J. Buechner, C. Dum, & M. Scholer, Springer-Verlag, Berlin, Heidelberg, pp. 25 - 53, 2003.

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56. Nishikawa, K.-I., & S. Ohtani, Particle simulation study of substrom triggering with a southward IMF, Advances in Space Research, 30, 2675, 2002

55. Cai, D.-S., Y. Li, T. Ichikawa, C. Xiao, & K.-I. Nishikawa, Visualization and criticality of three-dimensional magnetic field topology in the magnetotail, *Earth Planets Space, 53*, 1011-1019, 2001.

54. Nishikawa, K.-I., Global particle simulation study of substorm onset and particle acceleration, *Space Sci. Rev., 95*, 361, 2001.

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9. Nishikawa, K.-I., P. Hardee, C. B. Hededal, G. Richardson, H. Sol, R. Preece, and G. J. Fishman, Weibel Instability Driven by Relativistic Pair Jets: Particle Acceleration, Magnetic Field Generation, and Emission, in 22nd Texas Symposium on Relativistic Astrophysics, pp. 538-543, 2005 (astro-ph/0503515)
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4. Nishikawa, K.-I., P. Hardee, G. Richardson, R. Preece, H. Sol, and G. J. Fishman, Particle Acceleration and Emission in Relativistic Jets, Proceedings of the 28th International Cosmic Ray Conference. July 31-August 7, 2003. Trukuba, Japan. Editors: T. Kajita, Y. Asaoka, A. Kawachi, Y. Matsubara and M. Sasaki, p. 2063, 2003

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1. Nishikawa, K.-I., S. Koide, K. Shibata, T. Kudoh, & H. Sol, 3-D General Relativistic MHD Simulations of Generating Jets, in Particles and Fields in Radio Galaxies, eds. R. A. Laing and K. M. Blundell, APS Conference Series, Vol 250, pp. 22 - 26, 2001

Invited talks (since 2005 as of November 10, 2016)

12. Nishikawa, K.-I., et al., Simulation of relativistic jets: Particle acceleration and associated self-consistent radiation, The 10th International School/Symposium for Space Simulations, Banff, Canada, July 24 - 31, 2011.
11. Nishikawa, K.-I., et al., Simulation of Relativistic Jets and Associated Self-consistent Radiation, ASTRONUM 2011, 6th International Conference on Numerical Modeling of Space Plasma Flows, Valencia, Spain, June 13 - 17, 2011.
10. Nishikawa, K.-I., et al., Simulation of relativistic shocks and associated radiation from turbulent magnetic fields, Frontiers in Computational Astrophysics: Particles and Flames in Magnetic and Radiative Flows, Lyon, France, October 11 - 16, 2010,
9. Nishikawa, K.-I. et al., Simulation of Relativistic Shocks and Associated Self-consistent Radiation, UAH Huntsville Workshop 2010, Nashville, Ostober 3 - 8, 2010
8. Nishikawa, K.-I., et al., Simulation of Relativistic Shocks and Associated Radiation, ASTRONUM 2010, 5th International Conference on Numerical Modeling of Space Plasma Flows, San Diego, June 13 - 18, 2010
7. Nishikawa, K.-I., Simulation of relativistic shocks and associated self-consistent radiation, Isradynamic 2010, Ein Bokek, April 10 - 17, 2010
6. Nishikawa, K.-I., J. Niemiec, M. Medvedev, B. Zhang, P. Hardee, Y. Mizuno, A. Nordlund, J. Frederiksen, H. Sol, M. Pohl, D. H. Hartmann, J. F. Fishman , Simulation of Relativistic Shocks and Associated Self-consistent Radiation, Acceleration & Emission Processes at High Energies and their Application to AGN, Meudon, January 25-26, 2010
5. Nishikawa, K.-I, Simulation of Relativistic Shocks and Associated Radiation from Turbulent Magnetic Fields, 4th International Conference on Numerical Modeling of Space Plasma Flows, June 29th - July 3rd 2009, Centre de congres Le Majestic, 241 Alle du Majestic Chamonix, France
4. Nishikawa, K.-I., Particle Acceleration and Associated Emission from Relativistic Shocks, KIAA Program on GRB Physics, Kavli Institute of Astronomy and Astrophysics (KIAA), Peking University, May 4 - June 19, 2009 (attended May 15 - 25)

3. Nishikawa, K.-I., Y. Mizuno, M. Watson, P. Hardee,, S. Fuerst, K. Wu, S. Koide, & G. J. Fishman, GRMHD and GRPIC Simulations, Workshop on Ò An Inter-disciplinary Forum on Magnetospheric Activities in Moons, Planets, Stars and Black Holes.Ó MSSL, 18-20 September 2007 (http://www.mssl.ucl.ac.uk/theory/events/20070918/talks.html)
2. Nishikawa, K.-I., Y. Mizuno, M. Watson, P. Hardee,, S. Fuerst, K. Wu, & G. J. Fishman, 3-D GRMHD and GRPIC Simulations of Disk-Jet Coupling and Emission, 11th Marcel Grossmann Meeting on General Relativity, Freie Universität Berlin, July 23 - 29, 2006
1. Nishikawa, K.-I, Particle Acceleration in Jets, AAS 206th meeting (#30.09), Minneapolis, 29 May - 2 June 2005

Talks and posters (since December 2005 as of November 10, 2016)

48. Nishikawa, K.I., et al., Radiation from accelerated particles in relativistic jets with shocks, shear-flow, and reconnection, The 4th High Energy Phenomena in Relativistic Outflows (HEPRO IV) meeting was hold in Heidelberg, July 23-26, 2013 (talk)
47. Nishikawa, K.I., et al., Current-Driven Kink Instability in Magnetically Dominated Rotating Relativistic Jet, The 4th High Energy Phenomena in Relativistic Outflows (HEPRO IV) meeting was hold in Heidelberg, July 23-26, 2013 (poster)
46. Nishikawa, K.-I., et al., Radiation from relativistic jets from particles accelerated by shocks, shear-flows, and reconnection, The Innermost Regions of Relativistic Jets and Their Magnetic Fields. Granada, Spain. June 10 - 14, 2013 (talk)
45. Nishikawa et al., Radiation from accelerated particles in relativistic jets with shocks, shear-flow, and reconnection, 4th International Fermi Symposium, Monterey, CA, October 28 - November 2, 2012 (talk)
44. Nishikawa et al., Radiation from accelerated particles in relativistic jets with shocks, shear-flow, and reconnection, Gamma Ray Burst 2012, Marbella, Spain, October 8 - 12, 2012 (poster)
43. Nishikawa, et al., Radiation From Accelerated Particles in Shocks and Reconnections, Rattle and Shine: Gravitational Wave and Electromagnetic Studies of Compact Binary Mergers, Santa Barbara, CA, July 30 - August 3, 2012, (poster) (http://online.kitp.ucsb.edu/online/chirps-c12/)
42. Nishikawa et al., Radiation from accelerated particles in shocks and reconnections, Gamma-Ray Bursts 2012 Conference, Munich, Germany, May 7 - 11, 2012 (poster)
41. Nishikawa et al., Radiation from accelerated particles in shocks and reconnections, 5th Isradynamics Conference: Dynamical Processes in Space and Astrophysical Plasmas, Jurusalem, Israel, April 29 - May 7, 2012 (talk)
40. Nishikawa et al., Radiation from accelerated particles in shocks and reconnections, Death of Massive Stars: Supernovae and Gamma-Ray Bursts, Nikko, Japan, March 12 - 16, 2012 (poster)
39. Nishikawa et al., Radiation from accelerated particles in shocks and reconnections, Time Domain Astrophysics with Swift, Clemson, South Carolina, October 24 - 26, 2011 (poster)
38. Hardee et al., Current Driven Instability of a SUB-ALFVÉNIC Relativistic Jet, High Energy Phenomena in Relativistic Outflows III, Barcelona, Spain, June 27 - July 1, 2011 (poster)

37. Mizuno et al., Relaxation of Pulsar Wind Nebula via Current-Driven Kink Instability, High Energy Phenomena in Relativistic Outflows III, Barcelona, Spain, June 27 - July 1, 2011 (poster)
36. Mizuno et al., Magnetic Field Amplification by Relativistic Shocks in an Inhomogeneous Medium, High Energy Phenomena in Relativistic Outflows III, Barcelona, Spain, June 27 - July 1, 2011 (poster)
35. Nishikawa et al., Simulation of Relativistic Jets and Associated Self-consistent Radiation, High Energy Phenomena in Relativistic Outflows III, Barcelona, Spain, June 27 - July 1, 2011 (talk)
34. Nishikawa et al., Simulation of relativistic shocks and associated radiation from turbulent magnetic fields, Gamma Ray Bursts 2010 Conference, November 1 - 4, 2010, Annapolis, MD (poster)
33. Nishikawa et al., Simulation of relativistic shocks and associated radiation from turbulent magnetic fields, IAU Symposium 275: Jets at all Scales, Buenos Aires, Argentine, September 13 - 17, 2010 (talk)
32. Nishikawa, K.-I. et al., The CD Kink Instability in Magnetically Dominated Relativistic Jets, 38th COSPAR Scientific Assembly, 18 - 25 July 2010, Bremen, Germany (poster)
31. Nishikawa, K.-I. et al., Rapid Variability Generated at Relativistic Shocks Simulated by Particle-in-Cell Code, 38th COSPAR Scientific Assembly, 18 - 25 July 2010, Bremen, Germany (talk)
30. Nishikawa- K.-I., Radiation for GRB Prompt Emission and Afterglows, 38th COSPAR Scientific Assembly, 18 - 25 July 2010, Bremen, Germany (talk)
29. Nishikawa, K.-I., Impact of the IMF Rotation from Northward to Dawnward on Cusp Boundary Formation and Particle Entries: Large-scale Global 3D Full Particle Simulation, 38th COSPAR Scientific Assembly, 18 - 25 July 2010, Bremen, Germany (talk)
28. Nishikawa, K.-I. et al. Simulation of Relativistic Shocks and Associated Self-consistent Radiation, Proceedings of Deciphering the Ancient Universe with Gamma-Ray Bursts, April 2010 (talk)
27. Mizuno, Y. et al. Magnetic Field Amplification by Relativistic Shocks in Turbulent Medium, Deciphering the Ancient Universe with Gamma-Ray Bursts, April 2010 (poster)
26. Nishikawa, K.-I. et al. Simulations of Relativistic Shocks and Associated Self-consistent Radiation, 2010 AAS HEAD Meeting, February, 2010 (poster)
25. Hardee, P. et al. The CD Kink Instability in Magnetically Dominated Relativistic Jets, 2010 AAS HEAD Meeting, February 2010 (poster)
24. Mizuno, Y. et al. Effects of Instabilities in Relativistic Jets, 22nd Rironkon Symposium, December 2009 (poster)
23. Nishikawa, K.-I., J. Niemiec, M. Medvedev, B. Zhang, P. Hardee, Y. Mizuno, A. Nordlund, J. Frederiksen, H. Sol, M. Pohl, D. H. Hartmann, J. F. Fishman, Simulation of relativistic shocks and associated radiation from turbulent magnetic fields, APCT, Shock Waves, Turbulence, and Particle Acceleration, Nov. 18-21, 2009, Pohang, Korea (talk)
22. Nishikawa, K.-I., J. Niemiec, B. Zhang, M. Medvedev, P. Hardee, Y. Mizuno, A. Nordlund, J. Frederiksen, H. Sol, M. Pohl, D. H. Hartmann, J. F. Fishman, Simulation of relativistic shocks and associated radiation from turbulent magnetic fields, 2009 Fermi Symposium, 2-5 November 2009 (poster)

21. Nishikawa, K.-I., J. Niemiec, M. Medvedev, B. Zhang, P. Hardee, Y. Mizuno, A. Nordlund, J. Frederiksen, H. Sol, M. Pohl, D. H. Hartmann, J. F. Fishman, Simulation of relativistic shocks and associated radiation from turbulent magnetic fields, High Energy Phenomena in Relativistic Outflows II, Buenos Aires, Argentina, October 26 - 30, 2009 (talk)
20. Mizuno, Y. et al. Current-Driven Kink Instability in Relativistic Jets, High Energy Phenomena in Relativistic Outflows II, Buenos Aires, Argentina, October 26 - 30, 2009 (poster)
19. Mizuno, Y. et al. Magnetohydrodynamic Effects in Relativistic Ejecta, High Energy Phenomena in Relativistic Outflows II, Buenos Aires, Argentina, October 26 - 30, 2009 (talk)
18. Nishikawa, K.I. et al., Simulation of Relativistic Shocks and Associated Radiation from Turbulent Magnetic Fields, Nonlinear Processes in Astrophysical Plasmas: Particle Acceleration, Magnetic Field Amplification, and Radiation Signatures, Santa Barbara, CA, September 28, 2009 - October 2, 2009 (talk)
17. Nishikawa, K.-I., Medvedev, M., Zhang, B., Hardee, P., Niemiec, J., Mizuno, Y., Sol, H., Nordlund, Å, Frederiksen, J., Sol, H., Pohl, M., Hartmann, D. H., Oka, M., and Fishman, G. J., Radiation from relativistic shocks with turbulent magnetic fields, Neutron Stars & Gamma Ray Bursts, 30 March 2009 - 4 April 2009 (talk)
16. Nishikawa, K.-I., Hardee, P., Mizuno, Y., Medvedev, M., Zhang, B., Sol, H., Niemiec, J., Nordlund, Å, Frederiksen, J., Lyubarsky, Y., Hartmann, D. H., and Fishman, G. J., Microscopic Processes on Radiation from Accelerated Particles in Relativistic Jets, 213th AAS meeting, January 4 - 8, 2009 (talk)
15. Nishikawa, K.-I., Hardee, P., Mizuno, Y., Medvedev, M., Zhang, B., Nordlund, Å, Frederiksen, J., Sol, H., Lyubarsky, Y., Hartmann, D. H., and Fishman, G. J., Microscopic processes in relativistic jets, Kinetic Modeling of Astrophysical Plasmas, October 5-9, 2008, Krakow, Poland (talk)
14. Nishikawa, K.-I., Hardee, P., Mizuno, Y., Zhang, B., Medvedev, M., Nordlund, Å, Frederiksen, J., Hartmann, D. H., Fishman, G. J., Preece, R., New Relativistic Particle-In-Cell Simulation Studies of Prompt and Early Afterglows from GRBs, 37th COSPAR Scientific Assembly, 13-20 July 2008, Montreal, Canada (talk)
13. Nishikawa, K.-I., Cai, D., Lembege, B., 3D Particle simulations of the solar wind terrestrial magnetosphere interaction: impact of the IMF rotation on the magnetosphere dynamic, 37th COSPAR Scientific Assembly, 13-20 July 2008, Montreal, Canada (talk)
12. Mizuno, Y., Hardee, P., Nishikawa, K.-I., 3D RMHD Simulations of Magnetized Spine-Sheath Relativistic Jets, 37th COSPAR Scientific Assembly, 13-20 July 2008, Montreal, Canada (talk)
11. Nishikawa, K.-I., Hardee, P., Mizuno, Y., Medvedev, M., Sol, H., Hartmann, D. H., Fishman, G. J., Relativistic Particle-In-Cell Simulations of Particle Acceleration in Relativistic Jets 37th COSPAR Scientific Assembly, 13 - 20 July 2008, Montreal, Canada (talk)
10. Nishikawa, K.-I., Niemiec, J., Sol, H., Medvedev, M., Zhang, B., Hardee, P., Mizuno, Y., Hartmann, D. H., Fishman, G. J., Relativistic Particle-In-Cell Simulation Studies of Relativistic Jets and associated radiation, 4th Heidelberg International Symposium on High Energy Gamma-Ray Astronomy, July 7-11, 2008 (poster)
9. Nishikawa, K.-I., Hardee, P., Mizuno, Y., Medvedev, M., Zhang, B., Sol, H., Hartmann, D. H., Fishman, G. J., Relativistic Particle-In-Cell Simulation Studies of Relativistic Jets, Dynamical Processes in Space Plasmas, Israel, 11-19 May 2008 (talk)

8. Nishikawa, K.-I., Hardee, P., Mizuno, Y., Medvedev, M., Zhang, B., Fishman, G. J., Radiation from relativistic jets, Workshop on Blazar Variability across the Electromagnetic Spectrum, École polytechnique in Palaiseau, April 22 - 25, 2008 (poster)
7. Nishikawa, K.-I., P. Hardee, Y. Mizuno, J. F. Fishman, R. Preece, New Relativistic Particle-In-Cell Simulation Studies of Prompt and Early Afterglows from GRBs, The 10th HEAD meeting, Los Angels, March 31 - April 3, 2008 (talk)
6. Nishikawa, K.-I., E. Ramirez-Ruiz, Y. Mizuno, P. Hardee, C. B. Hededal & G.J. Fishman, Particle acceleration, magnetic field generation, and associated emission in collisionless relativistic jets, 7th European Workshop on Collisionless Shocks, November 7 - 9, 2007 (talk)
5. Nishikawa, K.-I., E. Ramirez-Ruiz, P. Hardee, Y. Mizuno, M. Medvedev, C. B. Hededal & G. J. Fishman, Particle acceleration, magnetic field generation, and associated emission in collisionless relativistic jets, High Energy Phenomena in Relativistic Outflows, September 24 - 28, 2007 (talk)
4. Nishikawa, K.-I., Y. Mizuno, P. Hardee, C. B. Hededal & G.J. Fishman, 3-D RPIC simulations of relativistic jets: Particle acceleration, magnetic field generation, and emission, Microquasars and Beyond, Como, Italy, September 18 - 22, 2006 (talk)
3. Mizuno, Y., K.-I. Nishikawa, S. Koide, P. Hardee, & G.J. Fishman, Newly-Developed 3D GRMHD Code and its Application to Jet Formation, NEW Frontiers in Numerical Relativity, Albert Einstein Institute, Golm, Germany, July 17 - 21, 2006 (poster)
2. Nishikawa, K.-I., Particle Acceleration in Jets, Supernova and Gamma-Ray Burst Remnants, KITP, UCSB, February 6 - 10, 2006 (poster)
1. Nishikawa, K.-I., Particle Acceleration, Magnetic Field Generation and Emission in Relativistic Jets, Relativistic Jets: The Common Physics of AGN, Microquasars and Gamma-Ray Bursts, University of Michigan, 14-17 December 2005 (talk)

Seminar (since 2009 as of November 10, 2016)

10. Radiation from accelerated particles in relativistic jets in AGN and GRB , Seminar, Institute of Space Science, Bucharest, July 29, 2013
9. Radiation from accelerated particles in relativistic jets with shocks, shear-flow, and reconnection, Seminar, Instituto de Astrofisica de Andalucia (IAA-CSIC), October 16, 2012
8. Radiation from accelerated particles in shocks and reconnections, Physics Colloquium, University of Tokyo, March 26, 2012
7. Radiation from accelerated particles in shocks and reconnections, Physics Colloquium, KEK, March 23, 2012
6. Radiation from accelerated particles in shocks and reconnections, Physics Colloquium, University of Tsukuba, March 20, 2012
5. Radiation from accelerated particles in shocks and reconnections, Physics Colloquium, UNLV, September 30, 2011
4. Magnetospheric processes, Space Weather Camp 2011, Huntsville, AL, August 10, 2011
3. Simulation of Relativistic Shocks and Associated Self-consistent Radiation, Colloquium at Korean Astronomy and Space Science Institute, September 1, 2010
2. Simulation of Relativistic Shocks and Associated Radiation from Turbulent Magnetic fields, Department of Physics, UAHuntsville, October 20, 2009
1. Radiation from relativistic shocks with turbulent magnetic fields, Seminar at Department of Physics at Beijing University, May 25, 2009