

Fan Guo

Curriculum Vitae

PERSONAL DETAILS

Nuclear and Particle Physics, Astrophysics and Cosmology Group, T-2
Theoretical Division, Los Alamos National Laboratory

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 Los Alamos, NM 87545

RESEARCH INTERESTS & HIGHLIGHTS

- Space plasma physics, plasma astrophysics, basic plasma physics
- Charged particle acceleration and transport
- Magnetic reconnection, collisionless shocks, waves and turbulence
- Mentored 3 postdocs and more than 8 students
- Team member of NASA Interstellar Mapping and Acceleration Probe (IMAP) mission

PROFESSIONAL EXPERIENCE

Regular Staff Scientist 9/2019-
Theoretical Division, Los Alamos National Laboratory
Focus on plasma energization in space, astrophysical and laboratory plasmas

Staff Scientist II 3/2016-
Theoretical Division, Los Alamos National Laboratory
Focus on plasma energization in space, astrophysical and laboratory plasmas

Adjunct Assistant Professor 7/2017-
Department of Space Science, University of Alabama in Huntsville
Mentor graduate students, serve on PhD committee, etc.

Affiliated Scientist 2017-
New Mexico Consortium
Space Physics and Astrophysics

Postdoctoral Research Associate 2012-2016
Theoretical Division, Los Alamos National Laboratory
Mentors: William Daughton and Hui Li
Particle acceleration in space and astrophysical plasmas

Graduate Research Associate 2007-2012
Department of Planetary Sciences, University of Arizona
Advisors: Joe Giacalone and J. R. Jokipii
Effects of Turbulent Magnetic Field on the Transport and Acceleration of Energetic Charged Particles: Numerical Simulations with Applications to Heliospheric Physics

Graduate Research Assistant 2010
Theoretical Division, Los Alamos National Laboratory
Magnetic field amplification in supernova remnants Mentors: Hui Li and Shengtai Li.

Graduate Research Assistant 2005-2007
University of Science and Technology of China
On kinetic instabilities in space plasmas Advisor: Quanming Lu

EDUCATION

Ph.D. in Planetary Sciences 2007-2012
Department of Planetary Sciences/Lunar and Planetary Lab, University of Arizona

M.S. in Space Physics 2005-2007
Department of Earth and Space Sciences
University of Science and Technology of China

B.S. in Geophysics 2001-2005
Department of Earth and Space Sciences
University of Science and Technology of China

MENTORING

Postdoc Research Associate:

Xiaocan Li Particle acceleration and transport in nonrel. reconnection, Feb. 2017 -
Patrick Kilian Particle acceleration in relativistic reconnection, Sep. 2018 - present
Qile Zhang Particle acceleration in magnetic reconnection, Feb. 2020 (upcoming)

Visiting Postdoc:

Xiangliang Kong (Shandong U.) Particle acceleration at coronal shocks, 2016 - 2017

Students: Xiaocan Li (UAH, 2013-2016), Thomas Liu (UCSD, 2016),
Senbei Du (UAH, 2016 - present), Talwinder Singh (UAH, 2018)
Yingchao Lu (Rice University 2018 - present), Wangcheng Yan (U. of Tennessee 2018)
Dylan Ma (LA High School, 2018 - 2019), Divya Banesh (UC Davis 2018 - present)

TEACHING EXPERIENCE

Summer School Lecturer July 2015
Title: Energetic Particles in the Solar System
Los Alamos Space Weather Summer School 2015

Summer School Lecturer July 2014
Title: Energetic Particle Observations and Dynamics
Los Alamos Space Weather Summer School 2014

Co-advised graduate student 2013 - present
Xiaocan Li (University of Alabama in Huntsville)
The acceleration of charged particles in solar flares
Senbei Du (University of Alabama in Huntsville)
The interaction between magnetic islands and shocks
Yingchao Lu (Rice University)
Kinetic Processes in Nonthermal Acceleration in Collisionless Shocks
Divya Banesh (UC Davis)

Topological Identification in Magnetic Reconnection and Turbulence
Teaching Assistant Fall 2011
 PTYS 170B – The Universe and Humanity: Origin and Destiny
 Instructor: Richard Greenberg, University of Arizona
 Grading, class activity, lab session, guest lecture

Teaching Assistant Spring 2011
 PTYS 102 – The Universe and Humanity: Origin and Destiny
 Instructor: Tim Swindle, University of Arizona
 Grading, class activity, lab session

Teaching Assistant Fall 2006
 Fluid Mechanics
 Instructor: Quanming Lu, University of Science and Technology of China
 Grading and guest lecture

AWARDS

- Gerard P. Kuiper Memorial Award for distinguished dissertation research 2013
- Shandel Education Award, The University of Arizona 2011
- Outstanding Student Paper Award, American Geophysical Union 2010
- Galileo Circle Scholarship, The University of Arizona 2010
- Excellent Master Dissertation Award of Anhui Province, China 2007

SERVICE AND PROFESSIONAL MEMBERSHIP

- Member of Expert Group for *Understanding the Plasma Universe* APS DPP 2019-
- Executive Committee Member of Living With a Star Program Analysis Group 2018-
- Regular referee for > 20 journals including Nature Physics & Nature communications.
- Chair, Organizer and session chairs in many conferences and workshops
- Judge for Outstanding Student Paper Award of the AGU 2014-present (> 10 times)
- Panel and Mail-in Reviewer for DOE, NASA, NSF, and LANL LDRD grant programs
- Member of American Physical Society (APS) since 2013
- Member of American Geophysical Union (AGU) since 2008
- Member of American Astronomical Society (AAS) since 2014

COLLABORATORS

Hui Li, Bill Daughton, Shengtai Li, Chengkun Huang, Adam Stanier, Ari Le,
 Xiaocan Li (LANL), Joe Giacalone, Randy Jokipii, Jozsef Kota (University of Arizona)
 Yi-Hsin Liu (Dartmouth College), Jiansen He (Peking University)
 Gary Zank, Senbei Du, Gang Li (U of Alabama in Huntsville)
 Haocheng Zhang (Purdue University), Xuening Bai (Tsinghua University)
 Bin Chen (NJIT), Mitsuo Oka (UC Berkeley), Andrey Beresnyak (NRL)
 Xiangrong Fu (New Mexico Consortium), Pawan Kumar (UT Austin)
 Chengcai Shen, Kathy Reeves (CFA), Lindsay Glesener, Sophie Musset (UMN)
 Xiangliang Kong (Shandong University), Edison Liang (Rice U.), Lulu Zhao (FIT)

INVITED PRESENTATIONS AND SEMINARS

- [48] Invited talk in Magnetic Reconnection 2020 Workshop (MR2020) *Particle Acceleration during Guide Field Magnetic Reconnection*, Alesund, Norway 6/2020 (upcoming)
- [47] Invited talk in Princeton Center for Theoretical Sciences (PCTS) Workshop *Understanding the Most Energetic Cosmic Accelerators: Advances in Theory & Simulation*, Princeton, NJ 3/2020 (upcoming)
- [46] 40-min Invited talk in Kavli IPMU Workshop *Particle Acceleration in Solar Flares – Deciphering its Features under Magnetic Reconnection*, Kashiwa, Japan 3/2020 (upcoming)
- [45] Invited talk in 61st Annual Meeting of the APS Division of Plasma Physics, Fort Lauderdale, FL 10/2019
- [44] Invited talk in XLIX International Symposium on Multiparticle Dynamics, Santa Fe, NM 9/2019
- [43] Seminar, Plasma Theory Group, Physics Department, University of Maryland, College Park 7/2019
- [42] Invited talk, Midwest Magnetic Fields Meeting, Madison, WI 5/2019
- [41] Invited talk, “The Physics of Energetic Particles: Universal Processes from the Solar Corona to the Very Local Interstellar Medium and the Physics They Enable” 18th Annual International Astrophysics Conference, Pasadena, CA 2/2019
- [40] 1-hour seminar, NASA Goddard Space Flight Center, Greenbelt, MA, United States 7/2018
- [39] 1-hour seminar in Joint-Space Institute, U. Maryland, College Park, MA, USA 6/2018
- [38] Invited talk, AOGS Meeting, Honolulu, Hawaii, United States 6/2018
- [37] 30-min Invited talk, 3rd Purdue Workshop on Relativistic Plasma Astrophysics, Purdue University, West Lafayette, IN, United States 5/2018
- [36] Invited talk, “Particle Transport and Energization in Turbulent Plasmas”, Zhuhai, China 4/2018
- [35] Tutorial talk, “Particle Transport and Energization in Turbulent Plasmas”, Zhuhai, China 4/2018
- [34] Invited talk, 2nd Workshop on Termination Shocks, SADs, and Radio Flares, NJIT 3/2018
- [33] Invited talk, “Turbulence, Structures, and Particle Acceleration Throughout the Heliosphere and Beyond”, 17th Annual International Astrophysics Conference, Santa Fe, NM 3/2018
- [32] Invited talk, 1st Asia-Pacific Conference on Plasma Physics (AAPPS-DPP2017) 9/2017
- [31] *CIPS seminar* 1-hour invited seminar in University of Colorado, Boulder 6/2017
- [30] 1-hour Invited seminar in Nanjing University, Nanjing, China 3/2017
- [29] 1-hour Invited seminar in Peking University, Beijing China 3/2017
- [28] 1-hour Invited seminar in National Space Science Center, Beijing, China 3/2017

- [27] 1-hour Invited seminar in Beihang University, Beijing China 3/2017
- [26] Invited talk, “Turbulence, Structures, and Particle Acceleration Throughout the Heliosphere and Beyond”, The 16th Annual International Astrophysics Conference, Santa Fe, NM 3/2017
- [25] 30-min Invited talk, “Cosmic Rays, Pulsars & Dark Matter”, Santa Fe, NM 3/2017
- [24] 45-min Invited talk, “Cosmic Rays, Astrophysical Turbulence and Magnetic Reconnection”, Natal Brazil 12/2016
- [23] 30-min Invited talk, 2nd Purdue Workshop on Relativistic Plasma Astrophysics Purdue University, West Lafayette, IN, United States 5/2016
- [22] Invited Colloquium in Department of Planetary Sciences, University of Arizona Tucson, AZ, United States 3/2016
- [21] Invited plenary talk at 57th Annual Meeting of the APS Division of Plasma Physics Savannah, Georgia, United States 11/2015
- [20] Invited talk at Mini-Conference on Plasma Energization in 57th Annual Meeting of the APS Division of Plasma Physics, Savannah, GA, United States 11/2015
- [19] Invited Seminar in NASA Marshall Space Flight Center, Huntsville, Alabama, United States 10/2015
- [18] Invited Seminar in Department Forum, Department of Physics and Astronomy, University of Nevada in Las Vegas, Las Vegas, Nevada, United States 09/2015
- [17] Invited talk in “A workshop on Plasma Energization: Exchange between fluid and kinetic scales” in University of Science and Technology of China, Hefei, China 06/2015
- [16] Invited talk in “Plasma Energization: Exchange between fluid and kinetic scales”, Center for Nonlinear Studies, Los Alamos National Laboratory, Los Alamos, NM 05/2015
- [15] Invited talk at 14th Annual International Astrophysics conference Tampa Bay, Florida, United States 04/2015
- [14] Invited talk in “Accelerating Cosmic Ray Comprehension 2015”, Princeton Center of Theoretical Physics, Princeton University, Princeton, New Jersey, United States 04/2015
- [13] Invited seminar in Center for Nonlinear Studies, Los Alamos National Laboratory Los Alamos, New Mexico, United States 02/2015
- [12] Invited Seminar in Center of Space Weather Sciences, Shandong University at Weihai Weihai, Shandong, China 01/2015
- [11] Invited talk in “The Magnetic Universe – A Mini-Conference in Honor of Stirling Colgate” 56th Annual Meeting of the APS Division of Plasma Physics, New Orleans, Louisiana 10/2014
- [10] Invited seminar in Department of Physics and Astronomy, Purdue University West Lafayette, Indiana, United States 10/2014
- [9] Invited seminar in Los Alamos Astro seminar series, Los Alamos National Laboratory Los Alamos, New Mexico, United States 4/2014
- [8] Invited talk in workshop “TeV Jets: Astrophysical Particle Acceleration”, Santa Fe, New Mexico, United States 8/2013

- [7] Seminar in ISR-1, Los Alamos National Laboratory, Los Alamos, NM, US 6/2012
- [6] Invited talk at 11th Annual International Astrophysics Conference, Palm Springs, CA 3/2012
- [5] Invited seminar in Physics Department, University of Alabama at Huntsville
Huntsville, Alabama, United States 1/2012
- [4] Invited Seminar in Department of Space Sciences, Shandong University at Weihai
Weihai, Shandong, China 7/2011
- [3] Invited seminar in Department of Earth and Space Sciences, University of Science and
Technology of China, Hefei, Anhui, China 6/2011
- [2] Invited seminar in Space Science Department, Institute of Geology and Geophysics
Chinese Academy of Sciences, Beijing, China 6/2011
- [1] Seminar in Solar Wind Group, Los Alamos National Laboratory, Los Alamos, NM, US 6/2010

PUBLICATIONS:

Number of Publications: 70, Google Scholar: Citation: 1500+, H-index: 20
See scholar.google.com/citations?user=Q706SyUAAAAJ&hl=en for more citation info
Students and Postdocs working with me are underlined.

(in prep.) [73] Haocheng Zhang, Xiaocan Li, **Fan Guo**, Yi-Hsin Liu (2019) Radiation and Polarization Signatures from Magnetic Reconnection in Relativistic Jets-I. A Systematic Study, ApJ, to be submitted

(in prep.) [72] **Fan Guo**, Xiaocan Li, William Daughton, Hui Li, Yi-Hsin Liu, Patrick Kilian (2019) Recent Progresses on Particle Acceleration and Reconnection Physics in Magnetically Dominated Relativistic Regime, Invited paper for Physics of Plasmas, to be submitted

(in prep.) [71] **Fan Guo**, Xiaocan Li, William Daughton, Hui Li, Yi-Hsin Liu, Patrick Kilian (2019) Magnetic Energy Release, Plasma Dynamics and Particle Acceleration in Relativistic Turbulent Magnetic Reconnection, Astrophysical Journal, to be submitted

[70] Patrick Kilian, Xiaocan Li, **Fan Guo**, Hui Li (2019) Exploring the acceleration mechanisms for particle injection and power-law formation during trans-relativistic magnetic reconnection, Astrophysical Journal, submitted

[69] Senbei Du, Gary Zank, Xiaocan Li, **Fan Guo** (2019) Energy Dissipation and Entropy in Collisionless Plasma, PRE, submitted

[68] Bin Chen, Chengcai Shen, Dale Gary, Katharine Reeves, Gregory Fleishman, **Fan Guo**, Sam Krucker, Jun Lin, Gelu Nita, and Sijie Yu (2019) Reconnection Current Sheet Ruled Out as the Main Site for Accelerating Relativistic solar Flare Electrons, Nature Astronomy, submitted

[67] Yi-Hsin Liu, S-C. Lin, M. Hesse, **Fan Guo**, Xiaocan Li, Haocheng Zhang, S. Peery (2019) The Critical Role of Collisionless Plasma Energization on the Structure of Relativistic Magnetic Reconnection, PRL, submitted

[66] Xiangrong Fu, **Fan Guo**, Hui Li, Xiaocan Li (2019) Heating of Heavy Ions in Low-beta Compressible Turbulence, Astrophysical Journal, submitted

[65] Yingchao Lu, Patrick Kilian, **Fan Guo**, Hui Li, Edison Liang (2019) Time-step dependent force interpolation scheme for suppressing numerical Cherenkov instability in relativistic particle-in-cell simulations, CPC, submitted

- [64] Xiangliang Kong, **Fan Guo**, Chengcai Shen, Bin Chen, Yao Chen, Lindsay Glesener, Sophie Musset, Peera Pongkitiwanchakul (2019) Electron Acceleration at Solar Flare Termination Shock, submitted to *Astrophysical Journal Letters*
- [63] Yingchao Lu, Chengkun Huang, Patrick Kilian, **Fan Guo**, Hui Li, Edison Liang (2019) An $\mathcal{O}(N)$ Maxwell solver with improved numerical dispersion properties, CPC, submitted
- [62] Bin Dong, Patrick Kilian, Xiaocan Li, **Fan Guo**, Suren Byna, Kesheng Wu (2019) Terabyte-scale Particle Data Analysis: An ArrayUDF Case Study, SSDBM 19
- [61] Bin Chen, Chengcai Shen, Katharine K. Reeves, **Fan Guo**, Sijie Yu (2019) Radio Spectroscopic Imaging of a Solar Flare Termination Shock: Split-Band Feature as Evidence for Shock Compression, *Astrophysical Journal*, 884, 63
- [60] Xiaocan Li, **Fan Guo**, Hui Li, Adam Stanier, Patrick Kilian (2019) Formation of power-law electron energy spectrum in three-dimensional low- β magnetic reconnection, *Astrophysical Journal*, 884, 118
- [59] Xiaocan Li, **Fan Guo**, Hui Li (2019) Particle acceleration in kinetic simulations of non-relativistic magnetic reconnection with different ion-electron mass ratio, *Astrophysical Journal*, 879, 5
- [58] **Fan Guo**, Xiaocan Li, William Daughton, Hui Li, Yi-Hsin Liu, Wangcheng Yan, Dylan Ma, Patrick Kilian (2019) Determining the Dominant Acceleration Mechanism during Relativistic Magnetic Reconnection in Large-scale Systems, *Astrophysical Journal Letters*, 879, L23, ArXiv:190108308
- [57] Xiangliang Kong, **Fan Guo**, Yao Chen, Joe Giacalone (2019) The effect of large-scale magnetic field configuration on the acceleration of high-energy protons at coronal shocks, *Astrophysical Journal*, 883, 49
- [56] Chengcai Shen, Xiangliang Kong, **Fan Guo**, John C. Raymond, and Bin Chen (2018) The Dynamical Behavior of Reconnection-driven Termination Shocks in Solar Flares: Magnetohydrodynamic Simulations, *Astrophysical Journal*, 869, 116
- [55] McComas, D. J. et al., including **Fan Guo** (2018) Interstellar Mapping and Acceleration Probe (IMAP): A New NASA Mission, *Space Science Reviews*, 214, 116
- [54] Qing Zheng, Charles D Cranor, Danhao Guo, Gregory R Ganger, George Amvrosiadis, Garth A Gibson, Bradley W Settlemyer, Gary Grider, **F. Guo** (2018) Scaling embedded in-situ indexing with deltaFS, SC18: The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC), Dallas, TX, pp 30-44
- [53] Senbei Du, **Fan Guo**, Gary P. Zank, Xiaocan Li, Adam Stanier (2018) Plasma Energization in Colliding Magnetic Flux Ropes, *Astrophysical Journal*, 867, 16
- [52] Senbei Du, Gary P. Zank, **Fan Guo**, Xiaocan Li, Adam Stanier (2018) Particle Acceleration in Interacting Magnetic Flux Ropes, *Journal of Physics: Conference Series*, 1100, 012009
- [51] Bin Chen, Sijie Yu, Marina Battaglia, Samaiyah Farid, Antonia Savcheva, Katharine K. Reeves, Sam Krucker, T. S. Bastian, **Fan Guo**, Svetlin Tassev (2018) Magnetic Reconnection Null Points as the Origin of Semirelativistic Electron Beams in a Solar Jet, *Astrophysical Journal*, 866, 62
- [50] Xiaocan Li, **Fan Guo**, Hui Li, Shengtai Li (2018) Large-scale Compression Acceleration during Magnetic Reconnection in a Low- Plasma, *Astrophysical Journal*, 866, 4

- [49] Liu, Yi-Hsin, Hesse, Michael, **Guo, Fan**, Li, Hui, Nakamura, T. K. M. (2018) Strongly localized magnetic reconnection by the super-Alfvénic shear flow, *Physics of Plasmas*, 25, 080701
- [48] Haocheng Zhang, Xiaocan Li, **Fan Guo**, Dimitrios Giannios (2018) Large-Amplitude Blazar Polarization Angle Swing as a Signature of Magnetic Reconnection, *Astrophysical Journal*, 862, 25
- [47] X. Li, **F. Guo**, H. Li, J. Birn (2018) The roles of fluid compression and shear in electron energization during magnetic reconnection, *Astrophysical Journal*, 855, 80
- [46] X. Fu, H. Li, **F. Guo**, X. Li, V. Roytershteyn (2018) Parametric Decay Instability and Dissipation of Low-frequency Alfvén Waves in Low-beta Turbulent Plasmas, *Astrophysical Journal*, 885, 139
- [45] X. Kong, **F. Guo**, J. Giacalone, H. Li, Y. Chen (2017) The acceleration of high-energy protons at coronal shocks: the effect of large-scale streamer-like magnetic field structures, *Astrophysical Journal*, 851, 38
- [44] Abeysekara, A. U., Albert, A., Alfaro, R. et al. including **F. Guo** (2017) Extended gamma-ray sources around pulsars constrain the origin of the positron flux at Earth, *Science*, 358, 911 (**120 citations by Dec. 2019**)
- [43] Qing Zheng, George Amvrosiadis, Saurabh Kadakodi, Garth A. Gibson, Charles D. Cranor, Bradley W. Settlemyer, Gary Grider, **F. Guo** (2017) Software-defined storage for fast trajectory queries using a deltaFS indexed massive directory, *Proceedings of the 2nd Joint International Workshop on Parallel Data Storage & Data Intensive Scalable Computing Systems*, page 7-12
- [42] Xiaocan Li, **Fan Guo**, Hui Li, Gang Li (2017) Particle Acceleration during Magnetic Reconnection in a Low-beta Plasma, *Astrophysical Journal*, 843, 21
- [41] David Stark, Lin Yin, Brian Albright, **Fan Guo** (2017) Effects of dimensionality on kinetic simulations of laser-ion acceleration in the transparency regime, *Physics of Plasmas*, 24, 053103
- [40] Yi-Hsin Liu, Michael Hesse, **Fan Guo**, William Daughton, and Hui Li (2017) A model of global magnetic reconnection rate in relativistic collisionless plasmas, *Physical Review Letters*, 118, 085101
- [39] Can Huang, Quanming Lu, Rongsheng Wang, **Fan Guo**, Mingyu Wu, San Lu, and Shui Wang (2017) Development of Turbulent Magnetic Reconnection in A Magnetic Island, *Astrophysical Journal*, 835, 245
- [38] Haocheng Zhang, Hui Li, **Fan Guo**, and Greg Taylor (2017) Polarization Signatures of Kink Instabilities in the Blazar Emission Region from Relativistic Magnetohydrodynamic Simulations, *Astrophysical Journal*, 830, 37
- [37] Xiangliang Kong, Yao Chen, Shiwei Feng, Guohui Du, Chuanyang, Artem, Koval, V. Vasanth, Bing Wang, **Fan Guo**, and Gang Li (2016) Electron Acceleration at a Coronal Shock Propagating Through a Large-scale Streamer-like Magnetic Field, *Astrophysical Journal*, 821, 32
- [36] **Fan Guo**, Hui Li, William Daughton, Xiaocan Li, and Yi-Hsin Liu (2016) Particle Acceleration during Magnetic Reconnection in a Low-beta Pair Plasma, *Physics of Plasmas* (invited paper), 23, 055708
- [35] Kirit Makwana, Hui Li, **Fan Guo**, Xiaocan Li (2016) Dissipation in PIC simulations of moderate to low eta plasma turbulence, *AIP Conf. Proc.*, Astronom 2016
- [34] Xiangliang Kong, Yao Chen, **Fan Guo** (2016) The acceleration of electrons at a spherical coronal shock in a streamer-like coronal field, *AIP Conf. Proc.* 1720, 070003, *Solar Wind 14*, 22–26 June 2015, Weihai, China

- [33] Xiangliang Kong, Yao Chen, **Fan Guo**, Shiwei Feng, Guohui Du, and Gang Li (2016) Electron Acceleration at a Coronal Shock Propagating Through a Large-scale Streamer-like Magnetic Field, *Astrophysical Journal*, 821, 32
- [32] **Fan Guo**, Xiaocan Li, Hui Li, William Daughton, Bing Zhang, Nicole Lloyd-Ronning, Yi-Hsin Liu, Haocheng Zhang, Wei Deng (2016) Efficient Production of High-energy Nonthermal Particles during Magnetic Reconnection in a Magnetically-dominated Ion-Electron Plasma, *Astrophysical Journal Letter*, 818, L9
- [31] Yufei Hao, B. Lembege, Quanming Lu, **Fan Guo** (2016) Formation of downstream high speed jets by a rippled nonstationary quasi-parallel shock: 2-D hybrid simulations, *Journal of Geophysical Research*, 121, 2080
- [30] San Lu, Quanming Lu, **Fan Guo**, Zhengming Sheng, Huanyu Wang, Shui Wang (2016) Particle-in-cell simulations of electron energization in laser driven magnetic reconnection, *New Journal of Physics*, 18, 013051
- [29] Rongsheng Wang, Quanming Lu, Rumi Nakamura, Can Huang, Aimin Du, **Fan Guo**, Waileong Teh, Mingyu Wu, and San Lu (2016) In situ detection of magnetic flux rope coalescence in collisionless magnetic reconnection, *Nature Physics*, 12, 263, DOI:10.1038/NPHYS3578 (**56 citations as of Dec. 2019**)
- [28] Can Huang, Quanming Lu, **Fan Guo**, Wang Shui (2015) Turbulent plasma sheet and shear-driven magnetic islands in the outflow region of collisionless magnetic reconnection, *Geophysical Research Letters*, 42, doi:10.1002/2015GL065690
- [27] Xiaocan Li, **Fan Guo**, Hui Li, Gang Li (2015) Nonthermally Dominated Electron Acceleration during Magnetic Reconnection in a Low-beta Plasma, *Astrophysical Journal Letters*, 811, L24
- [26] Mingyu Wu, Yufei Hao, Quanming Lu, Can Huang, **Fan Guo**, Shui Wang (2015) The role of large amplitude upstream low-frequency waves in the generation of superthermal ions at a quasi-parallel collisionless shock: Cluster Observations, *Astrophysical Journal*, 808, 2
- [25] **Fan Guo**, Yi-Hsin Liu, William Daughton, Hui Li (2015) Particle Acceleration and Plasma Dynamics during Magnetic Reconnection in the Magnetically-dominated Regime, *Astrophysical Journal*, 806, 167 (**147 citations as of Dec. 2019**)
- [24] Shiwei Feng, Guohui Du, Yao Chen, Xiangliang Kong, Gang Li, **Fan Guo** (2015) Simultaneous Radio and EUV Imaging of a Multiple-lane coronal type II radio burst, *Solar Physics*, 290, 1195
- [23] Haocheng Zhang, Xuhui Chen, Markus Boettcher, **Fan Guo**, and Hui Li (2015) Polarization Swings Reveal Magnetic Energy Dissipation in Blazars, *Astrophysical Journal*, 804, 58 (**55 citations as of Dec. 2019**)
- [22] Yi-Hsin Liu, **Fan Guo**, William Daughton, Hui Li, Michael Hesse (2015) Scaling of the reconnection inflow speed and rate in relativistic collisionless plasmas, *Physical Review Letters*, 114, 095002
- [21] **Fan Guo**, Joe Giacalone (2015) The Acceleration of Electrons at Shocks Moving Through a Strong Turbulent Magnetic Field, *Astrophysical Journal*, 802, 97
- [20] **Fan Guo**, Hui Li, William Daughton, Yi-Hsin Liu, (2014) Formation of Hard Power-laws in the Energetic Particle Spectra Resulting from Relativistic Magnetic Reconnection, *Physical Review Letters*, 113, 155005 (**225 citations as of Dec. 2019**)

- [19] Xiangliang Kong, Yao Chen, **Fan Guo**, Shiwei Feng, Gang Li (2014) Possible Role of Coronal Streamer as Magnetically-closed Structure in Shock-induced Energetic Electrons and Metric Type II Radio Bursts, *Astrophysical Journal*, 798, 81
- [18] Hui Tian, Gang Li, Katherine K. Reeves, John Raymond, **Fan Guo**, Wei Liu, Nick Murphy (2014) Imaging and Spectroscopic Observations of Magnetic Reconnection and Chromospheric Evaporation in a Solar Flare, *Astrophysical Journal Letters*, 797, L14 (**58 citations as of Dec. 2019**)
- [17] Guohui Du, Yao Chen, Maoshui Lv, Xiangliang Kong, Shiwei Feng, **Fan Guo**, and Gang Li (2014) Temporal Spectral Shift and Polarization of Band-splitting Type II Solar Radio Bursts, *the Astrophysical Journal Letters*, 793, L39
- [16] Yao Chen, Guohui Du, Shiwei Feng, Xiangliang Kong, **Fan Guo**, Bin Wang, Gang Li (2014) A Solar Type II Radio burst from CME-coronal Ray Interaction: Simultaneous Radio and EUV Imagings, *The Astrophysical Journal*, 787, 59
- [15] Zhao Wu, Yao Chen, Gang Li, Yong Liu, R. W. Ebert, M. I. Desai and G. M. Mason, L. Zhao, **Fan Guo**, Chaoling Tang (2014) Observation and Modeling of a CIR Pair Event, *The Astrophysical Journal*, 781, 17
- [14] **Fan Guo**, Joe Giacalone (2014) Small-scale Gradients of Energetic Particles in the Heliospheric Magnetic Field, *The Astrophysical Journal*, 780, 16
- [13] **Fan Guo**, Joe Giacalone (2013) On the Particle Acceleration in Parallel Collisionless Shocks: Three-dimensional Hybrid Simulations, *The Astrophysical Journal*, 773, 158
- [12] S. Feng, Y. Chen, X. Kong, G. Li, H. Song, X. Feng, **F. Guo** (2013) Type II Spectral Bumps and Diagnostics on the Properties of the Radio Source, *The Astrophysical Journal*, 767, 29
- [11] **Fan Guo**, Joe Giacalone (2012) The Acceleration of Electrons at Perpendicular Shocks and its Implication for Solar Energetic Particle events, *Space Weather: The Space Radiation Environment: 11th Annual International Astrophysics Conference*, AIP Conf. Proc. 1500, pp. 93-99
- [10] **Fan Guo** (2012) Effects of Turbulent Magnetic Fields on the Transport and Acceleration of Energetic Charged Particles: Numerical Simulations with Applications to Heliospheric Physics, PhD thesis, University of Arizona (arXiv:1211.3735)
- [9] **Fan Guo**, Joe Giacalone (2012) Electron Acceleration at a Flare Termination Shock: Effect of Large-scale Magnetic Turbulence, *The Astrophysical Journal*, 753, 28
- [8] X. L. Kong, Y. Chen, S. W. Feng, H. Q. Song, G. Li, **F. Guo**, and F. R. Jiao (2012) A Broken Dynamic Spectrum of Solar Type II Radio Burst Induced by a Failed Eruption, *The Astrophysical Journal*, 750, 158
- [7] **Fan Guo**, Shengtai Li, Hui Li, Joe Giacalone, J. R. Jokipii, David Li (2012) On the Amplification of Magnetic Field by a Supernova Blast Shock Wave in a Turbulent Medium, *The Astrophysical Journal*, 747, 98 (**59 citations as of Dec. 2019**)
- [6] **Fan Guo**, Shengtai Li, Hui Li, Joe Giacalone, J. R. Jokipii, David Li (2011) The Magnetic Field Amplification Downstream of Supernova Blast Wave, 2011, 32nd International Cosmic Ray Conference Proceeding, Vol 7, page 106
- [5] **F. Guo**, J. R. Jokipii and J. Kota (2010) Particle Acceleration by Collisionless Shocks Containing Large-scale Magnetic-field Variation, *The Astrophysical Journal* 725, 128

[4] **Fan Guo** and Joe Giacalone (2010) The Effect of Large Scale Magnetic Turbulence on the Acceleration of Electrons by Perpendicular Collisionless Shocks, *The Astrophysical Journal* 715, 406 (**53 citations as of Dec. 2019**)

[3] **Guo Fan**, Lu Quan-Ming, Guo Jun and Wang Shui (2008) Nonlinear Evolution of Lower-Hybrid Drift Instability in Harris Current Sheet, *Chin. Phys. Lett.*, 25 No. 7, 2725

[2] Lu, Q. M., **F. Guo**, and S. Wang (2006), Magnetic Spectral Signatures in the Terrestrial Plasma Depletion Layer: Hybrid Simulations, *J. Geophys. Res.*, 111, A04207, doi:10.1029/2005JA011405

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