

MMS Community Publications

★ Student/Early Career First Author (at time of publication)

★ Study Utilizing NASA's Heliophysics System Observatory

★ Community Contribution (non-MMS team first author)

★ Instrumentation/Technology/Engineering

- 2024
- 2022
- 2021
- 2020
- 2019
- 2018
- 2017
- 2016
- 2015
- 2014
- 2013
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2024

Bai, S.-C., Shi, Q., Shen, X.-C., Tian, A., Zhang, H., Guo, R., et al. (2024). Whistler-mode waves inside short large-amplitude magnetic field Structures: Characteristics and generation mechanisms. *Journal of Geophysical Research: Space Physics*, 129, e2023JA032392. <https://doi.org/10.1029/2023JA032392>

Chen, Z. Z., Wang, J., Yu, J., Liu, C. M., Huang, H. T., He, Z. G., ... & Cao, J. B. (2024). Magnetic Hump Associated with Electron Vortex at Dipolarization Front. *The Astrophysical Journal*, 961(1), 125. <https://doi.org/10.3847/1538-4357/ad09b8>

Dai, L., Zhu, M., Ren, Y., Gonzalez, W., Wang, C., Sibeck, D., ... & Branduardi-Raymont, G. (2024). Global-scale magnetosphere convection driven by dayside magnetic reconnection. *Nature Communications*, 15(1), 639. <https://doi.org/10.1038/s41467-024-44992-y>

DuBois, A. M., Crabtree, C., & Ganguli, G. (2024). Development of the ambipolar electric field in a compressed current sheet and the impact on magnetic reconnection. *Journal of Plasma Physics*, 90(1), 985900101. <https://doi.org/10.1017/S0022377823001447>

Gao, L., Shen, C., Zhou, Y. et al. (2024). Observational features of charge distribution in Earth's inner magnetosphere. *Commun Phys* 7, 63. <https://doi.org/10.1038/s42005-024-01553-5>

Gauthier, G., Chust, T., Le Contel, O., & Savoini, P. (2024). 3D cylindrical BGK model of electron phase-space holes with finite velocity and polarization drift. *Physics of Plasmas*, 31(3). <https://doi.org/10.1063/5.0181180>

Grimmich, N., Prencipe, F., Turner, D. L., Liu, T. Z., Plaschke, F., Archer, M. O., et al. (2024). Multi satellite observation of a foreshock bubble causing an extreme magnetopause expansion. *Journal of Geophysical Research: Space Physics*, 129, e2023JA032052. <https://doi.org/10.1029/2023JA032052>

Guo, W., Tang, B., Zhang, Q., Li, W., Yang, Z., Sun, T., et al. (2024). The magnetopause deformation indicated by fast cold ion motion. *Journal of Geophysical Research: Space Physics*, 129, e2023JA032121. <https://doi.org/10.1029/2023JA032121>

Guo, X., et al. (2024). Evolution of Electron Acceleration by Corotating Interaction Region Shocks at 1 au, *ApJL*, 966, L12, <https://doi.org/10.3847/2041-8213/ad3d5f>

Huang, S. Y., Xiong, Q. Y., Yuan, Z. G., Jiang, K., Yu, L., Xu, S. B., & Lin, R. T. (2024). Crater structure behind reconnection front. *Geophysical Research Letters*, 51, e2023GL106581. <https://doi.org/10.1029/2023GL106581>

Jiang, W., Verscharen, D., Jeong, S. Y., Li, H., Klein, K. G., Owen, C. J., & Wang, C. (2024). Velocity-space Signatures of Resonant Energy Transfer between Whistler Waves and Electrons in the Earth's Magnetosheath. *The Astrophysical Journal*, 960(1), 30. <https://doi.org/10.3847/1538-4357/ad0df8>

Jun, W., Meng, Z., Ye, P., & Xiao-hua, D. (2024). Analysis of the Energy Flux Density near Electron Diffusion Region of Asymmetric Magnetic Field Reconnection. *Chinese Astronomy and Astrophysics*, 48(1), 55-72. <https://doi.org/10.1016/j.chinastron.2024.03.005>

Jyoti, J., Sharma, S. C., & Sharma, R. P. (2024). Coherent structures of beam-driven whistler mode in the presence of magnetic islands in the magnetopause. *Physica Scripta*, 99 035610. <https://doi.org/10.1088/1402-4896/ad289a>

Kumar, S., Pulkkinen, T. I., & Gjerloev, J. (2024). Magnetotail variability during magnetospheric substorms. *Journal of Geophysical Research: Space Physics*, 129, e2023JA031722. <https://doi.org/10.1029/2023JA031722>

Li, X.-Y., Liu, Z.-Y., Zong, Q.-G., Zhou, X.-Z., Liu, J.-J., Hu, Z.-J., et al. (2024). Ion acceleration and corresponding bounce echoes induced by electric field impulses: MMS observations. *Journal of Geophysical Research: Space Physics*, 129, e2023JA032273. <https://doi.org/10.1029/2023JA032273>

Liu, Z.-Y., Zong, Q.-G., Wang, Y.-F., Zhou, X.-Z., Wang, S., & Li, J.-H. (2024). Electromagnetic Landau resonance: MMS observations. *Geophysical Research Letters*, 51, e2023GL105734. <https://doi.org/10.1029/2023GL105734>

Ma, W., Zhou, M., Zhong, Z., & Deng, X. (2024). Quantitative analysis of electron heating and acceleration in coalescing magnetic flux ropes at Earth's magnetopause. *Journal of Geophysical Research: Space Physics*, 129, e2023JA032270. <https://doi.org/10.1029/2023JA032270>

Naiko, D.Y., Ovchinnikov, I.L. & Antonova, E.E. (2024). Spatial Distribution of the Eddy Diffusion Coefficient in the Plasma Sheet of Earth's Magnetotail and Its Dependence on the Interplanetary Magnetic Field and Geomagnetic Activity Based on MMS Satellite Data. *Geomagn. Aeron.* 64, 172–179. <https://doi.org/10.1134/S0016793223600996>

Ovchinnikov, I. L., Naiko, D. Y., & Antonova, E. E. (2024). Fluctuations of the Electric and Magnetic Fields in the Plasma Sheet of the Earth's Magnetotail According to MMS Data. *Cosmic Research*, 62(1), 10-33. <https://doi.org/10.1134/S0010952523700788>

Rashid, M., Sarfraz, M., Shahzad, M., Ahsan, B., et al. (2024). Excitation of proton firehose instability in magnetospheric cold and hot proton plasma: a quasilinear approach, *Zeitschrift für Naturforschung A*, 79 (3), 289-297. <https://doi.org/10.1515/zna-2023-0203>

Regoli, L. H., Gkioulidou, M., Ohtani, S., Raptis, S., Mouikis, C. G., Kistler, L. M., et al. (2024). Temporal evolution of O⁺ population in the near-Earth plasma sheet during geomagnetic storms as observed by the magnetospheric multiscale mission. *Journal of Geophysical Research: Space Physics*, 129, e2023JA032203. <https://doi.org/10.1029/2023JA032203>

Satyasmita, S., Das, P., & Makwana, K. D. (2024). Identifying kinetic scale magnetic discontinuity structures in turbulent solar wind. *Astrophysics and Space Science*, 369(1), 7. <https://doi.org/10.1007/s10509-024-04266-x>

Smith, A. W., Rae, I. J., Stawarz, J. E., Sun, W. J., Bentley, S., & Koul, A. (2024). Automatic encoding of unlabeled two dimensional data enabling similarity searches: Electron diffusion regions and auroral arcs. *Journal of Geophysical Research: Space Physics*, 129, e2023JA032096. <https://doi.org/10.1029/2023JA032096>

Stasiewicz, K. (2024). Origin of flat-top electron distributions at the Earth's bow shock, *Monthly Notices of the Royal Astronomical Society: Letters* 527(1), L71–L75, <https://doi.org/10.1093/mnrasl/lsad146>

Steinval, K., & Gingell, I. (2024). The influence of rotational discontinuities on the formation of reconnected structures at collisionless shocks—Hybrid simulations. *Journal of Geophysical Research: Space Physics*, 129, e2023JA032101. <https://doi.org/10.1029/2023JA032101>

Venugopal, I. et al., (2024). Enhanced Oxygen Ion Outflow at Earth and Mars due to the Concurrent Impact of a Stream Interaction Region, *ApJ*, 966 126, <https://iopscience.iop.org/article/10.3847/1538-4357/ad307a>

Wang, M., Liu, T. Z., Zhang, H., Liu, K., Shi, Q., Guo, R., et al. (2024). Statistical analysis of whistler precursors upstream of foreshock transient shocks: MMS observations. *Geophysical Research Letters*, 51, e2023GL105617. <https://doi.org/10.1029/2023GL105617>

Wang, S., Zou, Y., Hu, Q., Shi, X., & Hasegawa, H. (2024). Characterization of magnetic flux contents for two flux transfer events from both in situ and ionospheric observations. *Journal of Geophysical Research: Space Physics*, 129, e2023JA032088. <https://doi.org/10.1029/2023JA032088>

Wang, Z., Huang, S. Y., Yuan, Z. G., Jiang, K., Wu, H. H., Xu, S. B., et al. (2024). Effects of electron vortices on the magnetic structures in the terrestrial magnetosheath. *Geophysical Research Letters*, 51, e2023GL106615. <https://doi.org/10.1029/2023GL106615>

Xie, Z. K., Zong, Q. G., Yue, C., Zhou, X. Z., Liu, Z. Y., He, J. S., ... & Lindqvist, P. A. (2024). Electron scale coherent structure as micro accelerator in the Earth's magnetosheath. *Nature Communications*, 15(1), 886. <https://doi.org/10.1038/s41467-024-45040-5>

Xirogiannopoulou, N., Goncharov, O., Šafránková, J., & Nmeek, Z. (2024). Characteristics of foreshock subsolar compressive structures. *Journal of Geophysical Research: Space Physics*, 129, e2023JA032033. <https://doi.org/10.1029/2023JA032033>

Yu, L., Huang, S. Y., Fu, H. S., Yuan, Z. G., Jiang, K., Xiong, Q. Y., & Lin, R. T. (2024). Reconstruction of Electron Vortex in Space Plasmas. *The Astrophysical Journal*, 963(1), 64. <https://doi.org/10.3847/1538-4357/ad22df>

Zhang, Q., Guo, F., Daughton, W., Li, H., Le, A., Phan, T., & Desai, M. (2024). Multispecies Ion Acceleration in 3D Magnetic Reconnection with Hybrid-Kinetic Simulations. *Physical Review Letters*, 132(11), 115201. <https://doi.org/10.1103/PhysRevLett.132.115201>

Zhang, W. Z., Fu, H. S., Cao, J. B., Wang, Z., Fu, W. D., Liu, Y. Y., & Yu, Y. (2024). First determination of whistler wave dispersion relation in superhot ($T_e > 5$ keV) plasmas. *Physical Review Research*, 6(1), L012047. <https://doi.org/10.1103/PhysRevResearch.6.L012047>

Zhou, Y.-J., He, F., Archer, M. O., Zhang, X.-X., Hao, Y. X., Yao, Z.-H., et al. (2024). Spatial evolution characteristics of plasmopause surface wave during a geomagnetic storm on 16 July 2017. *Geophysical Research Letters*, 51, e2024GL109371. <https://doi.org/10.1029/2024GL109371>

2023

Agapitov, O. V., Krasnoselskikh, V., Balikhin, M., Bonnell, J. W., Mozer, F. S., & Avakov, L. (2023). Energy repartition and entropy generation across the Earth's bow shock: MMS observations. *The Astrophysical Journal*, 952(2), 154. <https://doi.org/10.3847/1538-4357/acdb7b>

Allen, R. C., Gibson, S. E., Hewins, I., Vines, S. K., Qian, L., de Toma, G., et al. (2023). A mosaic of the inner heliosphere: Three Carrington rotations during the Whole Heliosphere and Planetary Interactions Interval. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031361. <https://doi.org/10.1029/2023JA031361>

Aravindakshan, H., Vasko, I. Y., Kakad, A., Kakad, B., & Wang, R. (2023). Theory of ion holes in plasmas with flat-topped electron distributions. *Physics of Plasmas*, 30(2), 022903. <https://doi.org/10.1063/5.0086613>

Arnold, H., Sorathia, K., Stephens, G., Sitnov, M., Merkin, V. G., & Birn, J. (2023). Data mining inspired localized resistivity in global MHD simulations of the magnetosphere. *Journal of Geophysical Research: Space Physics*, 128, e2022JA030990. <https://doi.org/10.1029/2022JA030990>

Bai, S.-C., Shi, Q., Zhang, H., Guo, R., Shen, X.-C., Liu, T. Z., et al. (2023). Electron dynamics and whistler-mode waves inside the short large-amplitude magnetic field structures. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031816. <https://doi.org/10.1029/2023JA031816>

Blanco-Cano, X., Rojas-Castillo, D., Kajdi, P., & Preisser, L. (2023). Jets and mirror mode waves in Earth's magnetosheath. *Journal of Geophysical Research: Space Physics*, 128, e2022JA031221. <https://doi.org/10.1029/2022JA031221>

Cassak, P. A., Barbhuiya, M. H., Liang, H., & Argall, M. R. (2023). Quantifying Energy Conversion in Higher-Order Phase Space Density Moments in Plasmas. *Physical Review Letters*, 130(8), 085201. <https://doi.org/10.1103/PhysRevLett.130.085201>

Chen, R., Gao, X., Lu, Q., Tsurutani, B. T., Miyoshi, Y., Zhou, X., et al. (2023). Observation of whistler mode waves inside mirror mode structures in the Earth's outer magnetosphere. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031792. <https://doi.org/10.1029/2023JA031792>

Chen, Y. Q., Wu, M. Y., Chen, Y. J., Xiao, S. D., Wang, G. Q., and Zhang, T. L. (2023). Responses of the field-aligned currents in the plasma sheet boundary layer to a geomagnetic storm. *Earth Planet. Phys.*, 7(5), 1–7. <https://doi.org/10.26464/epp2023075>

Chen, Z. Z., Liu, C. M., Yu, J., Wang, T. Y., Wang, J., Cui, J., & Cao, J. B. (2023). Electron-scale front of magnetic pile-up region in reconnection exhaust. *Journal of Geophysical Research: Space Physics*, 128, e2022JA030818. <https://doi.org/10.1029/2022JA030818>

Chen, Z. Z., Yu, J., Liu, C. M., Wang, J., Cui, J., & Cao, J. B. (2023). MMS observation of cold electrons in the magnetotail reconnection separatrix region. *Advances in Space Research*. <https://doi.org/10.1016/j.asr.2023.02.038>

da Silva, D., Bard, C., Dorelli, J., Kirk, M., Thompson, B., & Shuster, J. (2023). The impact of dimensionality reduction of ion counts distributions on preserving moments, with applications to data compression. *Frontiers in Astronomy and Space Sciences*, 9, 1056508. <https://doi.org/10.3389/fspas.2022.1056508>

Dai, L., Han, Y., Wang, C., Yao, S., Gonzalez, W., Duan, S., ... & Guo, Z. (2023). Geoeffectiveness of Interplanetary Alfvén Waves. I. Magnetopause Magnetic Reconnection and Directly Driven Substorms. *The Astrophysical Journal*, 945(1), 47. <https://doi.org/10.3847/1538-4357/acb267>

Dai, L., Wang, C. (2023) Kinetic Alfvén wave (KAW) eigenmode in magnetosphere magnetic reconnection. *Rev. Mod. Plasma Phys.* 7, 3. <https://doi.org/10.1007/s41614-022-00107-y>

Dong, Y., Yuan, Z., Huang, S., Xue, Z., Yu, X., Pollock, C. J., ... & Burch, J. L. (2023). Observational evidence of accelerating electron holes and their effects on passing ions. *Nature Communications*, 14(1), 7276. <https://doi.org/10.1038/s41467-023-43033-4>

Dredger, P. M., Lopez, R. E., & Hamrin, M. (2023). A case study in support of closure of bow shock current through the ionosphere utilizing multi-point observations and simulation. *Frontiers in Astronomy and Space Sciences*, 10, 1098388. <https://doi.org/10.3389/fspas.2023.1098388>

Du, C. X., Fu, H. S., Wang, Z., Cao, J. B., Liu, Y. Y., & Fu, W. D. (2023). Energy conversion by a twisted magnetic structure at magnetopause boundary layer: MMS observations. *Geophysical Research Letters*, 50, e2023GL106941. <https://doi.org/10.1029/2023GL106941>

Echim, M., Munteanu, C., Voicu, G., & Teodorescu, E. (2023). Magnetopause properties at the dusk magnetospheric flank from global magnetohydrodynamic simulations, the kinetic Vlasov equilibrium, and in situ observations Potential implications for SMILE. *Earth and Planetary Physics*. <https://doi.org/10.26464/epp2023066>

Ekawati, S., & Cai, D. (2023). In-situ observation of magnetic null on 19 September 2015 event using magnetospheric multiscale mission. *Journal of Geophysical Research: Space Physics*, 128, e2021JA029571. <https://doi.org/10.1029/2021JA029571>

Gao, C.-H., Tang, B.-B., Guo, X.-C., Li, W. Y., Khotyaintsev, Y. V., Graham, D. B., et al. (2023). Agyrotropic electron distributions in the terrestrial foreshock transients. *Geophysical Research Letters*, 50, e2022GL102235. <https://doi.org/10.1029/2022GL102235>

Gao, L., Vainchtein, D., Artemyev, A., Gabrielse, C., Runov, A., & Kellerman, A. (2023). Parametrization of energetic ion and electron fluxes in the near-Earth magnetotail. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031425. <https://doi.org/10.1029/2023JA031425>

Gedalin, M., Dimmock, A., Russell, C., Pogorelov, N., & Roytershteyn, V. (2023). Role of the overshoot in the shock self-organization. *Journal of Plasma Physics*, 89(2), 905890201. <https://doi.org/10.1017/S0022377823000090>

Gedalin, M., Golan, M., Vink, J., Ganushkina, N., & Balikhin, M. (2023). Electron heating in shocks: Statistics and comparison. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031627. <https://doi.org/10.1029/2023JA031627>

Grigorenko, E. E., Malykhin, A. Y., Kronberg, E. A., & Panov, E. V. (2023). Quasi-parallel Whistler Waves and Their Interaction with Resonant Electrons during High-velocity Bulk Flows in the Earth's Magnetotail. *The Astrophysical Journal*, 943(2), 169. <https://doi.org/10.3847/1538-4357/acaf52>

Guo, Z., Dai, L., Wang, C., & Ren, Y. (2023). Statistical properties of lower hybrid waves within foreshock transient boundaries. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031844. <https://doi.org/10.1029/2023JA031844>

Hajra, S., Dashora, N., & Ivan, J. S. (2023). On the multi-scale dynamics and energy flow near reconnection regions in the magnetopause and magnetotail using the MMS, Cluster and THEMIS observations during the geomagnetic storm of 31 December 2015. *Advances in Space Research*. <https://doi.org/10.1016/j.asr.2023.06.025>

Han, Y., Dai, L., Yao, S., Wang, C., Gonzalez, W., Duan, S., ... & Guo, Z. (2023). Geoeffectiveness of Interplanetary Alfvén Waves. II. Spectral Characteristics and Geomagnetic Responses. *The Astrophysical Journal*, 945(1), 48. <https://doi.org/10.3847/1538-4357/acb266>

Hnat, B., Chapman, S. & Watkins, N. (2023). Topology of turbulence within collisionless plasma reconnection. *Sci Rep* **13**, 18665. <https://doi.org/10.1038/s41598-023-45650-x>

Horvath, I., & Lovell, B. C. (2023). Sub-auroral flows and associated magnetospheric and ionospheric phenomena developed during 7–8 September 2017. *Journal of Geophysical Research: Space Physics*, **128**, e2022JA030966. <https://doi.org/10.1029/2022JA030966>

Hou, C., He, J., Duan, D., Zhu, X., Li, W., Verscharen, D., ... & Wang, T. (2023). Efficient Energy Conversion through Vortex Arrays in the Turbulent Magnetosheath. *The Astrophysical Journal*, **946**(1), 13. <https://doi.org/10.3847/1538-4357/acb927>

Huang, S. Y., Zhang, J., Xiong, Q. Y., Yuan, Z. G., Jiang, K., Xu, S. B., ... & Wang, Z. (2023). Kinetic-scale Topological Structures Associated with Energy Dissipation in the Turbulent Reconnection Outflow. *The Astrophysical Journal*, **958**(2), 189. <https://doi.org/10.3847/1538-4357/acf847>

Ji, Y., Shen, C., Ma, L., Ren, N., & Ahmad, N. (2023). Statistics of geometrical invariants of magnetic field gradient tensors in the turbulent magnetosheath based on magnetospheric multiscale mission. *Physics of Fluids*, **35**(2). <https://doi.org/10.1063/5.0134514>

Jiang, K., Huang, S. Y., Yuan, Z. G., Xiong, Q. Y., & Wei, Y. Y. (2023). Observations of tilted electron vortex flux rope in the magnetic reconnection tailward outflow region. *Geophysical Research Letters*, **50**, e2023GL105006. <https://doi.org/10.1029/2023GL105006>

Johlander, A., Khotyaintsev, Y. V., Dimmock, A. P., Graham, D. B., & Lalti, A. (2023). Electron heating scales in collisionless shocks measured by MMS. *Geophysical Research Letters*, **50**, e2022GL100400. <https://doi.org/10.1029/2022GL100400>

Kavosi, S., Raeder, J., Johnson, J. R., Nykyri, K., & Farrugia, C. J. (2023). Seasonal and diurnal variations of Kelvin-Helmholtz Instability at terrestrial magnetopause. *Nature Communications*, **14**(1), 2513. <https://doi.org/10.1038/s41467-023-37485-x>

Khan, A., Abid, A. A., Hussain, M. S., Qureshi, M. N. S., Mehmood, S., & Esmaeili, A. (2023). Potential impacts of hydrogen band EMIC waves on the ion velocity distributions: MMS observations. *Physics of Plasmas*, **30**(11). <https://doi.org/10.1063/5.0142896>

Kistler, L. M., Asamura, K., Kasahara, S., Miyoshi, Y., Mouikis, C. G., Keika, K., ... & Shinohara, I. (2023). The variable source of the plasma sheet during a geomagnetic storm. *Nature Communications*, **14**(1), 6143. <https://doi.org/10.1038/s41467-023-41735-3>

Korovin'skiy, D., Panov, E., Nakamura, R., Kiehas, S., Hosner, M., Schmid, D., & Ivanov, I. (2023). Electron magnetohydrodynamics Grad–Shafranov reconstruction of the magnetic reconnection electron diffusion region. *Frontiers in Astronomy and Space Sciences*, **10**, 1069888. <https://doi.org/10.3389/fspas.2023.1069888>

Krämer, E., Hamrin, M., Gunell, H., Karlsson, T., Steinvall, K., Goncharov, O., & André, M. (2023). Waves in magnetosheath jets—Classification and the search for generation mechanisms using MMS burst mode data. *Journal of Geophysical Research: Space Physics*, **128**, e2023JA031621. <https://doi.org/10.1029/2023JA031621>

Kropotina, J. A., Petrukovich, A. A., Chugunova, O. M., & Bykov, A. M. (2023). Weibel-dominated quasi-perpendicular shock: hybrid simulations and in situ observations. *Monthly Notices of the Royal Astronomical Society*, **524**(2), 2934–2944. <https://doi.org/10.1093/mnras/stad2038>

Lakhina, G. S., Singh, S., Sreeraj, T., Devanandhan, S., & Rubia, R. (2023). A Mechanism for Large-Amplitude Parallel Electrostatic Waves Observed at the Magnetopause. *Plasma*, 6(2), 345–361. MDPI AG. <https://doi.org/10.3390/plasma6020024>

Leonenko, M. V., Grigorenko, E. E., & Zelenyi, L. M. (2023). Strong Nonideal Electric Fields and Energy Dissipation Observed by MMS within Field-Aligned Current Layers in the Plasma Sheet of the Earth's Magnetotail. *Atmosphere*, 14(4), 722. <https://doi.org/10.3390/atmos14040722>

Li, T., Li, W., Tang, B., Khotyaintsev, Y. V., Graham, D. B., Ardakani, A., et al. (2023). Kelvin-Helmholtz waves and magnetic reconnection at the Earth's magnetopause under southward interplanetary magnetic field. *Geophysical Research Letters*, 50, e2023GL105539. <https://doi.org/10.1029/2023GL105539>

Li, X., Wang, R., & Lu, Q. (2023). Division of magnetic flux rope via magnetic reconnection observed in the magnetotail. *Geophysical Research Letters*, 50, e2022GL101084. <https://doi.org/10.1029/2022GL101084>

Li, X., Wang, R., Gao, X., Lu, Q., Chen, H., & Ma, J. (2023). Observation of non-resonance interactions between cold protons and EMIC waves of different polarizations in the inner magnetosphere. *Geophysical Research Letters*, 50, e2023GL104431. <https://doi.org/10.1029/2023GL104431>

Li, X. Y., Zong, Q. G., Liu, J. J., Yin, Z. F., Hu, Z. J., Zhou, X. Z., ... & Lindqvist, P. A. (2023). Comparative Study of Dayside Pulsating Auroras Induced by Ultralow-Frequency Waves. *Universe*, 9(6), 258. <https://doi.org/10.3390/universe9060258>

Li, Z., & Pan, X. (2023). Electron Dynamics in Strong Turbulence within the Diffusion Region during Magnetopause Magnetic Reconnection. *The Astrophysical Journal*, 950(1), 46. <https://doi.org/10.3847/1538-4357/accdff>

Li, Z., & Zhang, M. (2023). A kinetic-scale magnetic hole in the magnetopause reconnection separatrix region. *Monthly Notices of the Royal Astronomical Society*, 522(2), 2075–2080. <https://doi.org/10.1093/mnras/stad1083>

Liou, Y.-L., Nykyri, K., Kavosi, S., & Ma, X. (2023). Statistical study of the energetic electron microinjections at the high-latitude magnetosphere. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031595. <https://doi.org/10.1029/2023JA031595>

Liu, C. M., Cao, J. B., Xing, X. N., & Chen, Z. Z. (2023). Turbulent energy transfer at dipolarization fronts. *Geophysical Research Letters*, 50, e2023GL104185. <https://doi.org/10.1029/2023GL104185>

Liu, C. M., Xing, X. N., & Cao, J. B. (2023). Direct Observations of Reconnection Fronts in Earth's Turbulent Magnetosheath. *The Astrophysical Journal*, 956(1), 31. <https://doi.org/10.3847/1538-4357/acf568>

Liu, C. M., Xing, X. N., & Cao, J. B. (2023). Successive Energy Conversion at a Stepwise Dipolarization Front. *The Astrophysical Journal*, 954(2), 166. <https://doi.org/10.3847/1538-4357/acefc2>

Liu, T. Z., Vu, A., Angelopoulos, V., & Zhang, H. (2023). Analytical model of foreshock ion interaction with a discontinuity: A statistical study. *Journal of Geophysical Research: Space Physics*, 128, e2022JA031162. <https://doi.org/10.1029/2022JA031162>

Liu, T. Z., Angelopoulos, V., Vu, A., & Zhang, H. (2023). Foreshock ion motion across discontinuities: Formation of foreshock transients. *Journal of Geophysical Research: Space Physics*, 128, e2022JA031161. <https://doi.org/10.1029/2022JA031161>

Liu, T. Z., Vu, A., Zhang, H., An, X., & Angelopoulos, V. (2023). Modeling the expansion speed of foreshock bubbles. *Journal of Geophysical Research: Space Physics*, 128, e2022JA030814. <https://doi.org/10.1029/2022JA030814>

Liu, Y. Y., Fu, H. S., Cao, J. B., Du, C. X., & Zhang, W. Z. (2023). Maximum Aligned Directional Derivative (MADD) Technique for Planar Structure Analysis in Space. *The Astrophysical Journal Supplement Series*, 270(1), 6. <https://doi.org/10.3847/1538-4365/ad077c>

Liu, Z. Y., Zong, Q. G., Rankin, R., Zhang, H., Hao, Y. X., He, J. S., ... & Le, G. (2023). Particle-sounding of the spatial structure of kinetic Alfvén waves. *Nature Communications*, 14(1), 2088. <https://doi.org/10.1038/s41467-023-37881-3>

Lu, S., Lu, Q., Wang, R., Li, X., Gao, X., Huang, K., ... & Jia, Y. (2023). Kinetic Scale Magnetic Reconnection with a Turbulent Forcing: Particle-in-cell Simulations. *The Astrophysical Journal*, 943(2), 100. <https://doi.org/10.3847/1538-4357/acaf7a>

Ma, X. (2023). Estimation of the Kelvin–Helmholtz unstable boundary. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031602. <https://doi.org/10.1029/2023JA031602>

Macek, W. M., Wójcik, D., & Burch, J. L. (2023). Magnetospheric Multiscale Observations of Markov Turbulence on Kinetic Scales. *The Astrophysical Journal*, 943(2), 152. <https://doi.org/10.3847/1538-4357/aca0a0>

Manzini, D., Sahraoui, F., & Califano, F. (2023). Subion-Scale Turbulence Driven by Magnetic Reconnection. *Physical Review Letters*, 130(20), 205201. <https://doi.org/10.1103/PhysRevLett.130.205201>

Marino, R., & Sorriso-Valvo, L. (2023). Scaling laws for the energy transfer in space plasma turbulence. *Physics Reports*, 1006, 1-144. <https://doi.org/10.1016/j.physrep.2022.12.001>

Mühlich, N. S., Jeszenszky, H., Fries, J., Fremuth, G., Gerger, J., Plesescu, F., ... & Cipriani, F. (2023). Development and coupling test of active spacecraft potential control–Next generation (ASPOC-NG). *Advances in Space Research*, 71(3), 1711-1720. <https://doi.org/10.1016/j.asr.2022.11.029>

Nakamura, T. K. M., Teh, W. L., Zenitani, S., Umeda, T., Oka, M., Hasegawa, H., ... & Nakamura, R. (2023). Spatial and time scaling of coalescing multiple magnetic islands. *Physics of Plasmas*, 30(2). <https://doi.org/10.1063/5.0127107>

Nejad, S. A., & Streltsov, A. V. (2023). On the propagation of whistler-mode waves in the magnetic ducts. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031839. <https://doi.org/10.1029/2023JA031839>

Noh, S. J., Kim, H., Ozturk, D., Kuzichev, I., Xu, Z., Zhang, H., et al. (2023). Interhemispheric observations of ULF waves caused by foreshock transients under quiet solar wind conditions. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031596. <https://doi.org/10.1029/2023JA031596>

Petrenko, B., Kozak, L., Kronberg, E., & Akhmetshyn, R. (2023). Multispacecraft wave analysis of current sheet flapping motions in Earth's magnetotail. *Frontiers in Astronomy and Space Sciences*, 9, 1071824. <https://doi.org/10.3389/fspas.2022.1071824>

Pitkänen, T., Chong, G. S., Hamrin, M., Kullen, A., Vanhamäki, H., Park, J.-S., et al. (2023). Fast earthward convection in the magnetotail and nonzero IMF B_y : MMS statistics. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031593. <https://doi.org/10.1029/2023JA031593>

Pitkänen, T., Chong, G. S., Hamrin, M., Kullen, A., Karlsson, T., Park, J.-S., et al. (2023). Statistical survey of magnetic forces associated with earthward bursty bulk flows measured by MMS 2017–2021. *Journal of Geophysical Research: Space Physics*, 128, e2022JA031094. <https://doi.org/10.1029/2022JA031094>

Plank, J., Gingell, I.L. (2023). Intermittency at Earth's bow shock: Measures of turbulence in quasi-parallel and quasi-perpendicular shocks. *Phys. Plasmas* 30 (8): 082906. <https://doi.org/10.1063/5.0160439>

Qudsi, R. A., Walsh, B. M., Broll, J., Atz, E., & Haaland, S. (2023). Statistical comparison of various dayside magnetopause reconnection X-line prediction models. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031644. <https://doi.org/10.1029/2023JA031644>

Ren, Y., Dai, L., Wang, C., & Guo, Z. (2023). The wave growth, saturation, and electron heating of lower hybrid waves in the magnetic reconnection exhaust. *The Astrophysical Journal*, 956(2), 143. <https://doi.org/10.3847/1538-4357/acf855>

Ren, Y., Dai, L., Wang, C., & Lavraud, B. (2023). Statistical properties of lower hybrid waves in the magnetopause reconnection exhaust region. *Journal of Geophysical Research: Space Physics*, 128, e2022JA031242. <https://doi.org/10.1029/2022JA031242>

Rufai, O. R., Singh, S. V., & Lakhina, G. S. (2023). Nonlinear electrostatic structures and stopbands in a three-component magnetosheath plasma. *Astrophysics and Space Science*, 368(4), 1-10. <https://doi.org/10.1007/s10509-023-04182-6>

Shi, X., Artemyev, A., Angelopoulos, V., Liu, T., & Zhang, X. J. (2023). Evidence of electron acceleration via nonlinear resonant interactions with whistler-mode waves at foreshock transients. *The Astrophysical Journal*, 952(1), 38. <https://doi.org/10.3847/1538-4357/acd9ab>

Singh, K., Varghese, S. S., Verheest, F., & Kourakis, I. (2023). On the Existence of Subsonic Solitary Waves Associated with Reconnection Jets in Earth's Magnetotail. *The Astrophysical Journal*, 957(2), 96. <https://doi.org/10.3847/1538-4357/acfe6d>

Singh, M., Fraschetti, F., & Giacalone, J. (2023). Electrostatic Plasma wave excitations at the interplanetary shocks. *The Astrophysical Journal*, 943(1), 16. <https://doi.org/10.3847/1538-4357/aca7c6>

Stasiewicz, K. (2023). Transit time thermalization and the stochastic wave energization of ions in quasi-perpendicular shocks. *Monthly Notices of the Royal Astronomical Society: Letters*, 524(1), L50-L54. <https://doi.org/10.1093/mnras/lsad071>

Stasiewicz, K., & Eliasson, B. (2023). Electron heating mechanisms at quasi-perpendicular shocks—revisited with magnetospheric multiscale measurements. *Monthly Notices of the Royal Astronomical Society*, 520(3), 3238-3244. <https://doi.org/10.1093/mnras/stad361>

Stephens, G. K., Sitnov, M. I., Weigel, R. S., Turner, D. L., Tsyganenko, N. A., Rogers, A. J., et al. (2023). Global structure of magnetotail reconnection revealed by mining space magnetometer data. *Journal of Geophysical Research: Space Physics*, 128, e2022JA031066. <https://doi.org/10.1029/2022JA031066>

Streltsov, A. V., & Nejad, S. A. (2023). Whistler-mode waves in magnetic ducts. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031716. <https://doi.org/10.1029/2023JA031716>

Tan, X., Dunlop, M. W., Dong, X.-C., Yang, Y.-Y., Du, Y.-S., Shen, C., et al. (2023). Ring current morphology from MMS observations. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031372. <https://doi.org/10.1029/2023JA031372>

Teh, W. L., Nakamura, T. K. M., Zenitani, S., Umeda, T., & Nakamura, R. (2023). New Aspects of Energy Conversion in Magnetic Island Dynamics: Particle-in-cell Simulation of Multiple Island Coalescence and MMS Observations. *The Astrophysical Journal*, 947(1), 4. <https://doi.org/10.3847/1538-4357/acc2bf>

Teh, W. L., Zhang, W., & Fu, H. (2023). Kinetic and Shear Alfvén Waves in a Large Guide-field Reconnection at Earth's Magnetopause. *The Astrophysical Journal*, 959(2), 68. <https://doi.org/10.3847/1538-4357/ad09b4>

Teng, S., Han, D.-S., Liang, J., Zhang, Q., Sun, J., Wang, S., et al. (2023). Conjugate observation of whistler mode chorus, ECH waves and dayside diffuse aurora by MMS and ground-based Yellow River Station. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031865. <https://doi.org/10.1029/2023JA031865>

Tian, Z. C., Zhou, M., Man, H. Y., Zhong, Z. H., Deng, X. H., Gershman, D. J., ... & Russell, C. T. (2023). Simultaneous Observation of the Inner and Outer Electron Diffusion Region in Reconnection with Large Guide Field. *The Astrophysical Journal*, 957(1), 42. <https://doi.org/10.3847/1538-4357/acf9f4>

Turc, L., Roberts, O.W., Verscharen, D. et al. (2023). Transmission of foreshock waves through Earth's bow shock. *Nat. Phys.* 19, 78–86. <https://doi.org/10.1038/s41567-022-01837-z>

Upadhyay, M. K., Pathak, N., Uma, R., & Sharma, R. P. (2023). Lower hybrid wave nonlinear saturation and turbulence in the magnetopause. *Astrophysics and Space Science*, 368(4), 30. <https://doi.org/10.1007/s10509-023-04186-2>

Upadhyay, M. K., Uma, R., & Sharma, R. P. (2023). Turbulence, particle acceleration, and heating due to the lower hybrid mode near magnetic reconnection regions in magnetopause. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031610. <https://doi.org/10.1029/2023JA031610>

Vu, A., Liu, T. Z., Zhang, H., & Delamere, P. (2023). Parameter dependencies of early-stage tangential discontinuity-driven foreshock bubbles in local hybrid simulations. *Journal of Geophysical Research: Space Physics*, 128, e2022JA030815. <https://doi.org/10.1029/2022JA030815>

Wang, C. M., Huang, S. Y., Yuan, Z. G., Jiang, K., Zhang, J., Dong, Y., & Xiong, Q. Y. (2023). In Situ Observation of Electron Acceleration by a Double Layer in the Bow Shock. *The Astrophysical Journal*, 952(1), 78. <https://doi.org/10.3847/1538-4357/acdadb>

Wang, H.-W., Tang, B.-B., Li, W. Y., Zhang, Y.-C., Graham, D. B., Khotyaintsev, Y. V., et al. (2023). Electron dynamics in the electron current sheet during strong guide-field reconnection. *Geophysical Research Letters*, 50, e2023GL103046. <https://doi.org/10.1029/2023GL103046>

Wang, S., Graham, D. B., An, X., Li, L., Zong, Q.-G., Zhou, X.-Z., et al. (2023). Electrostatic waves around a magnetopause reconnection secondary electron diffusion region modulated by whistler and lower-hybrid waves. *Geophysical Research Letters*, 50, e2023GL104905. <https://doi.org/10.1029/2023GL104905>

Wang, S., Wang, R., Lu, Q., Burch, J. L., Cohen, I. J., Jaynes, A. N., & Ergun, R. E. (2023). Electron acceleration by interaction of two filamentary currents within a magnetopause magnetic flux rope. *Geophysical Research Letters*, 50, e2023GL103203. <https://doi.org/10.1029/2023GL103203>

Wang, Z., Huang, S. Y., Yuan, Z. G., Wei, Y. Y., Jiang, K., Xu, S. B., ... & Wang, C. M. (2023). Statistical Characteristics of Electron Vortexes in the Terrestrial Magnetosheath. *The Astrophysical Journal*, 957(2), 108. <https://doi.org/10.3847/1538-4357/ad00b0>

Wang, Z., Liu, X. Y., Fu, H. S., Cao, J. B., Dai, L., Toledo-Redondo, S., ... & Guo, Z. Z. (2023). First Observation of Kinetic Alfvén Waves behind Reconnection Front in Terrestrial Magnetotail. *The Astrophysical Journal*, 960(1), 45. <https://doi.org/10.3847/1538-4357/ad0cb5>

Wang, Z., Vaivads, A., Fu, H. S., Cao, J. B., & Liu, Y. Y. (2023). Efficient Electron Acceleration Driven by Flux Rope Evolution during Turbulent Reconnection. *The Astrophysical Journal*, 946(1), 39. <https://doi.org/10.3847/1538-4357/acbd3e>

Wang, Z., Vaivads, A., Fu, H. S., Cao, J. B., Lindberg, M., Turner, D. L., ... & Liu, Y. Y. (2023). Two-step Acceleration of Energetic Electrons at Magnetic Flux Ropes during Turbulent Reconnection. *The Astrophysical Journal*, 946(2), 67. <https://doi.org/10.3847/1538-4357/acc026>

Wei, Y. Y., Huang, S. Y., Jiang, K., Yuan, Z. G., Xu, S. B., Zhang, J., ... & Song, G. J. (2023). Direct Evidence of Electron Acceleration at the Dipolarization Front. *The Astrophysical Journal*, 950(2), 112. <https://doi.org/10.3847/1538-4357/acd1dd>

Xiao, Y. C., Yao, S. T., Guo, R. L., Shi, Q. Q., Zong, Q. G., Zhang, H., et al. (2023). Statistical properties of the distribution and generation of kinetic-scale flux ropes in the terrestrial dayside magnetosheath. *Geophysical Research Letters*, 50, e2023GL105469. <https://doi.org/10.1029/2023GL105469>

Xie, Y., Wang, R., Wang, S., Li, X., Gao, X., & Lu, S. (2023). Suprathermal ions observed inside a magnetic flux rope in the Earth's magnetotail. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031737. <https://doi.org/10.1029/2023JA031737>

Xu, Q., Zhou, M., Ma, W., He, J., Huang, S., Zhong, Z., et al. (2023). Electron heating in magnetosheath turbulence: Dominant role of the parallel electric field within coherent structures. *Geophysical Research Letters*, 50, e2022GL102523. <https://doi.org/10.1029/2022GL102523>

Yan, Y., Yue, C., Ma, Q., Zhou, X.-Z., Zong, Q.-G., Fu, H., et al. (2023). Prompt appearance of large-amplitude EMIC waves induced by solar wind dynamic pressure enhancement and the subsequent relativistic electron precipitation. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031399. <https://doi.org/10.1029/2023JA031399>

Yang, F., Zhou, X.-Z., Zhuang, Y., Yue, C., Zong, Q.-G., Liu, Z.-Y., & Artemyev, A. V. (2023). Magnetic perturbations in electron phase-space holes: Contribution of electron polarization drift. *Journal of Geophysical Research: Space Physics*, 128, e2022JA031172. <https://doi.org/10.1029/2022JA031172>

Yao, S. T., Li, J. H., Zhou, X.-Z., Shi, Q. Q., Zong, Q.-G., Zhang, H., et al. (2023). Ion-vortex magnetic hole with reversed field direction in Earth's magnetosheath. *Journal of Geophysical Research: Space Physics*, 128, e2023JA031749. <https://doi.org/10.1029/2023JA031749>

Yoon, Y. D., Wendel, D. E., & Yun, G. S. (2023). Equilibrium selection via current sheet relaxation and guide field amplification. *Nature Communications*, 14(1), 139. <https://doi.org/10.1038/s41467-023-35821-9>

Yu, J., Wang, J., Chen, Z., Ren, A., Liu, X., Liu, N., et al. (2023). Statistical evidence for off-equatorial minimum-B-pocket as a source region of electron cyclotron harmonic waves in the dayside outer magnetosphere. *Geophysical Research Letters*, 50, e2022GL102583. <https://doi.org/10.1029/2022GL102583>

Yu, Y., Fu, H. S., & Wang, Z. (2023). Dipolarization fronts in cold-dense and hot-tenuous plasma sheet conditions: A comparative study. *Journal of Geophysical Research: Space Physics*, 128, e2022JA031141. <https://doi.org/10.1029/2022JA031141>

Yu, Y., Fu, H. S., Wang, Z., Fu, W. D., & Cao, J. B. (2023). Formation of electron butterfly distribution by a contracting dipolarization front. *Geophysical Research Letters*, 50, e2023GL104938. <https://doi.org/10.1029/2023GL104938>

Zhang, J., Huang, S. Y., Sahraoui, F., Andrés, N., Yuan, Z. G., Jiang, K., et al. (2023). Topology of magnetic and velocity fields at kinetic scales in incompressible plasma turbulence. *Journal of Geophysical Research: Space Physics*, 128, e2022JA031064. <https://doi.org/10.1029/2022JA031064>

Zhang, L. Q., Wang, C., Baumjohann, W., Wang, R. S., Wang, J. Y., Burch, J. L., & Khotyaintsev, Y. V. (2023). First observation of fluid-like eddy-dominant bursty bulk flow turbulence in the Earth's tail plasma sheet. *Scientific Reports*, 13(1), 19201. <https://doi.org/10.1038/s41598-023-45867-w>

Zhang, W. Z., Fu, H. S., Cao, J. B., Wang, Z., & Liu, Y. Y. (2023). Properties of the turbulence and topology in a turbulent magnetic reconnection. *The Astrophysical Journal*, 953(1), 23. <https://doi.org/10.3847/1538-4357/acdacf>

Zhang, Y. C., & Tang, S. Y. (2023). Hall Fields and Current Systems of Magnetic Reconnection under Asymmetric Conditions. *The Astrophysical Journal*, 942(2), 58. <https://doi.org/10.3847/1538-4357/aca760>

Zhang, Y. C., Wang, C., Dai, L., Tang, S. Y., & Burch, J. L. (2023). The role of a strong out-of-plane magnetic field at the X-line in antiparallel magnetic reconnection as a guide field. *Journal of Geophysical Research: Space Physics*, 128, e2022JA031102. <https://doi.org/10.1029/2022JA031102>

Zhao, L. L., Zank, G. P., Nakanotani, M., & Adhikari, L. (2023). Observations of Waves and Structures by Frequency–Wavenumber Spectrum in Solar Wind Turbulence. *The Astrophysical Journal*, 944(1), 98. <https://doi.org/10.3847/1538-4357/acb33b>

Zhong, Z. H., Lei, G. Y., Zhou, M., Zhang, M., Tang, R. X., Graham, D. B., et al. (2023). Observations of dynamical flux ropes and active multiple X-line reconnection at Earth's magnetopause. *Journal of Geophysical Research: Space Physics*, 128, e2022JA031091. <https://doi.org/10.1029/2022JA031091>

2022

★ Alho, M., Battarbee, M., Pfau-Kempf, Y., Khotyaintsev, Yu. V., Nakamura, R., Cozzani, G., et al. (2022). Electron signatures of reconnection in a global eVlasior simulation. *Geophysical Research Letters*, 49, e2022GL098329. <https://doi.org/10.1029/2022GL098329>

★ ★ Allmann-Rahn, F., Lautenbach, S., & Grauer, R. (2022). An energy conserving Vlasov solver that tolerates coarse velocity space resolutions: Simulation of MMS reconnection events. *Journal of Geophysical Research: Space Physics*, 127, e2021JA029976. <https://doi.org/10.1029/2021JA029976>

Artemyev, A. V., Shi, C., Lin, Y., Nishimura, Y., Gonzalez, C., Verniero, J., ... & Sioulas, N. (2022). Ion Kinetics of Plasma Flows: Earth's Magnetosheath versus Solar Wind. *The Astrophysical Journal*, 939(2), 85. <https://doi.org/10.3847/1538-4357/ac96e4>

Atteya, A., EL-Labany, S. K., Karmakar, P. K., & Afify, M. S. (2022). Evidence of oblique electron acoustic solitary waves triggered by magnetic reconnection in Earth's magnetosphere. *Physica Scripta*, 98 (1), 015601. <https://doi.org/10.1088/1402-4896/aca1e9>

★Barani, M., Tu, W., Hudson, M. K., & Sarris, T. (2022). High-fidelity analysis of ULF wave mode structure following interplanetary shock compression of the dayside magnetopause using MMS multi-point observations. *Journal of Geophysical Research: Space Physics*, 127, e2021JA030116. <https://doi.org/10.1029/2021JA030116>

★Bharuthram, R., Rufai, O. R., & Maharaj, S. K. (2022). Theoretical studies of low and high frequency electrostatic solitary waves in the magnetopause associated with asymmetric magnetic reconnection. *Advances in Space Research*. <https://doi.org/10.1016/j.asr.2022.01.034>

★Chandra, S., Goswami, J., Sarkar, J., Das, C., Nandi, D., and Ghosh, B. (2022) Formation of electron acoustic shock wave in inner magnetospheric plasma. *Indian J Phys*. <https://doi.org/10.1007/s12648-021-02276-x>

★Chen, G. W., & Hau, L. N. (2022). Evidence of Magnetic Reconnection with Multiple X Lines and Flux Ropes in Thin Magnetotail Currents Observed by the MMS Spacecraft: Results of Grad-Shafranov Reconstruction. *The Astrophysical Journal*, 928(2), 133. <https://doi.org/10.3847/1538-4357/ac5746>

★Chen, R., Gao, X., Lu, Q., Tsurutani, B. T., Chen, H., & Wang, S. (2022). First observation of electron cyclotron harmonic waves inside mirror mode structures in the Earth's outer magnetosphere. *Geophysical Research Letters*, 49, e2021GL097592. <https://doi.org/10.1029/2021GL097592>

★Chen, Y. Q., Wang, G. Q., Wu, M. Y., Xiao, S. D., & Zhang, T. L. (2022). Study of the electron-scale magnetic peaks in the magnetotail current sheet observed by the Magnetospheric Multiscale mission. *Journal of Geophysical Research: Space Physics*, 127, e2021JA030135. <https://doi.org/10.1029/2021JA030135>

Chen, Z. Z., Yu, J., Wang, J., He, Z. G., Liu, N. G., Cui, J., & Cao, J. B. (2022). High-frequency electrostatic waves modulated by whistler waves behind dipolarization front. *Journal of Geophysical Research: Space Physics*, 127, e2022JA030935. <https://doi.org/10.1029/2022JA030935>

★Chen, Z. Z., Fu, H. S., Cao, J. B., Cui, J., Lu, Q. M., Li, W. Y., ... & Liu, Y. Y. (2022). Magnetospheric Multiscale Mission Observations of Lower-hybrid Drift Waves in Terrestrial Magnetotail Reconnection with Moderate Guide Field and Asymmetric Plasma Density. *The Astrophysical Journal*, 933(2), 208. <https://doi.org/10.3847/1538-4357/ac75e9>

★Chong, G. S., Pitkänen, T., Hamrin, M., & Kullen, A. (2022). Dawn-dusk ion flow asymmetry in the plasma sheet: Interplanetary magnetic field B_y versus distance with respect to the neutral sheet. *Journal of Geophysical Research: Space Physics*, 127, e2021JA030208. <https://doi.org/10.1029/2021JA030208>

DuBois, A. M., Crabtree, C., Ganguli, G., Malaspina, D. M., & Amatucci, W. E. (2022). MMS Observations of a Compressed Current Sheet: Importance of the Ambipolar Electric Field. *Physical Review Letters*, 129(10), 105101. <https://doi.org/10.1103/PhysRevLett.129.105101>

★Faganello, M., Sisti, M., Califano, F., & Lavraud, B. (2022). Kelvin-Helmholtz instability and induced magnetic reconnection at the Earth's magnetopause: a 3D simulation based on satellite data. *Plasma Physics and Controlled Fusion*, 64(4), 044014. <https://doi.org/10.1088/1361-6587/ac43f0>

★Fu, W. D., Fu, H. S., Cao, J. B., Yu, Y., Chen, Z. Z., & Xu, Y. (2022). Formation of rolling-pin distribution of suprathermal electrons behind dipolarization fronts. *Journal of Geophysical Research: Space Physics*, 127, e2021JA029642. <https://doi.org/10.1029/2021JA029642>

★Guo, R., Pu, Z., Wang, X., Xiao, C., & He, J. (2022). 3D reconnection geometries with magnetic nulls: Multispacecraft observations and reconstructions. *Journal of Geophysical Research: Space Physics*, 127, e2021JA030248. <https://doi.org/10.1029/2021JA030248>

Guo, Z., Dai, L., Ren, Y., & Wang, C. (2022). MMS observations of lower hybrid and whistler waves inside a foreshock transient. *Journal of Geophysical Research: Space Physics*, 127, e2022JA030707. <https://doi.org/10.1029/2022JA030707>

He, J., Zhu, X., Luo, Q., Hou, C., Verscharen, D., Duan, D., ... & Yao, Z. (2022). Observations of Rapidly Growing Whistler Waves in Front of Space Plasma Shock due to Resonance Interaction between Fluctuating Electron Velocity Distributions and Electromagnetic Fields. *The Astrophysical Journal*, 941(2), 147. <https://doi.org/10.3847/1538-4357/ac9ea9>

He, R. J., Wang, Z., Fu, H. S., Cao, J. B., Liu, Y. Y., & Guo, Z. Z. (2022). Characteristics of electron pitch-angle distribution in the flapping magnetotail. *The Astrophysical Journal*, 940(2), 99. <https://doi.org/10.3847/1538-4357/ac9669>

★Huang, H., Yu, Y., Chen, Z., Liu, C., Cao, J., & Yu, T. (2022). On the magnetic dip ahead of the dipolarization fronts. *Journal of Geophysical Research: Space Physics*, 127, e2021JA029783. <https://doi.org/10.1029/2021JA029783>

★Huang, S. Y., Zhang, J., Yuan, Z. G., Jiang, K., Wei, Y. Y., Xu, S. B., Xiong, Q. Y., Zhang, Z. H., Lin, R. T., & Yu, L. (2022). Intermittent dissipation at kinetic scales in the turbulent reconnection outflow. *Geophysical Research Letters*, 49, e2021GL096403. <https://doi.org/10.1029/2021GL096403>

★Huang, S. Y., Wei, Y. Y., Zhao, J. S., Yuan, Z. G., Deng, X. H., Jiang, K., Xu, S. B., Zhang, J., Xiong, Q. Y., Zhang, Z. H., Yu, L., & Lin, R. T. (2022). Kinetic-size magnetic holes in the terrestrial foreshock region. *Geophysical Research Letters*, 49, e2021GL093813. <https://doi.org/10.1029/2021GL093813>

★Ji, H., Daughton, W., Jara-Almonte, J., Le, A., Stanier, A., & Yoo, J. (2022). Magnetic reconnection in the era of exascale computing and multiscale experiments. *Nature Reviews Physics*, 4, 263-282. <https://doi.org/10.1038/s42254-021-00419-x>

Ji, Y., Shen, C., Ren, N., Ma, L., Ma, Y. H., & Chen, X. (2022). Curvature of Magnetic Field and Its Role on Plasma in Turbulent Magnetosheath. *The Astrophysical Journal*, 941(1), 67. <https://doi.org/10.3847/1538-4357/aca01b>

★Jiang, K., Huang, S. Y., Yuan, Z. G., Deng, X. H., Wei, Y. Y., Xiong, Q. Y., Xu, S. B., Zhang, J., Zhang, Z. H., Lin, R. T., & Yu, L. (2022). Sub-structures of the separatrix region during magnetic reconnection. *Geophysical Research Letters*, 49, e2022GL097909. <https://doi.org/10.1029/2022GL097909>

★Jiang, W., D. Verscharen, H. Li, C. Wang, and K. G. Klein (2022). Whistler Waves as a Signature of Converging Magnetic Holes in Space Plasmas, *The Astrophysical Journal*, 935, 169. <https://doi.org/10.3847/1538-4357/ac7ce2>

★Jin, R., Zhou, M., Pang, Y., Deng, X., & Yi, Y. (2022). Characteristics of Turbulence Driven by Transient Magnetic Reconnection in the Terrestrial Magnetotail. *The Astrophysical Journal*, 925(1), 17. <https://doi.org/10.3847/1538-4357/ac390c>

★Johlander, A., Battarbee, M., Turc, L., Ganse, U., Pfau-Kempf, Y., Grandin, M., Suni, J., Tarvus, V., Bussov, M., Zhou, H., Alho, M., Dubart, M., George, H., Papadakis, K., Palmroth, M. (2022). Quasi-parallel shock reformation seen by Magnetospheric Multiscale and ion-kinetic simulations. *Geophysical Research Letters*, 49, e2021GL096335. <https://doi.org/10.1029/2021GL096335>

★Keika, K., Asami, R., Hoshino, M., & Fuselier, S. A. (2022). Global characteristics of cold protons around midnight in the magnetotail: Implication for efficient heating and origin. *Journal of Geophysical Research: Space Physics*, 127, e2021JA029576. <https://doi.org/10.1029/2021JA029576>

★Khabarova, O., Büchner, J., Jain, N., Sagitov, T., Malova, H., & Kislov, R. (2022). Electron-to-ion Bulk Speed Ratio as a Parameter Reflecting the Occurrence of Strong Electron-dominated Current Sheets in the Solar Wind. *The Astrophysical Journal*, 933(1), 97. <https://doi.org/10.3847/1538-4357/ac71ab>

★Li, X., Wang, R., Huang, C., Lu, Q., Lu, S., Burch, J. L., & Wang, S. (2022). Energy Conversion and Partition in Plasma Turbulence Driven by Magnetotail Reconnection. *The Astrophysical Journal*, 936(1), 34. <https://doi.org/10.3847/1538-4357/ac84d7>

★Li, X., Wang, R., Lu, Q., Russell, C. T., Lu, S., Cohen, I. J., ... & Wang, S. (2022). Three-dimensional network of filamentary currents and super-thermal electrons during magnetotail magnetic reconnection. *Nature Communications*, 13(1), 1-10. <https://doi.org/10.1038/s41467-022-31025-9>

★Li, X.-Y., Liu, Z.-Y., Zong, Q.-G., Liu, J.-J., Fu, S.-Y., Zhou, X.-Z., Hao, Y.-X., Pollock, C. J., Russell, C. T., Ergun, R. E., & Lindqvist, P.-A. (2022). ULF wave-induced ion pitch angle evolution in the dayside outer magnetosphere. *Geophysical Research Letters*, 49, e2022GL098108. <https://doi.org/10.1029/2022GL098108>

Liu, C. M., Cao, J. B., & Pollock, C. J. (2022). Energy partition and balance at dipolarization fronts. *Geophysical Research Letters*, 49, e2022GL100239. <https://doi.org/10.1029/2022GL100239>

★Liu, Y. Y., Fu, H. S., Cao, J. B., Wang, Z., He, R. J., Guo, Z. Z., Xu, Y., & Yu, Y. (2022). Magnetic Discontinuities in the Solar Wind and Magnetosheath: Magnetospheric Multiscale Mission (MMS) Observations. *The Astrophysical Journal*, 930(1), 63. <https://doi.org/10.3847/1538-4357/ac62d2>

★Liu, Y. Y., Wang, Z., Chen, G., Yu, Y., Guo, Z. Z., & Xiong, X. (2022). Testing the Linearity of Vector Fields in Cold and Dense Space Plasmas. *The Astrophysical Journal*, 929(2), 155. <https://doi.org/10.3847/1538-4357/ac5d4b>

★Liu, Z.-Y., Zong, Q.-G., Zhang, H., Zhao, J.-T., Rankin, R., Pollock, C. J., & Le, G. (2022). Ion behavior at shocklets: A case study of MMS observations. *Geophysical Research Letters*, 49, e2022GL100449. <https://doi.org/10.1029/2022GL100449>

★Liu, ZY., Zong, QG., Rankin, R. *et al.* Simultaneous macroscale and microscale wave-ion interaction in near-earth space plasmas. *Nat Commun* **13**, 5593 (2022). <https://doi.org/10.1038/s41467-022-33298-6>

★Luo, Q., Zhu, X., He, J., Cui, J., Lai, H., Verscharen, D., & Duan, D. (2022). Coherence of Ion Cyclotron Resonance in Damped Ion Cyclotron Waves in Space Plasmas. *The Astrophysical Journal*, 928(1), 36. <https://doi.org/10.3847/1538-4357/ac52a9>

★Luo, Z., Xie, L., Fu, S., Pu, Z., Xiong, Y., Zhou, X., et al. (2022). Energetic electron microinjections observed by MMS in the dusk plasma sheet and drift resonance interpretation. *Geophysical Research Letters*, 49, e2022GL098652. <https://doi.org/10.1029/2022GL098652>

★Ma, W., Zhou, M., Zhong, Z., & Deng, X. (2022). Contrasting the Mechanisms of Reconnection-driven Electron Acceleration with In Situ Observations from MMS in the Terrestrial Magnetotail. *The Astrophysical Journal*, 931(2), 135. <https://doi.org/10.3847/1538-4357/ac6be6>

★Ma, Y., Wang, S., Shen, C., Ren, N., Chen, T., Shao, P., et al. (2022). Rotational discontinuities in the magnetopause of an open magnetosphere. *Journal of Geophysical Research: Space Physics*, 127, e2021JA029126. <https://doi.org/10.1029/2021JA029126>

★★Man, H., Zhou, M., Zhong, Z., & Deng, X. (2022). Intense energy conversion events at the magnetopause boundary layer. *Geophysical Research Letters*, 49, e2022GL098069. <https://doi.org/10.1029/2022GL098069>

★Mostafa, N., Ghamry, E., Ellithi, A., Gobashy, M., Fathy, A. (2022) Multi-space observations of the storm sudden commencement (September 2017) and its effect on the geomagnetic field, *Advances in Space Research*. <https://doi.org/10.1016/j.asr.2022.04.023>

★Pouquet A, Yokoi N. (2022) Helical fluid and (Hall)-MHD turbulence: a brief review. *Phil. Trans. R. Soc. A* 380: 20210087. <https://doi.org/10.1098/rsta.2021.0087>

★Rae, J., Forsyth, C., Dunlop, M. et al. (2022). What are the fundamental modes of energy transfer and partitioning in the coupled Magnetosphere-Ionosphere system?. *Exp Astron*. <https://doi.org/10.1007/s10686-022-09861-w>

★★Ren, Y., Dai, L., Wang, C., & Lavraud, B. (2022). Parallel Electron Heating through Landau Resonance with Lower Hybrid Waves at the Edge of Reconnection Ion Jets. *The Astrophysical Journal*, 928(1), 5. <https://doi.org/10.3847/1538-4357/ac53fb>

★Schroeder, J. M., Egedal, J., Cozzani, G., Khotyaintsev, Y. V., Doughton, W., Denton, R. E., & Burch, J. L. (2022). 2D reconstruction of magnetotail electron diffusion region measured by MMS. *Geophysical Research Letters*, 49, e2022GL100384. <https://doi.org/10.1029/2022GL100384>

★Shamir, M., Khan, I. A., & Murtaza, G. (2022). Charged particles energization during magnetic reconnection in the Earth's magnetosphere by double layers: an analytical approach. *Monthly Notices of the Royal Astronomical Society*, 509(3), 3703-3708. <https://doi.org/10.1093/mnras/stab3236>

★Staples, F. A., Kellerman, A., Murphy, K. R., Rae, I. J., Sandhu, J. K., & Forsyth, C. (2022). Resolving magnetopause shadowing using multimission measurements of phase space density. *Journal of Geophysical Research: Space Physics*, 127, e2021JA029298. <https://doi.org/10.1029/2021JA029298>

★Stasiewicz, K., & Kos, Z. (2022). Fine structure and motion of the bow shock, and particle energisation mechanisms inferred from MMS observations. *Annales Geophysicae Discussions*, 1-16. <https://doi.org/10.5194/angeo-40-315-2022>

★Stasiewicz, K., & Kos, Z. (2022). On the formation of quasi-parallel shocks, magnetic and electric field turbulence, and the ion energization mechanism. *Monthly Notices of the Royal Astronomical Society*, 513(4), 5892-5899. <https://doi.org/10.1093/mnras/stac1193>

Sun, J., Vasko, I. Y., Bale, S. D., Wang, R., & Mozer, F. S. (2022). Double layers in the Earth's bow shock. *Geophysical Research Letters*, 49, e2022GL101348. <https://doi.org/10.1029/2022GL101348>

★Tang, B.-B., Li, W. Y., Khotyaintsev, Y. V., Graham, D. B., Gao, C. H., Chen, Z. Z., et al. (2022). Fine structures of the electron current sheet in magnetotail guide-field reconnection. *Geophysical Research Letters*, 49, e2021GL097573. <https://doi.org/10.1029/2021GL097573>

★Teh, W. L. (2022). Effects of Pressure Anisotropy on the Geometry of Magnetic Flux Rope. *The Astrophysical Journal*, 930(1), 22. <https://doi.org/10.3847/1538-4357/ac62d1>

★Teh, W.-L., Nakamura, T., Nakamura, R., & Umeda, T. (2018). Oblique ion-scale magnetotail flux ropes generated by secondary tearing modes. *Journal of Geophysical Research: Space Physics*, 123, 8122–8130. <https://doi.org/10.1029/2018JA025775>

★☆☆Terres, M., & Li, G. (2022). Relating the Solar Wind Turbulence Spectral Break at the Dissipation Range with an Upstream Spectral Bump at Planetary Bow Shocks. *The Astrophysical Journal*, 924(2), 53. <https://doi.org/10.3847/1538-4357/ac400c>

★Tian, A., Degeling, A. W., Park, J.-S., Shi, Q., Nowada, M., Pitkänen, T., Li, W., & Xiao, C. (2022). Structure of Pc 5 compressional waves observed in the duskside outer magnetosphere: MMS observations. *Journal of Geophysical Research: Space Physics*, 127, e2021JA029817. <https://doi.org/10.1029/2021JA029817>

Trotta, D., Pecora, F., Settino, A., Perrone, D., Hietala, H., Horbury, T., ... & Valentini, F. (2022). On the transmission of turbulent structures across the earth's bow shock. *The Astrophysical Journal*, 933(2), 167. <https://doi.org/10.3847/1538-4357/ac7798>

★Tsai, E., Artemyev, A., Zhang, X., & Angelopoulos, V. (2022). Relativistic electron precipitation driven by nonlinear resonance with whistler-mode waves. *Journal of Geophysical Research: Space Physics*, 127, e2022JA030338. <https://doi.org/10.1029/2022JA030338>

★Vu, A., Liu, T. Z., Zhang, H., & Pollock, C. (2022). Statistical study of foreshock bubbles, hot flow anomalies, and spontaneous hot flow anomalies and their substructures observed by MMS. *Journal of Geophysical Research: Space Physics*, 127, e2021JA030029. <https://doi.org/10.1029/2021JA030029>

★Wang, C.-P., Xing, X., Wang, X., Avanzov, L. A., Lin, Y., Strangeway, R. J., & Wei, H. Y. (2022). Effect of IMF B_y on the entry of solar wind ions into the near-Earth tail lobe: Global hybrid simulation and MMS observation. *Journal of Geophysical Research: Space Physics*, 127, e2022JA030800. <https://doi.org/10.1029/2022JA030800>

★Wang, G. Q., Volwerk, M., Xiao, S. D., Wu, M. Y., Chen, Y. Q., & Zhang, T. L. (2022). Electron-scale current sheet as the boundary of a linear magnetic hole in the terrestrial current sheet observed by the Magnetospheric Multiscale mission. *Journal of Geophysical Research: Space Physics*, 127, e2021JA029707. <https://doi.org/10.1029/2021JA029707>

★★Wang, G., & Pan, Z. (2022). Fluxgate Magnetometer Offset Vector Determination Using Current Sheets in the Solar Wind. *The Astrophysical Journal*, 926(1), 12. <https://doi.org/10.3847/1538-4357/ac3d8f>

★Wang, L., Huang, C., Du, A., & Ge, Y. (2022). Hall nature ahead of Dipolarization Fronts in the Earth's magnetotail: A statistical study for MMS data. *Geophysical Research Letters*, 49, e2021GL097075. <https://doi.org/10.1029/2021GL097075>

Wang, R., Wang, S., Lu, Q. *et al.* Direct observation of turbulent magnetic reconnection in the solar wind. *Nat Astron* 7, 18–28 (2023). <https://doi.org/10.1038/s41550-022-01818-5>

★Wang, R., Vasko, I. Y., Artemyev, A. V., Holley, L. C., Kamaletdinov, S. R., Lotekar, A., & Mozer, F. S. (2022). Multisatellite observations of ion holes in the Earth's plasma sheet. *Geophysical Research Letters*, 49, e2022GL097919. <https://doi.org/10.1029/2022GL097919>

Wei, J. Y., Wang, G. Q., & Zuo, P. B. (2022). Statistical study of the relationship between Pi1/2-band wave powers and firehose instability criterion during fast flows in the magnetotail plasma sheet. *Journal of Geophysical Research: Space Physics*, 127, e2022JA030567. <https://doi.org/10.1029/2022JA030567>

★Wei, Y. Y., Huang, S. Y., Yuan, Z. G., Jiang, K., Xu, S. B., Deng, X. H., Deng, X. H., Zhang, J., Zhang, Z. H., Xiong, Q. Y., Yu, L., and Lin, T. R. (2022). Observations of pitch angle changes of electrons and high-frequency wave activities in the magnetotail plasma bubble. *Journal of Geophysical Research: Space Physics*, 127, e2021JA029761. <https://doi.org/10.1029/2021JA029761>

★Xiong, Q. Y., Huang, S. Y., Zhou, M., Yuan, Z. G., Deng, X. H., Jiang, K., et al. (2022). Distribution of negative $J \cdot E$ in the inflow edge of the inner electron diffusion region during tail magnetic reconnection: Simulations vs. observations. *Geophysical Research Letters*, 49, e2022GL098445. <https://doi.org/10.1029/2022GL098445>

★Xiong, Q. Y., Huang, S. Y., Zhou, M., Yuan, Z. G., Deng, X. H., Jiang, K., K. Jiang, Wei, Y. Y., Xu, S. B., Zhang, J., Zhang, Z. H., Yu, L., Lin, R. T., (2022). Formation of negative $J \cdot E$ in the outer electron diffusion region during magnetic reconnection. *Journal of Geophysical Research: Space Physics*, 127, e2022JA030264. <https://doi.org/10.1029/2022JA030264>

★Yang, F., Zhou, X. Z., Li, J. H., Zong, Q. G., Yao, S. T., Shi, Q. Q., & Artemyev, A. V. (2022). Kinetic-scale flux ropes: Observations and applications of kinetic equilibrium models. *The Astrophysical Journal*, 926(2), 208. <https://doi.org/10.3847/1538-4357/ac47f9>

Yu, Y., Wang, Z., Fu, H. S., & Cao, J. B. (2022). Direct evidence of interchange instabilities at dipolarization fronts. *Journal of Geophysical Research: Space Physics*, 127, e2022JA030805. <https://doi.org/10.1029/2022JA030805>

★Yu, Y., Fu, H. S., Cao, J. B., Liu, Y. Y., & Wang, Z. (2022). Electron Rolling-pin Distribution Inside Magnetic Hole. *The Astrophysical Journal*, 926(2), 199. <https://doi.org/10.3847/1538-4357/ac497a>

★Yu, Y., Fu, H. S., Cao, J. B., Liu, C. M., & Wang, Z. (2022). Electron Thermalization and Electrostatic Turbulence Caused by Flow Reversal in Dipolarizing Flux Tubes. *The Astrophysical Journal*, 926(1), 22. <https://doi.org/10.3847/1538-4357/ac42c5>

★Yuan, Z., Dong, Y., Huang, S., Xue, Z., & Yu, X. (2022). Direct observation of acceleration and thermalization of beam electrons caused by double layers in the Earth's plasma sheet. *Geophysical Research Letters*, 49, e2022GL099483. <https://doi.org/10.1029/2022GL099483>

★Zhang, H., Zhong, Z., Tang, R., Liu, C., Deng, X., Zhou, M., & Wang, D. (2022). Observations of Whistler-mode Waves and Large-amplitude Electrostatic Waves Associated with a Dipolarization Front in the Bursty Bulk Flow. *The Astrophysical Journal*, 933(1), 105. <https://doi.org/10.3847/1538-4357/ac739d>

Zhang, H., Li, X., Giannios, D., Guo, F., Thiersen, H., Böttcher, M., ... & Venters, T. (2022). Radiation and Polarization Signatures from Magnetic Reconnection in Relativistic Jets. II. Connection with γ -Rays. *The Astrophysical Journal*, 924(2), 90. <https://doi.org/10.3847/1538-4357/ac3669>

★Zhang, L. Q., Wang, C., Dai, L., Baumjohann, W., Burch, J. L., Khotyaintsev, Y. V., & Wang, J. Y. (2022). Turbulent current sheet frozen in bursty bulk flow: observation and model. *Scientific Reports*, 12(1), 1-8. <https://doi.org/10.1038/s41598-022-19266-6>

★Zhang, L. Q., Wang, C., Dai, L., Baumjohann, W., Lui, A. T. Y., Burch, J. L., Khotyaintsev, Y. V., Ren, Y. (2022). Vorticity within bursty bulk flows: Convective versus kinetic. *Journal of Geophysical Research: Space Physics*, 127, e2020JA028934. <https://doi.org/10.1029/2020JA028934>

★ Zhang, W. Z., H. S. Fu, J. B. Cao, Y. Y. Liu, J. S. Zhao, Z. Z. Guo, Z. Wang, and T. Y. Wang (2022). DRAFT: A Method for Wave Analyses in Space Plasmas, *The Astrophysical Journal*, 936, 176. <https://doi.org/10.3847/1538-4357/ac8872>

Zhang, Y. C., Dai, L., Wang, C., & Tang, S. Y. (2022). Evidence of the Hall Effect Providing the Core Field inside a Magnetic Flux Rope in an Antiparallel Magnetic Reconnection. *The Astrophysical Journal*, 940(2), 179. <https://doi.org/10.3847/1538-4357/aca27f>

★ Zhang, Z., Yuan, Z., Huang, S., Yu, X., Xue, Z., Deng, D., & Huang, Z. (2022). Observations of kinetic Alfvén waves and associated electron acceleration in the plasma sheet boundary layer. *Earth and Planetary Physics*, 6. <http://doi.org/10.26464/epp2022041>

★ Zhong, Z. H., Zhou, M., Graham, D. B., Khotyaintsev, Y. V., Wu, Y. F., Le Contel, O., Li, H. M., Tao, X., Tang, R. X., Deng, X. H. (2022). Evidence for whistler waves propagating into the electron diffusion region of collisionless magnetic reconnection. *Geophysical Research Letters*, 49, e2021GL097387. <https://doi.org/10.1029/2021GL097387>

★ Zhong, Z. H., Zhou, M., Liu, Y. H., Deng, X. H., Tang, R. X., Graham, D. B., Song L.J., Man, H.Y., Pang, Y., and Khotyaintsev, Y. V. (2022). Stacked Electron Diffusion Regions and Electron Kelvin–Helmholtz Vortices within the Ion Diffusion Region of Collisionless Magnetic Reconnection. *The Astrophysical Journal Letters*, 926(2), L27. <https://doi.org/10.3847/2041-8213/ac4dee>

2021

★ ★ Abid, A. A., Lu, Q., Gao, X. L., Alotaibi, B. M., Ali, S., Qureshi, M. N. S., Al-Hadeethi, Y., and Wang, S. (2021). Energization of cold ions by electromagnetic ion cyclotron waves: Magnetospheric multiscale (MMS) observations. *Physics of Plasmas* 28, 072901. <https://doi.org/10.1063/5.0046764>

★ ★ Alberti, T., Faranda, D., Donner, R. V., Caby, T., Carbone, V., Consolini, G., Dubrulle, B., & Vaienti, S. (2021). Small-scale Induced Large-scale Transitions in Solar Wind Magnetic Field. *The Astrophysical Journal Letters*, 914(1), L6. <https://doi.org/10.3847/2041-8213/ac0148>

★ ★ Aravindakshan, H., Kakad, A., Kakad, B., & Yoon, P. H. (2021). Structural Characteristics of Ion Holes in Plasma. *Plasma*, 4(3), 435-449. <https://doi.org/10.3390/plasma4030032>

★ ★ Bashir, M. F., & Ilie, R. (2021). The first observation of N+ electromagnetic ion cyclotron waves. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028716. <https://doi.org/10.1029/2020JA028716>

★ ★ Battarbee, M., Brito, T., Alho, M., Pfau-Kempf, Y., Grandin, M., Ganse, U., Papadakis, K., Johlander, A., Turc, L., Dubart, M., and Palmroth, M. (2021). Vlasov simulation of electrons in the context of hybrid global models: an eVlasiator approach, *Ann. Geophys.*, 39, 85–103. <https://doi.org/10.5194/angeo-39-85-2021>

★ ★ Blum, L. W., Koval, A., Richardson, I. G., Wilson, L. B., Malaspina, D., Greeley, A., & Jaynes, A. N. (2021). Prompt response of the dayside magnetosphere to discrete structures within the sheath region of a coronal mass ejection. *Geophysical Research Letters*, 48, e2021GL092700. <https://doi.org/10.1029/2021GL092700>

★☆☆Chang, C., Huang, K., Lu, Q., Sang, L., Lu, S., Wang, R., Gao, X., Wang, S. (2021). Particle-in-cell simulations of electrostatic solitary waves in asymmetric magnetic reconnection. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029290. <https://doi.org/10.1029/2021JA029290>

★☆☆Chen, Y. Q., Wu, M., Zhang, T. L., Huang, Y., Wang, G. Q., Nakamura, R., Baumjohann, W., Russell, C. T., Giles, B. J., Burch, J. L. (2021). Statistical characteristics of field-aligned currents in the plasma sheet boundary layer. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028319. <https://doi.org/10.1029/2020JA028319>

★☆☆Chen, Z. Z., Fu, H. S., Wang, Z., Guo, Z. Z., Xu, Y., & Liu, C. M. (2021). First observation of magnetic flux rope inside electron diffusion region. *Geophysical Research Letters*, 48, e2020GL089722. <https://doi.org/10.1029/2020GL089722>

★☆☆Chong, G. S., Pitkänen, T., Hamrin, M., & Schillings, A. (2021). Ion convection as a function of distance to the neutral sheet in Earth's magnetotail. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029694. <https://doi.org/10.1029/2021JA029694>

Dai, L., Wang, C., & Lavraud, B. (2021). Kinetic imprints of ion acceleration in collisionless magnetic reconnection. *The Astrophysical Journal*, 919(1), 15. <https://doi.org/10.3847/1538-4357/ac0fde>

★☆☆Dong, X.-C., Dunlop, M. W., Wang, T.-Y., Zhao, J.-S., Fu, H.-S., Chen, Z.-Z., Russell, C. T., Giles, B., Ergun, R., Lindqvist, P. (2021). Observation of nonuniform energy dissipation in the electron diffusion region of magnetopause reconnection. *Geophysical Research Letters*, 48, e2020GL091928. <https://doi.org/10.1029/2020GL091928>

★☆☆Gao, C.-H., Tang, B.-B., Li, W. Y., Wang, C., Khotyaintsev, Y. V., Graham, D. B., Gershman, D. J., Rager, A. C., Giles, B. L., Lindqvist, P.-A., Ergun, R. E., Russell, C. T., & Burch, J. L. (2021). Effect of the electric field on the agyrotropic electron distributions. *Geophysical Research Letters*, 48, e2020GL091437. <https://doi.org/10.1029/2020GL091437>

Guo, F., Li, X., Daughton, W., Li, H., Kilian, P., Liu, Y. H., ... & Zhang, H. (2021). Magnetic energy release, plasma dynamics, and particle acceleration in relativistic turbulent magnetic reconnection. *The Astrophysical Journal*, 919(2), 111. <https://doi.org/10.3847/1538-4357/ac0918>

★☆☆Guo, J., Lu, S., Lu, Q., Lin, Y., Wang, X., Huang, K., Wang, R., & Wang, S. (2021). Re-reconnection processes of magnetopause flux ropes: Three-dimensional global hybrid simulations. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029388. <https://doi.org/10.1029/2021JA029388>

★☆☆Guo, J., Lu, S., Lu, Q., Lin, Y., Wang, X., Huang, K., Wang, R., & Wang, S. (2021). Structure and coalescence of magnetopause flux ropes and their dependence on IMF clock angle: Three-dimensional global hybrid simulations. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028670. <https://doi.org/10.1029/2020JA028670>

★☆☆Guo, Z. Z., Fu, H. S., Cao, J. B., Yu, Y., Chen, Z. Z., Xu, Y., Liu, Y. Y., Wang, Z., Chen, G., & Xiong, X. (2021). Broadband electrostatic waves behind dipolarization front: Observations and analyses. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029900. <https://doi.org/10.1029/2021JA029900>

★☆☆Hart, S. T., Dayeh, M. A., Reisenfeld, D. B., Janzen, P. H., McComas, D. J., Allegrini, F., Fuselier, S. A., Ogasawara, K., Szalay, J. R., Funsten, H. O., & Petrinen, S. M. (2021). Probing the magnetosheath boundaries using Interstellar Boundary Explorer (IBEX) orbital encounters. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029278. <https://doi.org/10.1029/2021JA029278>

★☆☆Hau, L.-N., Chang, C.-K., & Wang, B.-J. (2021). Do there exist energy closures to the observed mirror waves? *Geophysical Research Letters*, 48, e2021GL095483. <https://doi.org/10.1029/2021GL095483>

★He, R. J., Fu, H. S., Liu, Y. Y., Wang, Z., & Liu, C. M. (2021). Subion-scale flux rope nested inside ion-scale flux rope in Earth's magnetotail. *Geophysical Research Letters*, 48, e2021GL096169. <https://doi.org/10.1029/2021GL096169>

★Hou, C., He, J., Zhu, X., & Wang, Y. (2021). Contribution of magnetic reconnection events to energy dissipation in space plasma turbulence. *The Astrophysical Journal*, 908(2), 237. <https://doi.org/10.3847/1538-4357/abd6f3>

★Huang, S. Y., Xiong, Q. Y., Song, L. F., Nan, J., Yuan, Z. G., Jiang, K., Deng, X. H., & Yu, L. (2021). Electron-only Reconnection in an Ion-scale Current Sheet at the Magnetopause. *The Astrophysical Journal*, 922(1), 54. <https://doi.org/10.3847/1538-4357/ac2668>

★Huang, S. Y., Xiong, Q. Y., Yuan, Z. G., Zhan, H. L., Deng, X. H., Jiang, K., Zhao, P. F., Zhang, J., Xu, S. B., Wei, Y. Y., Yu, L., & Lin, T. R. (2021). Multi-spacecraft measurement of anisotropic spatial correlation functions at kinetic range in the magnetosheath turbulence. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028780. <https://doi.org/10.1029/2020JA028780>

★Jia, Y.-D., Qi, Y., Lu, S., & Russell, C. T. (2021). Temporal evolution of flux rope/tube entanglement in 3-D Hall MHD simulations. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028698. <https://doi.org/10.1029/2020JA028698>

★Jiang, K., Huang, S. Y., Fu, H. S., Yuan, Z. G., Deng, X. H., Wang, Z., ... & Yu, L. (2021). Observational Evidence of Magnetic Reconnection in the Terrestrial Foreshock Region. *The Astrophysical Journal*, 922(1), 56. <https://doi.org/10.3847/1538-4357/ac2500>

★Jiang, K., Huang, S. Y., Yuan, Z. G., Deng, X. H., Wei, Y. Y., Xiong, Q. Y., Xu, S. B., Zhang, J., Zhang, Z. H., Lin, R. T., & Yu, L. (2021). Statistical properties of current, energy conversion, and electron acceleration in flux ropes in the terrestrial magnetotail. *Geophysical Research Letters*, 48, e2021GL093458. <https://doi.org/10.1029/2021GL093458>

★★Johlander, A., Battarbee, M., Vaivads, A., Turc, L., Pfau-Kempf, Y., Ganse, U., Grandin, M., Dubart, M., Khotyaintsev, Y. V., Caprioli, D., Haggerty, C., Schwartz, S. J., Giles, B. L., & Palmroth, M. (2021). Ion Acceleration Efficiency at the Earth's Bow Shock: Observations and Simulation Results. *The Astrophysical Journal*, 914(2), 82. <https://doi.org/10.3847/1538-4357/abfafc>

★★Jun, C.-W., Miyoshi, Y., Kurita, S., Yue, C., Bortnik, J., Lyons, L., Nakamura, S., Shoji, M., Imajo, S., Kletzing, C., Kasahara, Y., Kasaba, Y., Matsuda, S., Tsuchiya, F., Kumamoto, A., Matsuoka, A., Shinohara, I. (2021). The characteristics of EMIC waves in the magnetosphere based on the Van Allen Probes and Arase observations. *Journal of Geophysical Research: Space Physics*, 126, e2020JA029001. <https://doi.org/10.1029/2020JA029001>

★★Li, J.-H., Zhou, X.-Z., Yang, F., Artemyev, A. V., & Zong, Q.-G. (2021). Helical magnetic cavities: Kinetic model and comparison with MMS observations. *Geophysical Research Letters*, 48, e2021GL092383. <https://doi.org/10.1029/2021GL092383>

★★Li, J.-H., Zhou, X.-Z., Zong, Q.-G., Yang, F., Fu, S., Yao, S., Liu, J., & Shi, Q. (2021). On the origin of donut-shaped electron distributions within magnetic cavities. *Geophysical Research Letters*, 48, e2020GL091613. <https://doi.org/10.1029/2020GL091613>

★★★Li, X.-Y., Liu, Z.-Y., Zong, Q.-G., Zhou, X.-Z., Hao, Y.-X., Pollock, C. J., Russell, C. L., & Lindquist, P.-A. (2021). Off-equatorial minima effects on ULF wave-ion interaction in the dayside outer magnetosphere. *Geophysical Research Letters*, 48, e2021GL095648. <https://doi.org/10.1029/2021GL095648>

- ★☆☆Liu, C. M., Fu, H. S., & Liu, Y. Y. (2021). Electron vorticity at dipolarization fronts. *The Astrophysical Journal*, 911(2), 122. <https://doi.org/10.3847/1538-4357/abee1c>
- ★☆☆Liu, C. M., Fu, H. S., Yu, Y. Q., Lu, H. Y., Liu, W. L., Xu, Y., Giles, B. L., Burch, J. L. (2021). Energy flux densities at dipolarization fronts. *Geophysical Research Letters*, 48, e2021GL094932. <https://doi.org/10.1029/2021GL094932>
- ★☆☆Liu, C. M., Fu, H. S., Liu, Y. Y., & Xu, Y. (2021). Kinetics of magnetic hole behind dipolarization front. *Geophysical Research Letters*, 48, e2021GL093174. <https://doi.org/10.1029/2021GL093174>
- ★☆☆Liu, Z.-Y., Wang, B., Zong, Q.-G., Yao, S. T., Pollock, C. J., & Le, G. (2021). Thermal electron behavior in obliquely propagating whistler waves: MMS observations in the solar wind. *Geophysical Research Letters*, 48, e2021GL094099. <https://doi.org/10.1029/2021GL094099>
- ★☆☆Lou, Y., Cao, X., Ni, B., Tu, W., Gu, X., Fu, S., Xiang, Z., & Ma, X. (2021). Diffuse auroral electron scattering by electrostatic electron cyclotron harmonic waves in the dayside magnetosphere. *Geophysical Research Letters*, 48, e2020GL092208. <https://doi.org/10.1029/2020GL092208>
- ★☆☆Lu, Q., Yang, Z., Wang, H., Wang, R., Huang, K., Lu, S., & Wang, S. (2021). Two-dimensional Particle-in-cell Simulation of Magnetic Reconnection in the Downstream of a Quasi-perpendicular Shock. *The Astrophysical Journal*, 919(1), 28. <https://doi.org/10.3847/1538-4357/ac18c0>
- ★☆☆Malykhin, A. Y., Grigorenko, E. E., Shklyar, D. R., Panov, E. V., Le Contel, O., Avannov, L., & Giles, B. (2021). Characteristics of resonant electrons interacting with whistler waves in the nearest dipolarizing magnetotail. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029440. <https://doi.org/10.1029/2021JA029440>
- ★☆☆Malykhin, A.Y., Grigorenko, E.E. & Shklyar, D.R. MMS Observations of Narrow-Band Quasi-Parallel Whistler Waves in the Flow Braking Region in Near-Earth Magnetotail. *Cosmic Res* 59, 6–14 (2021). <https://doi.org/10.1134/S0010952521010044>
- ★☆☆Malykhin, A.Y., & Grigorenko, E.E. (2021). Observation of Small-Scale Magnetic and Current Structures During Prolonged Dipolarizations in the Near Geomagnetic Tail by MMS Mission. *Plasma Phys. Rep.* 47, 427–439. <https://doi.org/10.1134/S1063780X21050068>
- ★☆☆Man, H., Zhou, M., Zhong, Z., Deng, X., & Li, H. (2021). Statistics of the intense current structure in the dayside magnetopause boundary layer. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029890. <https://doi.org/10.1029/2021JA029890>
- ★☆☆Norenius, L., Hamrin, M., Goncharov, O., Gunell, H., Opgenoorth, H., Pitkänen, T., Chong, S., Partamies, N., and Baddeley L. (2021). Ground-based magnetometer response to impacting magnetosheath jets. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029115. <https://doi.org/10.1029/2021JA029115>
- ★☆☆Palmroth, M., Raptis, S., Suni, J., Karlsson, T., Turc, L., Johlander, A., Ganse, U., Pfau-Kempf, Y., Blanco-Cano, X., Akhavan-Tafti, M., Battarbee, M., Dubart, M., Grandin, M., Tarvus, V., and Osmane, A. (2021). Magnetosheath jet evolution as a function of lifetime: global hybrid-Vlasov simulations compared to MMS observations, *Ann. Geophys.*, 39, 289–308. <https://doi.org/10.5194/angeo-39-289-2021>
- ★☆☆Panasyuk, M. I., Zhukova, E. I., Kalegaev, V. V., Malova, H. V., Popov, V. Y., Vlasova, N. A., & Zelenyi, L. M. (2021). Earth's magnetotail as the reservoir of accelerated single and multicharged oxygen ions replenishing radiation belts. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028217. <https://doi.org/10.1029/2020JA028217>

★ Perri, S., Perrone, D., Roberts, O., Settino, A., Yordanova, E., Sorriso-Valvo, L., Veltri, P., & Valentini, F. (2021). Nature of electrostatic fluctuations in the terrestrial magnetosheath. *The Astrophysical Journal*, 919(2), 75. <https://doi.org/10.3847/1538-4357/ac13a2>

★ Petrukovich, A. A., & Chugunova, O. M. (2021). Detailed structure of very high- Earth bow shock. *Journal of Geophysical Research: Space Physics*, 126, e2020JA029004. <https://doi.org/10.1029/2020JA029004>

★ Pezzi, O., Liang, H., Juno, J. L., Cassak, P. A., Váscónez, C. L., Sorriso-Valvo, L., Perrone, D., Servidio, S., Roytershteyn, V., TenBarge, J. M., & Matthaeus, W. H. (2021). Dissipation measures in weakly collisional plasmas. *Monthly Notices of the Royal Astronomical Society*, 505(4), 4857-4873. <https://doi.org/10.1093/mnras/stab1516>

★ Pitkänen, T., Hamrin, M., Chong, G. S., & Kullen, A. (2021). Relevance of the north-south electric field component in the propagation of fast convective earthward flows in the magnetotail: An event study. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029233. <https://doi.org/10.1029/2021JA029233>

★★ Ren, Y., Dai, L., Wang, C., Li, W., Tao, X., Lavraud, B., & Le Contel, O. (2021). Statistical characteristics in the spectrum of whistler waves near the diffusion region of dayside magnetopause reconnection. *Geophysical Research Letters*, 48, e2020GL090816. <https://doi.org/10.1029/2020GL090816>

★★ Settino, A., Perrone, D., Khotyaintsev, Y. V., Graham, D. B., & Valentini, F. (2021). Kinetic Features for the Identification of Kelvin–Helmholtz Vortices in In Situ Observations. *The Astrophysical Journal*, 912(2), 154. <https://doi.org/10.3847/1538-4357/abf1f5>

★ Shen, C., Zhou, Y., Gao, L., Wang, X., Pu, Z., Escoubet, C. P., & Burch, J. L. (2021). Measurements of the net charge density of space plasmas. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029511. <https://doi.org/10.1029/2021JA029511>

★ Shustov, P.I., Kuzichev, I.V., Vasko, I.Y., Artemyev, A.V., and Gerrard, A.J. (2021) The dynamics of electron holes in current sheets. *Physics of Plasmas* 28, 012902. <https://doi.org/10.1063/5.0029999>

Stasiewicz, K., Eliasson, B., Cohen, I. J., Turner, D. L., & Ergun, R. E. (2021). Local acceleration of protons to 100 keV in a quasi-parallel bow shock. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029477. <https://doi.org/10.1029/2021JA029477>

★ Tang, S. Y., Zhang, Y. C., Dai, L., Chen, T., & Wang, C. (2021). MMS Observation of the Hall Field in an Asymmetric Magnetic Reconnection with Guide Field. *The Astrophysical Journal*, 922(2), 96. <https://doi.org/10.3847/1538-4357/ac31b1>

★ Teh, W.-L., & Zenitani, S. (2021). Two-dimensional reconstruction of a time-dependent mirror structure from double-polytropic MHD simulation. *Earth and Space Science*, 8, e2020EA001449. <https://doi.org/10.1029/2020EA001449>

★ Vaverka, J., Pavl, J., Nouzák, L., Šafránková, J., Nmeek, Z., Antonsen, T., Mann, I., & Lindqvist (2021). Ion Cloud Expansion after Hyper-velocity Dust Impacts Detected by the Magnetospheric Multiscale Mission Electric Probes in the Dipole Configuration. *The Astrophysical Journal*, 921(2), 127. <https://doi.org/10.3847/1538-4357/ac1944>

★★ Vech, D., & Malaspina, D. M. (2021). A novel machine learning technique to identify and categorize plasma waves in spacecraft measurements. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029567. <https://doi.org/10.1029/2021JA029567>

★☆☆Vech, D., Malaspina, D. M., Cattell, C., Schwartz, S. J., Ergun, R. E., Klein, K. G., Kromyda, L., Chasapis, A. (2021). Experimental determination of ion acoustic wave dispersion relation with interferometric analysis. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029221. <https://doi.org/10.1029/2021JA029221>

★Volwerk, M., D. Mautner, C. S. Wedlund, C. Goetz, F. Plaschke, T. Karlsson, D. Schmid, D. Rojas-Castillo, O. W. Roberts, and A. Varsani (2021), Statistical study of linear magnetic hole structures near Earth, *Ann. Geophys.*, 39, 239–253. <https://doi.org/10.5194/angeo-39-239-2021>

★Vörös, Z., Varsani, A., Yordanova, E., Sasunov, Y. L., Roberts, O. W., Kis, Á., Nakamura, R., Narita, Y. (2021). Magnetic reconnection within the boundary layer of a magnetic cloud in the solar wind. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029415. <https://doi.org/10.1029/2021JA029415>

★☆☆Vuorinen, L., Hietala, H., Plaschke, F., & LaMoury, A. T. (2021). Magnetic field in magnetosheath jets: A statistical study of BZ near the magnetopause. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029188. <https://doi.org/10.1029/2021JA029188>

★Wang, B., Zhang, H., Liu, Z., Liu, T., Li, X., & Angelopoulos, V. (2021) Energy Modulations of Magnetospheric Ion Induced by Foreshock Transient-Driven ULF Waves. *Geophysical Research Letters*, 48, e2021GL093913. <https://doi.org/10.1029/2021GL093913>

★☆☆Wang, G. Q., & Pan, Z. H. (2021). A new method to calculate the fluxgate magnetometer offset in the interplanetary magnetic field: 1. Using Alfvén waves. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028893. <https://doi.org/10.1029/2020JA028893>

★☆☆Wang, G. Q., Volwerk, M., Xiao, S. D., Wu, M. Y., Chen, Y. Q., & Zhang, T. L. (2021). Electron-scale Magnetic Peaks Upstream of the Terrestrial Bow Shock Observed by the Magnetospheric Multiscale Mission. *The Astrophysical Journal*, 914(2), 101. <https://doi.org/10.3847/1538-4357/abfaa1>

★☆☆Wang, G. Q., Zhang, T. L., Wu, M. Y., Xiao, S. D., Wang, G., Chen, Y. Q., Sun, J. C., Volwerk, M. (2021). Field-aligned currents originating from the chaotic motion of electrons in the tilted current sheet: MMS observations. *Geophysical Research Letters*, 48, e2020GL088841. <https://doi.org/10.1029/2020GL088841>

★☆☆Wang, G. Q., M. Volwerk, M. Y. Wu, Y. F. Hao, S. D. Xiao, G. Wang, L. J. Liu, Y. Q. Chen, and T. L. Zhang (2021), First Observations of an Ion Vortex in a Magnetic Hole in the Solar Wind by MMS, *The Astronomical Journal*, 161:110 (4pp). <https://doi.org/10.3847/1538-3881/abd632>

★☆☆Wang, G. Q., Volwerk, M., Xiao, S. D., Wu, M. Y., Chen, Y. Q., & Zhang, T. L. (2021). Foreshock as a Source Region of Electron-scale Magnetic Holes in the Solar Wind at 1 au. *The Astrophysical Journal*, 915(1), 3. <https://doi.org/10.3847/1538-4357/abfd31>

★☆☆Wang, G. Q., Volwerk, M., Xiao, S. D., Wu, M. Y., Chen, Y. Q., & Zhang, T. L. (2021). Statistical Properties of Electron-scale Magnetic Peaks in the Solar Wind at 1 au. *The Astrophysical Journal*, 921(2), 152. <https://doi.org/10.3847/1538-4357/ac1c6c>

★Wei, Y. Y., Huang, S. Y., Yuan, Z. G., Deng, X. H., Jiang, K., Xu, S. B., Zhang, J., Zhang, Z. H., Xiong, Q. Y., Yu, L., Lin, R. T. (2021). Observation of high-frequency electrostatic waves in the dip region ahead of dipolarization front. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029408. <https://doi.org/10.1029/2021JA029408>

★Xu, Y., Fu, H., Cao, J., Liu, C., Norgren, C., & Chen, Z. (2021). Electron-scale measurements of antipolarization front. *Geophysical Research Letters*, 48, e2020GL092232. <https://doi.org/10.1029/2020GL092232>

★Xue, Z., Yuan, Z., & Yu, X. (2021). Prompt emergence and disappearance of EMIC waves driven by the sequentially enhanced solar wind dynamic pressure. *Geophysical Research Letters*, 48, e2020GL091479. <https://doi.org/10.1029/2020GL091479>.

★Yao, S. T., Shi, Q. Q., Zong, Q. G., Degeling, A. W., Guo, R. L., Li, L., Li, J. X., Tian, A. M., Zhang, H., Yao, Z. H., Fu, H. S., Liu, C. M., Sun, W. J., Niu, Z., Li, W. Y., Liu, Z. Y., Le Contel, O., Zhang, S., Xiao, C., Shang, W. S., Torbert, R. B., Ergun, R. E., Lindqvist, P.-A., Pollock, C. J. (2021). Low-frequency Whistler Waves Modulate Electrons and Generate Higher-frequency Whistler Waves in the Solar Wind. *The Astrophysical Journal*, 923(2), 216. <https://doi.org/10.3847/1538-4357/ac2e97>

★Yao, S. T., Yue, Z. S., Shi, Q. Q., Degeling, A. W., Fu, H. S., Tian, A. M., Zhang, H., Vu, A., Guo, R. L., Yao, Z., Liu, J., Zong, Q.-G., Zhou, X., Li, J., Li, W., Hu, H., Liu, Y., Sun, W. J., (2021). Statistical properties of kinetic-scale magnetic holes in terrestrial space. *Earth Planet. Phys.*, 5(1), 63–72. <http://doi.org/10.26464/epp2021011>

★Yoon, Y.D., Yun, G.S., Wendel, D.E., Burch, J. L. (2021) Collisionless relaxation of a disequilibrated current sheet and implications for bifurcated structures. *Nat Commun* 12, 3774. <https://doi.org/10.1038/s41467-021-24006-x>

★Yordanova, E., Vörös, Z., Sorriso-Valvo, L., Dimmock, A. P., & Kilpua, E. (2021). A possible link between turbulence and plasma heating. *The Astrophysical Journal*, 921(1), 65. <https://doi.org/10.3847/1538-4357/ac1942>

★Yu, X., Lu, Q., Wang, R., Huang, K., Gao, X., & Wang, S. (2021). MMS observations of broadband electrostatic waves in electron diffusion region of magnetotail reconnection. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028882. <https://doi.org/10.1029/2020JA028882>.

★Yu, X., Lu, Q., Wang, R., Gao, X., Sang, L., & Wang, S. (2021). Simultaneous observation of whistler waves and electron cyclotron harmonic waves in the separatrix region of magnetopause reconnection. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029609. <https://doi.org/10.1029/2021JA029609>.

★Zhang, H., Zhong, Z., Tang, R., Deng, X., Li, H., & Wang, D. (2021). Modulation of whistler mode waves by ultra-low frequency wave in a macroscale magnetic hole: MMS observations. *Geophysical Research Letters*, 48, e2021GL096056. <https://doi.org/10.1029/2021GL096056>

★Zhang, L. Q., Wang, C., Dai, L., Fu, H. S., Lui, A. T. Y., Baumjohann, W., Yu, Y., Ren, Y., Burch, J. L., Khotyaintsev, Yu. V. (2021). MMS observation on the cross-tail current sheet roll-up at the dipolarization front. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028796. <https://doi.org/10.1029/2020JA028796>

★★Zhao, S. Q., Zhang, H., Liu, T. Z., Yan, H., Xiao, C. J., Liu, M., Zong, Q.-G., Wang, X., Shi, M., Teng, S., Wang, H., Rankin, R., Pollock, C., Le, G. (2021). Observations of an electron-cold ion component reconnection at the edge of an ion-scale antiparallel reconnection at the dayside magnetopause. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029390. <https://doi.org/10.1029/2021JA029390>.

★★Zhao, S. Q., Xiao, C. J., Liu, T. Z., Chen, H., Zhang, H., Shi, M. J., Teng, S., Zhang, H. S., Wang, X. G., Pu, Z. Y., Liu, M. Z. (2021). Observations of the beam-driven whistler mode waves in the magnetic reconnection region at the dayside magnetopause. *Journal of Geophysical Research: Space Physics*, 126. <https://doi.org/10.1029/2020JA028525>

★ Zhong, Z. H., Zhou, M., Deng, X. H., Song, L. J., Graham, D. B., Tang, R. X., Man, H. Y., Pang, Y., Khotyaintsev, Yu V., Giles, B. L. (2021). Three-dimensional electron-scale magnetic reconnection in Earth's magnetosphere. *Geophysical Research Letters*, 48, e2020GL090946. <https://doi.org/10.1029/2020GL090946>

★ Zhong, Z. H., Graham, D. B., Khotyaintsev, Y. V., Zhou, M., Le Contel, O., Tang, R. X., & Deng, X. H. (2021). Whistler and broadband electrostatic waves in the multiple X-line reconnection at the magnetopause. *Geophysical Research Letters*, 48, e2020GL091320. <https://doi.org/10.1029/2020GL091320>.

★ Zhou, M., Man, H., Yang, Y., Zhong, Z., & Deng, X. (2021). Measurements of energy dissipation in the electron diffusion region. *Geophysical Research Letters*, 48, e2021GL096372. <https://doi.org/10.1029/2021GL096372>.

★ Zhou, M., Man, H. Y., Deng, X. H., Pang, Y., Khotyaintsev, Y., Lapenta, G., Yi, Y.Y., Zhong, Z.H., Ma W.Q. (2021). Observations of secondary magnetic reconnection in the turbulent reconnection outflow. *Geophysical Research Letters*, 48, e2020GL091215. <https://doi.org/10.1029/2020GL091215>

★ Zhou, X.-Z., Zhang, X., Li, J.-H., & Zong, Q.-G. (2021). On the species dependence of ion escapes across the magnetopause. *Geophysical Research Letters*, 48, e2021GL093115. <https://doi.org/10.1029/2021GL093115>

★ Zhu, X., Wang, M., Shi, Q., Zhang, H., Tian, A., Yao, S., Guo, R., Liu, J., Bai, S., Degeling, A. W., Zhang, S., Niu, Z., Zhao, J., Xiao, Y., Shang, W., (2021). Motion of classic and spontaneous hot flow anomalies observed by Cluster. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029418. <https://doi.org/10.1029/2021JA029418>

2020

★ Bai, S.C., Shi, Q., Liu, T. Z., Zhang, H., Yue, C., Sun, W.J., et al. (2020). Ionscale flux rope observed inside a hot flow anomaly. *Geophysical Research Letters*, 47, e2019GL085933. <https://doi.org/10.1029/2019GL085933>

★ Behar, E., Sahraoui, F., & Beri, L. (2020). Resonant whistler-electron interactions: MMS observations versus test-particle simulation. *Journal of Geophysical Research: Space Physics*, 125, e2020JA028040. <https://doi.org/10.1029/2020JA028040>

★ Bergstedt, K., Ji, H., Jara-Almonte, J., Yoo, J., Ergun, R. E., & Chen, L.-J. (2020). Statistical properties of magnetic structures and energy dissipation during turbulent reconnection in the Earth's magnetotail. *Geophysical Research Letters*, 47, e2020GL088540. <https://doi.org/10.1029/2020GL088540>

★ Briggs, J.K., Fasel, G.J., Silveira, M., Sibeck, D.G., Lin, Y., & Sigernes, F. (2020). Dayside auroral observation resulting from a rapid localized compression of the Earth's magnetic field. *Geophysical Research Letters*, 47, e2020GL088995. <https://doi.org/10.1029/2020GL088995>

★ Dong, X.C., Dunlop, M. W., Wang, T.Y., Trattner, K. J., Russell, C. T., & Giles, B. (2020). MMS observation of secondary magnetic reconnection beside ionscale flux rope at the magnetopause. *Geophysical Research Letters*, 47, e2020GL089075. <https://doi.org/10.1029/2020GL089075>

★ Fu, H. S., Chen, F., Chen, Z. Z., Xu, Y., Wang, Z., Liu, Y. Y., ... & Burch, J. L. (2020). First measurements of electrons and waves inside an electrostatic solitary wave. *Physical review letters*, 124(9), 095101. <https://doi.org/10.1103/PhysRevLett.124.095101>

★Goncharov, O., Gunell, H., Hamrin, M., & Chong, S. (2020). Evolution of highspeed jets and plasmoids downstream of the quasiperpendicular bow shock. *Journal of Geophysical Research: Space Physics*, 125, e2019JA027667. <https://doi.org/10.1029/2019JA027667>

★Greco, A., Perrone, D., Lavraud, B., & Chasapis, A. (2020). Improving the Understanding of Kinetic Processes in Solar Wind and Magnetosphere: From CLUSTER to Magnetospheric Multiscale Mission. *Frontiers in Astronomy and Space Sciences*, 87. <https://doi.org/10.3389/fspas.2020.549935>

★Grigorenko, E. E., Malykhin, A. Y., Shklyar, D. R., Fadanelli, S., Lavraud, B., Panov, E. V., et al. (2020). Investigation of electron distribution functions associated with whistler waves at dipolarization fronts in the Earth's magnetotail: MMS observations. *Journal of Geophysical Research: Space Physics*, 125, e2020JA028268. <https://doi.org/10.1029/2020JA028268>

★Guo, Z., Lin, Y., Wang, X., Vines, S. K., Lee, S. H., & Chen, Y. (2020). Magnetopause reconnection as influenced by the dipole tilt under southward IMF conditions: Hybrid simulation and MMS observation. *Journal of Geophysical Research: Space Physics*, 125, e2020JA027795. <https://doi.org/10.1029/2020JA027795>

★Hau, L.-N., G.-W. Chen, and C.-K. Chang (2020), Mirror Mode Waves Immersed in Magnetic Reconnection, *The Astrophysical Journal Letters*, 903:L12 (8pp). <https://doi.org/10.3847/2041-8213/abbf4a>

★Hau, L. N., Chang, C. K., & Chen, G. W. (2020). Mirror-wave Structures in the Solar Wind: Grad-Shafranov Reconstruction, MHD, and Hall MHD Simulations with Double-polytropic Energy Closures. *The Astrophysical Journal*, 900(2), 97. <https://doi.org/10.3847/1538-4357/aba2d0>

★He, J. X. Zhu, D. Verscharen, D. Duan, J. Zhao, and T. Wang (2020), Spectra of Diffusion, Dispersion, and Dissipation for Kinetic Alfvénic and Compressive Turbulence: Comparison between Kinetic Theory and Measurements from MMS, *The Astrophysical Journal*, 898:43 (12pp). <https://doi.org/10.3847/1538-4357/ab9174>

★Huang, S. Y., S. B. Xu, L. H. He, K. Jiang, Z. G. Yuan, X. H. Deng, Y. Y. Wei, J. Zhang, Z. H. Zhang (2020), Excitation of Whistler waves through the bidirectional fieldaligned electron beams with electron temperature anisotropy: MMS observations, *Geophysical Research Letters*, 47, e2020GL087515. <https://doi.org/10.1029/2020GL087515>

★Huang, S. Y., Deng, D., Yuan, Z. G., Jiang, K., Li, J. X., Deng, X. H., et al. (2020). First observations of magnetosonic waves with nonlinear harmonics. *Journal of Geophysical Research: Space Physics*, 125, e2019JA027724. <https://doi.org/10.1029/2019JA027724>

★Huang, S. Y., Zhang, J., Sahraoui, F., Yuan, Z. G., Deng, X. H., Jiang, K., ... & Zhang, Z. H. (2020). Observations of magnetic field line curvature and its role in the space plasma turbulence. *The Astrophysical Journal Letters*, 898(1), L18. <https://doi.org/10.3847/2041-8213/aba263>

★Jiang, K., Huang, S. Y., Yuan, Z. G., Deng, X. H., Xu, S. B., Wei, Y. Y., et al. (2020). Observations of electron vortex at the dipolarization front. *Geophysical Research Letters*, 47, e2020GL088448. <https://doi.org/10.1029/2020GL088448>

★Li, H., C. Zhu, L. Guo, Q. Cheng, and O. Le Contel (2020), Magnetospheric Multiscale observations of the off-equatorial dipolarization front dynamics in the terrestrial magnetotail, *The Astrophysical Journal*, 899:125 (13pp). <https://doi.org/10.3847/1538-4357/aba8a7>

★Li, H., W. Jiang, C. Wang, D. Verscharen, C. Zeng, C. T. Russell, B. Giles, and J. L. Burch (2020), Evolution of the Earth's Magnetosheath Turbulence: A Statistical Study Based on MMS Observations, *The Astrophysical Journal Letters*, 898:L43 (10pp). <https://doi.org/10.3847/2041-8213/aba531>

★Li, H., Peng, Q., Tang, R., Zhang, H., Zhong, Z., Deng, X., & Wang, D. (2020). Statistical characteristics of electron pitch angle distributions inside the magnetopause based on MMS observations. *Journal of Geophysical Research: Space Physics*, 125, e2020JA028291. <https://doi.org/10.1029/2020JA028291>

★Li, J.H., Yang, F., Zhou, X.Z. *et al.* Self-consistent kinetic model of nested electron- and ion-scale magnetic cavities in space plasmas. *Nat Commun* **11**, 5616 (2020). <https://doi.org/10.1038/s41467-020-19442-0>

★★★Li, L.F., Tu, W., Dai, L., Tang, B.B., Wang, C., Barani, M., et al (2020). Quantifying event-specific radial diffusion coefficients of radiation belt electrons with the PPMLRMHD simulation. *Journal of Geophysical Research: Space Physics*, 125, e2019JA027634. <https://doi.org/10.1029/2019JA027634>

★Li, Z. (2020). In Situ Evidence of a Magnetic Hole Downstream of the Magnetic Reconnection in the Magnetopause Reconnection. *The Astrophysical Journal*, 901(1), 20. <https://doi.org/10.3847/1538-4357/abad33>

Li, Z. (2020). Observations of Small-scale Magnetic Reconnections within a Magnetic Flux Rope in Earth's Magnetosheath. *The Astrophysical Journal Letters*, 898(2), L36. <https://doi.org/10.3847/2041-8213/aba4b5>

★Liu, J., Yao, S. T., Shi, Q. Q., Wang, X. G., Zong, Q. G., Feng, Y. Y., ... & Giles, B. L. (2020). Electron energization and energy dissipation in microscale electromagnetic environments. *The Astrophysical Journal Letters*, 899(2), L31. <https://doi.org/10.3847/2041-8213/abab92>

★Liu, Y. Y., Fu, H. S., Zong, Q. G., Wang, Z., Liu, C. M., Huang, S. Y., et al. (2020). First topology of electron-scale magnetic hole. *Geophysical Research Letters*, 47, e2020GL088374. <https://doi.org/10.1029/2020GL088374>

★Liu, Z., Wang, L., Shi, Q., Oka, M., Yang, L., Wimmer-Schweingruber, R. F., ... & Bale, S. D. (2020). Case Study of Solar Wind Suprathermal Electron Acceleration at the Earth's Bow Shock. *The Astrophysical Journal Letters*, 889(1), L2. <https://doi.org/10.3847/2041-8213/ab64d0>

★Liu, Z.-Y., Zong, Q.-G., & Blake, J. B. (2020). On phase space density and its radial gradient of outer radiation belt seed electrons: MMS/FEEPS observations. *Journal of Geophysical Research: Space Physics*, 125, e2019JA027711. <https://doi.org/10.1029/2019JA027711>

★Loureiro, N. F., and Boldyrev, S. (2020), Nonlinear Reconnection in Magnetized Turbulence, *The Astrophysical Journal*, 890:55 (6pp). <https://doi.org/10.3847/1538-4357/ab6a95>

★Lu, Q., Wang, H., Wang, X., Lu, S., Wang, R., Gao, X., & Wang, S., (2020). Turbulence-driven magnetic reconnection in the magnetosheath downstream of a quasiparallel shock: A three-dimensional global hybrid simulation. *Geophysical Research Letters*, 47, e2019GL085661. <https://doi.org/10.1029/2019GL085661>

★Lu, S., Wang, R., Lu, Q. *et al.* Magnetotail reconnection onset caused by electron kinetics with a strong external driver. *Nat Commun* **11**, 5049 (2020). <https://doi.org/10.1038/s41467-020-18787-w>

★ Lukin, A. S., Panov, E. V., Artemyev, A. V., Petrukovich, A. A., Haaland, S., Nakamura, R., et al. (2020). Comparison of the flank magnetopause at near-Earth and lunar distances: MMS and ARTEMIS observations. *Journal of Geophysical Research: Space Physics*, 125, e2020JA028406. <https://doi.org/10.1029/2020JA028406>

★ Luo, Q., He, J., Cui, J., Zhu, X., Duan, D., & Verscharen, D. (2020). Energy Conversion between Ions and Electrons through Ion Cyclotron Waves and Embedded Ion-scale Rotational Discontinuity in Collisionless Space Plasmas. *The Astrophysical Journal Letters*, 904(2), L16. <https://doi.org/10.3847/2041-8213/abc75a>

★ Ma, W., Zhou, M., Zhong, Z., & Deng, X. (2020). Electron acceleration rate at Dipolarization Fronts. *The Astrophysical Journal*, 903(2), 84. <https://doi.org/10.3847/1538-4357/abb8cc>

★ Ma, Y. D., Yang, J., Dunlop, M. W., Rae, I. J., and Yang, J. Y. (2020), Energy Budget of High-speed Plasma Flows in the Terrestrial Magnetotail, *The Astrophysical Journal*, 894:16 (12pp). <https://doi.org/10.3847/1538-4357/ab83fd>

★ Man, H., Zhong, Z. & Li, H. Internal structures of the ion-scale flux rope associated with dayside magnetopause reconnection. *Astrophys Space Sci* **365**, 87 (2020). <https://doi.org/10.1007/s10509-020-03803-8>

★ Man, H. Y., Zhou, M., Yi, Y. Y., Zhong, Z. H., Tian, A. M., Deng, X. H., et al. (2020). Observations of electron-only magnetic reconnection associated with macroscopic flux ropes. *Geophysical Research Letters*, 47, e2020GL089659. <https://doi.org/10.1029/2020GL089659>

★ Manuzzo, R., Califano, F., Belmont, G., and Rezeau, L. (2020), A multi-fluid model of the magnetopause, *Ann. Geophys.*, 38, 275–286, 2020. <https://doi.org/10.5194/angeo-38-275-2020>

★ Nishimura, Y., Wang, B., Zou, Y., Donovan, E. F., Angelopoulos, V., Moen, J. I., Clausen, L. B. and Nagatsuma, T. (2020). Transient Solar Wind–Magnetosphere–Ionosphere Interaction Associated with Foreshock and Magnetosheath Transients and Localized Magnetopause Reconnection. In *Dayside Magnetosphere Interactions* (eds Q. Zong, P. Escoubert, D. Sibeck, G. Le and H. Zhang). <https://doi.org/10.1002/9781119509592.ch3>

★ ★ Oimatsu, S., Nosé, M., Le, G., Fuselier, S. A., Ergun, R. E., Lindqvist, P. A., & Sormakov, D. (2020). Selective acceleration of O⁺ by drift bounce resonance in the Earth's magnetosphere: MMS observations. *Journal of Geophysical Research: Space Physics*, 125, e2019JA027686. <https://doi.org/10.1029/2019JA027686>

★ Peng, Q., Li, H., Tang, R., Zhong, Z., Zhang, H., & Li, Q. (2020). Variation of dayside chorus waves associated with solar wind dynamic pressure based on MMS observations. *Advances in Space Research*, 65(11), 2551–2558. <https://doi.org/10.1016/j.asr.2020.03.006>

★ Perri, S., D. Perrone, E. Yordanova, L. Sorriso-Valvo, W. R. Paterson, D. J. Gershman, B. L. Giles, C. J. Pollock, J. C. Dorelli, L. A. Avanov, B. Lavraud, Y. Saito, R. Nakamura, D. Fischer, W. Baumjohann, F. Plaschke, Y. Narita, W. Magnes, C. T. Russell, R. J. Strangeway, O. Le Contel, Y. Khotyaintsev and F. Valentini (2020), On the deviation from Maxwellian of the ion velocity distribution functions in the turbulent magnetosheath, *J. Plasma Phys.* (2020), vol. 86, 905860108. <https://doi.org/10.1017/S0022377820000021>

★ Pucci, F., Velli, M., Shi, C., Singh, K. A. P., Tenerani, A., Alladio, F., ... & Schwartz, S. (2020). Onset of fast magnetic reconnection and particle energization in laboratory and space plasmas. *Journal of Plasma Physics*, 86(6). <https://doi.org/10.1017/S0022377820001373>

- ★Qin, P., Y. Ge, A. Du, C. Huang, Y. Zhang, H. Luo, J. Ou, T. Zhang, and L. shan (2020), Coupling between the magnetospheric dipolarization Front and the Earth's ionosphere by ultralow-frequency Waves, *The Astrophysical Journal Letters*, 895:L13 (8pp). <https://doi.org/10.3847/2041-8213/ab8e48>
- ★Settino, A., Malara, F., Pezzi, O., Onofri, M., Perrone, D., & Valentini, F. (2020). Kelvin–Helmholtz instability at proton scales with an exact kinetic equilibrium. *The Astrophysical Journal*, 901(1), 17. <https://doi.org/10.3847/1538-4357/abada9>
- ★Shi, C., Zhao, J., Huang, C., Wang, T., & Dunlop, M. W. (2020). Modulation of ionospheric outflow ions by EMIC waves in the dayside outer magnetosphere. *Physics of Plasmas*, 27(3), 032902. <https://doi.org/10.1063/1.5142686>
- ★Tang, B. B., W. Y. Li, A. Le, D. B. Graham, Y.-F. Wu, C. Wang, Yu. V. Khotyaintsev, J. Egedal, X. Tao, D. J. Gershman, B. L. Giles, P.-A. Lindqvist, R. E. Ergun, C. T. Russell, and J. L. Burch (2020), Electron mixing and isotropization in the exhaust of asymmetric magnetic reconnection with a guide field, *Geophysical Research Letters*, 47, e2020GL087159. <https://doi.org/10.1029/2020GL087159>
- ★Tang, B.,-B., Li, W. Y., Graham, D. B., Wang, C., Khotyaintsev, Y. V., Le, A., et al. (2020). Lower hybrid waves at the magnetosheath separatrix region. *Geophysical Research Letters*, 47, e2020GL089880. <https://doi.org/10.1029/2020GL089880>
- ★Teh, W.-L., and Zenitani, S. (2020), Thermodynamics of Dipolarization Fronts of Magnetic Reconnection in Anisotropic Plasma: MMS Observations and Resistive Double-polytropic MHD Simulations, *The Astrophysical Journal*, 890:114 (7pp). <https://doi.org/10.3847/1538-4357/ab6d6b>
- ★Tian, A., Xiao, K., Degeling, A. W., Shi, Q., Park, J. S., Nowada, M., & Pitkänen, T. (2020). Reconstruction of plasma structure with anisotropic pressure: Application to Pc5 compressional wave. *The Astrophysical Journal*, 889(1), 35. <https://doi.org/10.3847/1538-4357/ab6296>
- ★Tsurutani, B. T., Lakhina, G. S., and Hajra, R. (2020), The physics of space weather/solar-terrestrial physics (STP): what we know now and what the current and future challenges are, *Nonlin. Processes Geophys.*, 27, 75–119. <https://doi.org/10.5194/npg-27-75-2020>
- ★Wang, G. Q., Zhang, T. L., Wu, M. Y., Schmid, D. N., Hao, Y. F., and Volmerk, M. (2020), Roles of electrons and ions in formation of the current in mirror-mode structures in the terrestrial plasma sheet: Magnetospheric Multiscale observations, *Ann. Geophys.*, 38, 309–318. <https://doi.org/10.5194/angeo-38-309-2020>
- ★Wang, G. Q., Zhang, T. L., Xiao, S. D., Wu, M. Y., Wang, G., Liu, L. J., et al. (2020). Statistical properties of subion magnetic holes in the solar wind at 1 AU. *Journal of Geophysical Research: Space Physics*, 125, e2020JA028320. <https://doi.org/10.1029/2020JA028320>
- ★Wang, G. Q., Zhang, T. L., Wu, M. Y., Hao, Y. F., Xiao, S. D., Wang, G., et al. (2020). Study of the electron velocity inside sub-ion-scale magnetic holes in the solar wind by MMS observations. *Journal of Geophysical Research: Space Physics*, 125, e2020JA028386. <https://doi.org/10.1029/2020JA028386>
- ★Wang, G. Q., Volwerk, M., Xiao, S. D., Wu, M. Y., Hao, Y. F., Liu, L. J., ... & Zhang, T. L. (2020). Three-dimensional Geometry of the Electron-scale Magnetic Hole in the Solar Wind. *The Astrophysical Journal Letters*, 904(1), L11. <https://doi.org/10.3847/2041-8213/abc553>
- ★Wang, L., Huang, C., Cao, X., Du, A., & Ge, Y. S. (2020). Magnetic energy conversion and transport in the terrestrial magnetotail due to dipolarization fronts. *Journal of Geophysical Research: Space Physics*, 125, e2020JA028568. <https://doi.org/10.1029/2020JA028568>

★Wang, R., Lu, Q., Lu, S., Russell, C. T., Burch, J. L., Gershman, D. J., et al. (2020). Physical implication of two types of reconnection electron diffusion regions with and without ioncoupling in the magnetotail current sheet. *Geophysical Research Letters*, 47, e2020GL088761. <https://doi.org/10.1029/2020GL088761>

★Wang, T., He, J., Alexandrova, O., Dunlop, M., & Perrone, D. (2020). Observational quantification of three-dimensional anisotropies and scalings of space plasma turbulence at kinetic scales. *The Astrophysical Journal*, 898(1), 91. <https://doi.org/10.3847/1538-4357/ab99ca>

★Wang, Z., Fu, H. S., Vaivads, A., Burch, J. L., Yu, Y., & Cao, J. B. (2020). Monitoring the Spatio-temporal Evolution of a Reconnection X-line in Space. *The Astrophysical Journal Letters*, 899(2), L34. <https://doi.org/10.3847/2041-8213/abad2c>

★Xu, J., Peng, F. Z., Russell, C. T., Giles, B., Lindqvist, P. A., Torbert, R. B., ... & Burch, J. L. (2020). Observation of energy conversion near the x-line in asymmetric guide-field reconnection. *The Astrophysical Journal Letters*, 895(1), L10. <https://doi.org/10.3847/2041-8213/ab8e31>

★Yang, Z. Y. D. Liu, A. Johlander, G. K. Parks, B. Lavraud, E. Lee, W. Baumjohann, R. Wang, and J. L. Burch (2020), MMS direct observations of kinetic-scale shock self-reformation, *The Astrophysical Journal Letters*, 901:L6 (6pp). <https://doi.org/10.3847/2041-8213/abb3ff>

★Yao, S. T., Q. Q. Shi, R. L. Guo, Z. H. Yao, H. S. Fu, A. W. Degeling, Q. G. Zong, X. G. Wang, C. T. Russell, A. M. Tian, Y. C. Xiao, H. Zhang, S. M. Wang, H. Q. Hu, J. Liu, H. Liu, B. Li, and B. L. Giles (2020), Kinetic-scale flux rope in the magnetosheath boundary layer, *The Astrophysical Journal*, 897:137 (12pp). <https://doi.org/10.3847/1538-4357/ab9620>

★Yao, S. T., Hamrin, M., Shi, Q. Q., Yao, Z. H., Degeling, A. W., Zong, Q.G., et al. (2020). Propagating and dynamic properties of magnetic dips in the dayside magnetosheath: MMS observations. *Journal of Geophysical Research: Space Physics*, 124, e2019JA026736. <https://doi.org/10.1029/2019JA026736>

★Yu, J., J. Wang, L. Y. Li, J. Cui, J. B. Cao, and Z. G. He (2020), Electron diffusion by coexisting plasmaspheric hiss and chorus waves: Multisatellite observations and simulations, *Geophysical Research Letters*, 47, e2020GL088753. <https://doi.org/10.1029/2020GL088753>

★Yu, Y., Z. Chen, F. Chen (2020), Cold and Dense Plasma Sheet Caused by Solar Wind Entry: Direct Evidence, *Atmosphere*, 11, 831. <https://doi.org/10.3390/atmos11080831>

★Zeng, C., Duan, S., Chi Wang, C., Dai, L., Fuselier, S., Burch, J., Torbert, R., Giles, B., and Russell, C., (2020), Magnetospheric Multiscale observations of energetic oxygen ions at the duskside magnetopause during intense substorms, *Ann. Geophys.*, 38, 123–135. <https://doi.org/10.5194/angeo-38-123-2020>

★Zeng, C., C. Wang, S. Duan, L. Dai, S. A. Fuselier, J. L. Burch, R. B. Torbert, and B. Giles (2020), Statistical Study of Oxygen Ions Abundance and Spatial Distribution in the Dayside Magnetopause Boundary Layer: MMS Observations, *Journal of Geophysical Research: Space Physics*, 125, e2019JA027323. <https://doi.org/10.1029/2019JA027323>

★Zhang, C., Z. Rong, C. Shen, L. Klinger, J. Gao, J. A. Slavin, Y. Zhang, J. Cui, and Y. Wei (2020), Examining the Magnetic Geometry of Magnetic Flux Ropes from the View of Single-point Analysis, *The Astrophysical Journal*, 903:53 (15pp). <https://doi.org/10.3847/1538-4357/abba16>

★Zhang, L. Q., Lui, A. T. Y., Baumjohann, W., Wang, C., Burch, J. L., & Khotyaintsev, Y. V. (2020). Anisotropic vorticity within bursty bulk flow turbulence. *Journal of Geophysical Research: Space Physics*, 125, e2020JA028255. <https://doi.org/10.1029/2020JA028255>

★Zhang, M., Wang, R., Lu, Q., & Wang, S. (2020). Observation of the tailward electron flows commonly detected at the flow boundary of the earthward ion bursty bulk flows in the magnetotail. *The Astrophysical Journal*, 891(2), 175. <https://doi.org/10.3847/1538-4357/ab72a8>

★Zhao, J., Wang, T., Graham, D. B., He, J., Liu, W., Dunlop, M. W., & Wu, D. (2020). Identification of the Nature of Electromagnetic Waves near the Proton-cyclotron Frequency in Solar-terrestrial Plasmas. *The Astrophysical Journal*, 890(1), 17. <https://doi.org/10.3847/1538-4357/ab672f>

★Zhong, Z. H., Zhou, M., Tang, R. X., Deng, X. H., Turner, D. L., Cohen, I. J., et al (2020). Direct evidence for electron acceleration within ion-scale flux rope. *Geophysical Research Letters*, 47, e2019GL085141. <https://doi.org/10.1029/2019GL085141>

★Zhong, Z. H., Zhou, M., Tang, R. X., Deng, X. H., Khotyaintsev, Y. V., Giles, B. L., ... & Burch, J. L. (2020). Extension of the electron diffusion region in a guide field magnetic reconnection at magnetopause. *The Astrophysical Journal Letters*, 892(1), L5. <https://doi.org/10.3847/2041-8213/ab7b7c>

★Zhu, X., He, J., Wang, Y., & Sorriso-Valvo, L. (2020). Difference of intermittency between electric field and magnetic field fluctuations from ion scale down to sub-electron scale in the magnetosheath turbulence. *The Astrophysical Journal*, 893(2), 124. <https://doi.org/10.3847/1538-4357/ab7815>

2019

★★Bai, S.C., Shi, Q., Zong, Q.G., Wang, X., Tian, A., Degeling, A. W., et al.(2019). Electron dispersion and parallel electron beam observed near the separatrix, *Journal of Geophysical Research: Space Physics*, 124, 7494–7504. <https://doi.org/10.1029/2019JA026836>

★Chen, C.H.K., Klein, K.G. & Howes, G.G. Evidence for electron Landau damping in space plasma turbulence. *Nat Commun* 10, 740 (2019). <https://doi.org/10.1038/s41467-019-08435-3>

★Chen, Y. Q., Wu, M., Wang, G., Schmid, D., Zhang, T., Nakamura, R., Baumjohann W., Burch, J. L., Giles, B. L., Russell, C. T. (2019), Carriers of the field-aligned currents in the plasma sheet boundary layer: An MMS multicase study, *Journal of Geophysical Research: Space Physics*, 124, 2873–2886. <https://doi.org/10.1029/2018JA026216>

★Chen, Y., Zhang, T., Wu, M., Wang, G., Schmid, D., Baumjohann, W., et al. (2019). Small spatial-scale field-aligned currents in the plasma sheet boundary layer surveyed by magnetosphere multiscale spacecraft. *Journal of Geophysical Research: Space Physics*, 124,, <https://doi.org/10.1029/2019JA027027>

★Chen, Z. Z., Fu, H. S., Liu, C. M., Wang, T. Y., Ergun, R. E., Cozzani, G., Huang, S. Y., Khotyaintsev, Y. V., Le Contel, O., Giles, B. L., Burch, J. L. (2019), Electron-driven dissipation in a tailward flow burst, *Geophysical Research Letters*, 46, 5698–5706. <https://doi.org/10.1029/2019GL082503>

★Chen, Z. Z., Fu, H. S., Wang, T. Y., Cao, D., Peng, F. Z., Yang, J., and Xu, Y. (2019), Reconstructing the flux-rope topology using the FOTE method, *Science China Technological Sciences*, 62(1), pp 144–150, <http://doi.org/10.1007/S11431-017-9201-1>

- ★Chen, Z. Z., H. S. Fu, Z. Wang, C. M. Liu, and Y. Xu, (2019), Evidence of magnetic nulls in the reconnection at bow shock, *Geophysical Research Letters*, 46, 10,209–10,218. <https://doi.org/10.1029/2019GL084360>
- ★Dong, X.C., Dunlop, M. W., Trattner, K. J., Wang, T.Y., Pu, Z. Y., Zhao, J.S., et al. (2019). Electron sublayers and the associated magnetic topologies in the inner lowlatitude boundary layer. *Geophysical Research Letters*, 46, 5746–5753. <https://doi.org/10.1029/2019GL081998>
- ★Fletcher, A. C., Crabtree, C., Ganguli, G., Malaspina, D., Tejero, E., and Chu, X. (2019). Kinetic equilibrium and stability analysis of dipolarization fronts. *Journal of Geophysical Research: Space Physics*, 124, 2010–2028. <https://doi.org/10.1029/2018JA026433>
- ★Fu, H. S., Peng, F. Z., Liu, C. M., Burch, J. L., Gershman, D. G., & Le Contel, O. (2019). Evidence of electron acceleration at a reconnecting magnetopause. *Geophysical Research Letters*, 46, 5645–5652. <https://doi.org/10.1029/2019GL083032>
- ★Grošelj, D. C. H.K. Chen, A. Mallet, R. Samtaney, K. Schneider, and F. Jenko (2019), Kinetic Turbulence in Astrophysical Plasmas: Waves and/or Structures? *Phys. Rev. X*, 9, 031037. <https://doi.org/10.1103/PhysRevX.9.031037>
- ★Hamrin, M., H. Gunell, O. Goncharov, A. De Spiegeleer, S. Fuselier, J. Mukherjee, A. Vaivads, T. Pitkänen, R. B. Torbert, and B. Giles (2019), Can reconnection be triggered as a solar wind directional discontinuity crosses the bow shock? A case of asymmetric reconnection, *Journal of Geophysical Research: Space Physics*, 124. <https://doi.org/10.1029/2019JA027006>
- ★He, J., Duan, D., Wang, T., Zhu, X., Li, W., Verscharen, D., ... & Burch, J. (2019). Direct measurement of the dissipation rate spectrum around ion kinetic scales in space plasma turbulence. *The Astrophysical Journal*, 880(2), 121. <https://doi.org/10.3847/1538-4357/ab2a79>
- ★Huang, S. Y., L. H. He, Z. G. Yuan, F. Sahraoui, O. Le Contel, X. H. Deng, M. Zhou, H. S. Fu, K. Jiang, X. D. Yu, H. M. Li, D. Deng, C. J. Pollock, R. B. Torbert, and J. L. Burch (2019), MMS Observations of Kinetic-size Magnetic Holes in the Terrestrial Magnetotail Plasma Sheet, *The Astrophysical Journal*, 875(2). <http://doi.org/10.3847/1538-4357/AB0F2F>
- ★Huang, S. Y., Jiang, K., Yuan, Z. G., Zhou, M., Sahraoui, F., Fu, H. S., Deng X. H., Khotyaintsev, Y., Yu, X. D., He, L. H., Deng, D., Pollock, C. J., Torbert R. B., Burch, J. L. (2019). Observations of flux ropes with strong energy dissipation in the magnetotail. *Geophysical Research Letters*, 46, 580–589. <https://doi.org/10.1029/2018GL081099>
- ★Huang, S. Y., Jiang, K., Fu, H. S., Yuan, Z. G., Deng, X. H., Li, H. M., et al (2019). Periodical dipolarization processes in Earth's magnetotail. *Geophysical Research Letters*, 46, 13,640–13,648. <https://doi.org/10.1029/2019GL086136>
- ★Jiang, K., Huang, S.Y., Yuan, Z.G. et al. (2019). Observations of whistler waves in two sequential flux ropes at the magnetopause. *Astrophys Space Sci* 364, 168. <https://doi.org/10.1007/s10509-019-3647-4>
- ★Jiang, K., S. Y. Huang, Z. G. Yuan, F. Sahraoui, X. H. Deng, X. D. Yu, L. H. He, D. Deng, Y. Y. Wei, and S. B. Xu (2019), The Role of Upper Hybrid Waves in the Magnetotail Reconnection Electron Diffusion Region, *The Astrophysical Journal Letters*, 881(2), L28. <https://doi.org/10.3847/2041-8213/ab36b9>
- ★Li, B., Han, D.S., Hu, Z.J., Hu, H.Q., Liu, J.J., Dai, L., Liu, D., Escoubert, C. P., Dunlop, M. W., Ergun, R. E., Lindqvist, P.-A., Torbert, R. B., Russell, C. T. (2019). Magnetospheric multiscale observations of ULF waves and correlated lowenergy ion monoenergetic acceleration. *Journal of Geophysical Research: Space Physics*, 124, 2788–2794. <https://doi.org/10.1029/2018JA026372>

★Li, X., Wang, R., Lu, Q., Hwang, K.J., Zong, Q., Russell, C. T., & Wang, S. (2019). Observation of nongyrotropic electron distribution across the electron diffusion region in the magnetotail reconnection. *Geophysical Research Letters*, 46 <https://doi.org/10.1029/2019GL085014>

Li, Z., & Zhang, M. (2019). In Situ Observations of Separatrices in a Strong-guide-field Reconnection at the Magnetopause. *The Astrophysical Journal*, 888(1), 5. <https://doi.org/10.3847/1538-4357/ab5aea>

★Li, Z., Lu, Q. M., Wang, R. S., Gao, X. L., and Chen, H. Y. (2019). In situ evidence of resonant interactions between energetic electrons and whistler waves in magnetopause reconnection. *Earth Planet. Phys.*, 3(6), 467–473. <http://doi.org/10.26464/epp2019048>

★Liu, C. M., Vaivads, A., Graham, D. B., Khotyaintsev, Y. V., Fu, H. S., Johlander, A., et al (2019). Ion BeamDriven Intense Electrostatic Solitary Waves in Reconnection Jet. *Geophysical Research Letters*, 46, 12,702–12,710. <https://doi.org/10.1029/2019GL085419>

★Liu, H., Q.-G. Zong, H. Zhang, C.J. Xiao, Q.Q. Shi, S.T. Yao, J.S. He, X.-Z. Zhou, C. Pollock, W.J. Sun, G. Le, J.L. Burch, and R. Rankin (2019). MMS observations of electron scale magnetic cavity embedded in proton scale magnetic cavity, *Nature Communications*, volume 10, Article number: 1040. <https://doi.org/10.1038/s41467-019-08971-y>

★Liu, H., Zong, Q.-G., Zhang, H., Sun, W. J., Zhou, X.-Z., Gershman, D. J., Shi C., Zhang K., Le G., and Pollock C. (2019). The geometry of an electron scale magnetic cavity in the plasma sheet. *Geophysical Research Letters*, 46, 9308–9317. <https://doi.org/10.1029/2019GL083569>

★Liu, S., Xia, Z., Chen, L., Liu, Y., Liao, Z., & Zhu, H. (2019). Magnetospheric Multiscale Observation of quasiperiodic EMIC waves associated with enhanced solar wind pressure. *Geophysical Research Letters*, 46, 7096–7104. <https://doi.org/10.1029/2019GL083421>

★Liu, Y. Y., H. S. Fu, C. M. Liu, Z. Wang, P. Escoubet, K.-J. Hwang, J. L. Burch, and B. L. Giles (2019). Parallel Electron Heating by Tangential Discontinuity in the Turbulent Magnetosheath, *The Astrophysical Journal Letters*, 877(2). <http://doi.org/10.3847/2041-8213/AB1FE6>

★Liu, Z.-Y., Zong, Q.-G., Zhou, X.-Z., Hao, Y. X., Yau, A. W., Zhang, H., et al. (2019). ULF waves modulating and acting as mass spectrometer for dayside ionospheric outflow ions. *Geophysical Research Letters*, 46, 8633–8642. <https://doi.org/10.1029/2019GL083849>

★★Lu, S. W., C. Wang, W. Y. Li, B. B. Tang, R. B. Torbert, B. L. Giles, C. T. Russell, J. L. Burch, J. P. McFadden, H. U. Auster, and V. Angelopoulos (2019), Prolonged Kelvin–Helmholtz Waves at Dawn and Dusk Flank Magnetopause: Simultaneous Observations by MMS and THEMIS, *The Astrophysical Journal*, 875(1). <http://doi.org/10.3847/1538-4357/AB0E76>

★Ozturk, D. S., Zou, S., Slavin, J. A., & Ridley, A. J. (2019). Response of the geospace system to the solar wind dynamic pressure decrease on 11 June 2017: Numerical models and observations. *Journal of Geophysical Research: Space Physics*, 124, 2613–2627. <https://doi.org/10.1029/2018JA026315>

★Pecora, F., Greco, A., Hu, Q., Servidio, S., Chasapis, A. G., & Matthaeus, W. H. (2019). Single-spacecraft identification of flux tubes and current sheets in the solar wind. *The Astrophysical Journal Letters*, 881(1), L11. <https://doi.org/10.3847/2041-8213/ab32d9>

★Pezzi, O., Yang, Y., Valentini, F., Servidio, S., Chasapis, A., Matthaeus, W. H., & Veltri, P. (2019). Energy conversion in turbulent weakly collisional plasmas: Eulerian hybrid Vlasov-Maxwell simulations. *Physics of Plasmas*, 26(7), 072301. <https://doi.org/10.1063/1.5100125>

- ★Ren, Y., Dai, L., Li, W., Tao, X., Wang, C., Tang, B., Lavraud, B., Wu, Y., Burch, J. L., Giles, B., Le Contel, O., Torbert, R. B., Russell, C. T., Strangeway, R. J., Ergun, R. E., Lindqvist, P.-A. (2019). Whistler waves driven by field-aligned streaming electrons in the near-Earth magnetotail reconnection. *Geophysical Research Letters*, 46, 5045–5054. <https://doi.org/10.1029/2019GL083283>
- ★Sergeev, V. A., Apatenkov, S. V., Nakamura, R., Baumjohann, W., Khotyaintsev, Y. V., Kauristie, K., Van de Kamp, M., Burch, J. L., Ergun, R. E., Lindqvist, P.-A., Russell, C. T., Giles, B. L. (2019). Substorm related nearEarth reconnection surge: Combining telescopic and microscopic views. *Geophysical Research Letters*, 46, 6239–6247. <https://doi.org/10.1029/2019GL083057>
- ★Sorriso-Valvo L., Catapano F., Retinò A., Le Contel O., Perrone D., Roberts O. W., Coburn J. T., Panebianco V., Valentini F., Perri S., Greco A., Malara F., Carbone V., Veltri P., Pezzi O., Fraternali F., Di Mare F., Marino R., Giles B. L., Moore T. E., Russell C. T., Torbert R. B., Burch J. L., Khotyaintsev Y. V. (2019), Turbulence-Driven Ion Beams in the Magnetospheric Kelvin-Helmholtz Instability, *Physical Review Letters* 122, 035102. <http://doi.org/10.1103/PhysRevLett.122.035102>
- ★Tang, B.-B., Li, W. Y., Graham, D. B., Rager, A. C., Wang, C., Khotyaintsev, Y. V., Lavraud, B., Hasegawa, H., Zhang, Y.-C., Dai, L., Giles, B. L., Dorelli, J. C., Russell, C. T., Lindqvist, P.-A., Ergun, R. E., Burch, J. L. (2019). Crescent-shaped electron distributions at the nonreconnecting magnetopause: Magnetospheric multiscale observations. *Geophysical Research Letters*, 46, 3024–3032. <https://doi.org/10.1029/2019GL082231>
- ★Teh, W. L. (2019), Twodimensional reconstruction of magnetic mirror structures with pressure anisotropy: Theory and application, *Journal of Geophysical Research: Space Physics*, 124, 1644–1650. <https://doi.org/10.1029/2018JA026416>
- ★Teh, W.-L. and S. Zenitani (2019), Thermodynamic Properties of Mirror Structures in the Magnetosheath: MMS Observations and Double-polytropic MHD Simulations, *The Astrophysical Journal*, 885:22 (6pp). <https://doi.org/10.3847/1538-4357/ab4417>
- ★TenBarge, J. M., Ng, J., Juno, J., Wang, L., Hakim, A. H., & Bhattacharjee, A. (2019), An extended MHD study of the 16 October 2015 MMS diffusion region crossing, *Journal of Geophysical Research: Space Physics*, 124, 8474–8487. <https://doi.org/10.1029/2019JA026731>
- ★Trenchi, L., J. C. Coxon, R. C. Fear, J. P. Eastwood, M. W. Dunlop, K. Trattner, D. J. Gershman, D. B. Graham, Yu. Khotyaintsev, and B. Lavraud (2019), Signatures of magnetic separatrices at the borders of a crater flux transfer event connected to an active Xline, *Journal of Geophysical Research: Space Physics*, 124. <https://doi.org/10.1029/2018JA026126>
- ★Vaverka, J., Pavlu, J., Nouzá, L. k., Safrankova, J., Nemecek, Z., Mann, I. B., et al. (2019), One-year analysis of dust impact-like events onto the MMS spacecraft, *Journal of Geophysical Research: Space Physics*, 124, 8179–8190. <https://doi.org/10.1029/2019JA027035>
- ★Wang, Chih-Ping, Stephen A. Fuselier, Marc Hairston, Xiao-jia Zhang, Shasha Zou, Levon A. Avanov, Robert J. Strangeway, Narges Ahmadi, and Jacob Bortnik (2019), Event studies of O^+ density variability within a quiet-time plasma sheet, *J. Geophys. Res.*, 124, 4168–4187. <https://doi.org/10.1029/2019JA026644>
- ★Wang, G. Q., Zhang, T. L., Wu, M. Y., Schmid, D., Cao, J. B., & Volwerk, M. (2019). Solar wind directional change triggering flapping motions of the current sheet: MMS observations. *Geophysical Research Letters*, 46, 64–70. <https://doi.org/10.1029/2018GL080023>
- ★Wang, S., Wang, R., Yao, S. T., Lu, Q., Russell, C. T., & Wang, S. (2019). Anisotropic electron distributions and whistler waves in a series of the flux transfer events at the magnetopause. *Journal of Geophysical Research: Space Physics*, 124, 1753–1769. <https://doi.org/10.1029/2018JA026417>

★Wang, T., Alexandrova, O., Perrone, D., Dunlop, M., Dong, X., Bingham, R., ... & Burch, J. L. (2019). Magnetospheric multiscale observation of kinetic signatures in the Alfvén vortex. *The Astrophysical Journal Letters*, 871(2), L22. <https://doi.org/10.3847/2041-8213/aafe0d>

★Wang, Z., Fu, H. S., Liu, C. M., Liu, Y. Y., Cozzani, G., Giles, B. L., Hwang, K.-J., Burch, J. L. (2019). Electron distribution functions around a reconnection Xline resolved by the FOTE method. *Geophysical Research Letters*, 46, 1195–1204. <https://doi.org/10.1029/2018GL081708>

★Wei, C., Dai, L., Duan, S.-P., Wang, C., Wang, Y.-X. (2019). Multiple satellites observation evidence: High-*m* Poloidal ULF waves with time-varying polarization states. *Earth and Planetary Physics*, 3(3): 190-203. doi: [10.26464/epp2019021](https://doi.org/10.26464/epp2019021)

★Wei, Y. Y., S. Y. Huang, Z. J. Rong, Z. G. Yuan, K. Jiang, X. H. Deng, M. Zhou, H. S. Fu, X. D. Yu, S. B. Xu, L. H. He, and D. Deng (2019), Observations of Short-period Current Sheet Flapping Events in the Earth's Magnetotail, *The Astrophysical Journal Letters*, Volume 874, Number 2. <http://doi.org/10.3847/2041-8213/AB0F28>

★Wu, H., Verscharen, D., Wicks, R. T., Chen, C. H., He, J., & Nicolaou, G. (2019). The fluid-like and kinetic behavior of kinetic Alfvén turbulence in space plasma. *The Astrophysical Journal*, 870(2), 106. <http://doi.org/10.3847/1538-4357/aaf77>

★Xu, Y., Fu, H. S., Norgren, C., ToledoRedondo, S., Liu, C. M., & Dong, X. C. (2019), Ionospheric cold ions detected by MMS behind dipolarization fronts, *Geophysical Research Letters*, 46, 7883–7892. <https://doi.org/10.1029/2019GL083885>

★Yang, Y., Wan, M., Matthaeus, W. H., Shi, Y., Parashar, T. N., Lu, Q., & Chen, S. (2019). Role of magnetic field curvature in magnetohydrodynamic turbulence. *Physics of Plasmas*, 26(7), 072306. <https://doi.org/10.1063/1.5099360>

★Yao, S. T., Shi, Q. Q., Yao, Z. H., Li, J. X., Yue, C., Tao, X., Degeling, A. W., Zong, Q. G., Wang, X. G., Tian, A. M., Russell, C. T., Zhou, X. Z., Guo, R. L., Rae, I. J., Fu, H. S., Zhang, H., Li, L., Le Contel, O., Torbert, R. B., Ergun, R. E., Lindqvist, P.-A., Pollock, C. J., Giles, B. L. (2019). Waves in kineticscale magnetic dips: MMS observations in the magnetosheath. *Geophysical Research Letters*, 46, 523–533. <https://doi.org/10.1029/2018GL080696>

★Yao, S. T., Q. Q. Shi, Z. H. Yao, R. L. Guo, Q. G. Zong, X. G. Wang, A. W. Degeling, I. J. Rae, C. T. Russell, A. M. Tian, H. Zhang, H. Q. Hu, J. Liu, H. Liu, B. Li, and B. L. Giles (2019), Electron Mirror-mode Structure: Magnetospheric Multiscale Observations, *The Astrophysical Journal Letters*, 881(2):L31 (6pp). <https://doi.org/10.3847/2041-8213/ab3398>

★Yoo, J., S. Wang, E. Yarger, J. Jara-Almonte, H. Ji, M. Yamada, L.-J. Chen, W. Fox, A. Goodman, and A. Alt (2019), Whistler wave generation by electron temperature anisotropy during magnetic reconnection at the magnetopause, *Physics of Plasmas* 26, 052902 (2019). <https://doi.org/10.1063/1.5094636>

★Zhang, L. Q., Baumjohann, W., Dai, L., Khotyaintsev, Y. V., & Wang, C. (2019). Measurements of the vorticity in the bursty bulk flows. *Geophysical Research Letters*, 46. <https://doi.org/10.1029/2019GL084597>

★Zhao, J. S., Wang, T. Y., Dunlop, M. W., Shi, C., He, J. S., Dong, X. C., et al. (2019). Large amplitude electromagnetic ion cyclotron waves and density fluctuations in the flank of the Earth's magnetosheath. *Geophysical Research Letters*, 46, 4545–4553. <https://doi.org/10.1029/2019GL081964>

★Zhao, M. J., Fu, H. S., Liu, C. M., Chen, Z. Z., Xu, Y., Giles, B. L., & Burch, J. L. (2019). Energy range of electron rolling in distribution behind depolarization front. *Geophysical Research Letters*, 46, 2390–2398. <https://doi.org/10.1029/2019GL082100>

★Zhong, Z. H., Deng, X. H., Zhou, M., Ma, W. Q., Tang, R. X., Khotyaintsev, Y. V., et al. (2019). Energy conversion and dissipation at dipolarization fronts: a statistical overview. *Geophysical Research Letters*, 46, 12,693–12,701. <https://doi.org/10.1029/2019GL085409>

★Zhong, Z. H., Zhou, M., Huang, S. Y., Tang, R. X., Deng, X. H., Pang, Y., & Chen, H. T. (2019). Observations of a kineticscale magnetic hole in a reconnection diffusion region. *Geophysical Research Letters*, 46, 6248–6257. <https://doi.org/10.1029/2019GL082637>

★Zhou, M., J. Huang, H. Y. Man, X. H. Deng, Z. H. Zhong, C. T. Russell, W. R. Paterson, B. L. Giles, P.-A. Lindqvist, Y. V. Khotyaintsev, J. L. Burch(2019), Electron-scale Vertical Current Sheets in a Bursty Bulk Flow in the Terrestrial Magnetotail, *The Astrophysical Journal Letters*, 872 (2). <https://doi.org/10.3847/2041-8213/ab0424>

★Zhou, M., Deng, X. H., Zhong, Z. H., Pang, Y., Tang, R. X., El-Alaoui, M., ... & Lindqvist, P. A. (2019). Observations of an electron diffusion region in symmetric reconnection with weak guide field. *The Astrophysical Journal*, 870(1), 34. <https://doi.org/10.3847/1538-4357/aaf16f>

★Zhou, M., Man, H. Y., Zhong, Z. H., Deng, X. H., Pang, Y., Huang, S. Y., et al. (2019). Subionscale dynamics of the ion diffusion region in the magnetotail: MMS observations, *Journal of Geophysical Research: Space Physics*, 124, 7898–7911. <https://doi.org/10.1029/2019JA026817>

★Zhu, C., Zhang, H., Fu, S., Ni, B., Strangeway, R. J., Giles, B. L., et al. (2019). Trapped and accelerated electrons within a magnetic mirror behind a flux rope on the magnetopause. *Journal of Geophysical Research: Space Physics*, 124, 3993–4008. <https://doi.org/10.1029/2019JA026464>

2018

Di Mauro, G., Lawn, M., & Bevilacqua, R. (2018). Survey on guidance navigation and control requirements for spacecraft formation-flying missions. *Journal of Guidance, Control, and Dynamics*, 41(3), 581–602. <https://doi.org/10.2514/1.G002868>

★Dong, X.-C., Dunlop, M. W., Wang, T.-Y., Cao, J.-B., Trattner, K. J., Bamford, R., Russell, C. T., Bingham, R., Strangeway, R. J., Fear, R. C., Giles, B. L., Torbert, R. B. (2018). Carriers and sources of magnetopause current: MMS case study. *Journal of Geophysical Research: Space Physics*, 123, 5464–5475. <https://doi.org/10.1029/2018JA025292>

★Egedal, J., A. Le, W. Daughton, B. Wetheron, P.A. Cassak, J.L. Burch, B. Lavraud, J. Dorelli, D.J. Gershman, and L.A. Avanov (2018), Spacecraft Observations of Oblique Electron Beams Breaking the Frozen-In Law During Asymmetric Reconnection, *Phys. Rev. Lett.* 120, 055101. <http://doi.org/10.1103/PHYSREVLETT.120.055101>

★★Engelbreton, M. J., J. L. Posch, N. S. S. Capman, N. G. Campuzano, P. Blik, R. C. Allen, S. K. Vines, B. J. Anderson, S. Tian, C. A. Cattell, J. R. Wygant, S. A. Fuselier, M. R. Argall, M. R. Lessard, R. B. Torbert, M. B. Moldwin, M. D. Hartinger, H. Kim, C. T. Russell, C. A. Kletzing, G. D. Reeves, and H. J. Singer (2018). MMS, Van Allen Probes, GOES 13, and ground-based magnetometer observations of EMICwave events before, during, and after a modest interplanetary shock. *Journal of Geophysical Research: Space Physics*, 123, 8331–8357. <https://doi.org/10.1029/2018JA025984>

★ Fox, W., Wilder, F. D., Eriksson, S., Jara-Almonte, J., Pucci, F., Yoo, J., et al. (2018). Energy conversion by parallel electric fields during guide field reconnection in scaled laboratory and space experiments. *Geophysical Research Letters*, 45, 12,677–12,684. <https://doi.org/10.1029/2018GL079883>

Ganguli, G., Crabtree, C., Fletcher, A.C. *et al.* (2018). Kinetic Equilibrium of Dipolarization Fronts. *Sci Rep* 8, 17186. <https://doi.org/10.1038/s41598-018-35349-9>

★ Giagkiozis, S., Wilson, L. B., Burch, J. L., Le Contel, O., Ergun, R. E., Gershman, D. J., Lindqvist, P.-A., Mirioni, L., Moore, T. E., Strangeway, R. J. (2018). Statistical study of the properties of magnetosheath lion roars. *Journal of Geophysical Research: Space Physics*, 123, 5435–5451. <https://doi.org/10.1029/2018JA025343>

★ ★ Gingell, I., Schwartz, S., Gershman, D. J., Paterson, W. R., Desai, R. T., Giles, B. L., Pollock, C. J., Avanov, L. A. (2018). Production of negative hydrogen ions within the MMS Fast Plasma Investigation due to solar wind bombardment. *Journal of Geophysical Research: Space Physics*, 123, 6161–6170. <https://doi.org/10.1029/2018JA025341>

★ Hamrin, M., Gunell, H., Lindqvist, J., Lindqvist, P.-A., Ergun, R. E., & Giles, B. L. (2018). Bow shock generator current systems: MMS observations of possible current closure. *Journal of Geophysical Research: Space Physics*, 123, 242–258. <https://doi.org/10.1002/2017JA024826>

★ Han, De-Sheng, J. J. Liu, X.-C. Chen, T. Xu, B. Li, Z.-J. Hu, H.-Q. Hu, H. G. Yang, S. A. Fuselier, and C. J. Pollock (2018). Direct evidence for throat aurora being the ionospheric signature of magnetopause transient and reflecting localized magnetopause indentations. *Journal of Geophysical Research: Space Physics*, 123, 2658–2667. <https://doi.org/10.1002/2017JA024945>

★ Huang, S. Y., F. Sahraoui, Z. G. Yuan, O. Le Contel, H. Breuillard, J. S. He, J. S. Zhao, H. S. Fu, M. Zhou, X. H. Deng, X. Y. Wang, J. W. Du, X. D. Yu, D. D. Wang, C. J. Pollock, R. B. Torbert, and J. L. Burch (2018), Observations of Whistler Waves Correlated with Electron-scale Coherent Structures in the Magnetosheath Turbulent Plasma, *The Astrophysical Journal*, 861(1). <http://doi.org/10.3847/1538-4357/AAC831>

★ Huang, S. Y., K. Jiang, Z. G. Yuan, F. Sahraoui, L. H. He, M. Zhou, H. S. Fu, X. H. Deng, J. S. He, D. Cao, X. D. Yu, D. D. Wang, J. L. Burch, C. J. Pollock, and R. B. Torbert (2018), Observations of the Electron Jet Generated by Secondary Reconnection in the Terrestrial Magnetotail, *The Astrophysical Journal*, 862(2). <http://doi.org/10.3847/1538-4357/AACD4C>

★ Li, J., Bortnik, J., An, X., Li, W., Russell, C. T., Zhou, M., BHerhcm, J., Zhao, C., Wang, S., Torbert, R. B., Le Contel, O., Ergun, R. E., Lindqvist, P.-A., Pollock, C. J., Burch, J. L. (2018). Local excitation of whistler mode waves and associated Langmuir waves at dayside reconnection regions. *Geophysical Research Letters*, 45, 8793–8802. <https://doi.org/10.1029/2018GL078287>

★ Liu, C. M., Fu, H. S., Vaivads, A., Khotyaintsev, Y. V., Gershman, D. J., Hwang, K.-J.,...Le Contel, O. (2018). Electron jet detected by MMS at dipolarization front. *Geophysical Research Letters*, 45, 556–564. <https://doi.org/10.1002/2017GL076509>

★ Liu, C. M., Fu, H. S., Xu, Y., Khotyaintsev, Y. V., Burch, J. L., Ergun, R. E., Gershman, Torbert, R. B. (2018). Electron-scale measurements of dipolarization front. *Geophysical Research Letters*, 45, 4628–4638. <https://doi.org/10.1029/2018GL077928>

★ Liu, S., Zhang, J., Chen, L., Zhu, H., & He, Z. (2018). Examining wave vector and minimum cyclotron resonant electron energy of EMIC waves with Magnetospheric Multiscale mission. *Geophysical Research Letters*, 45, 10,138–10,149. <https://doi.org/10.1029/2018GL079737>

★ Lou, Y., Gu, X., Summers, D., Ni, B., Liu, K., Fu, S., Xiang, Z., Zou, Z., Cao, X., Zhang, W., Huang, H., He, Y. (2018). Statistical distributions of dayside ECH waves observed by MMS. *Geophysical Research Letters*, 45, 12,730–12,738. <https://doi.org/10.1029/2018GL080125>

★ Lv, X., and W. L. Liu (2018), Measurements of convection electric field in the inner magnetosphere, *Science China Technological Sciences*, 61(12), 1866–1871. <http://doi.org/10.1007/S11431-017-9200-6>

★ Macek, W. M., A. Krasiska, M. V. D. Silveira, D. G. Sibeck, A. Wawrzaszek, J. L. Burch, and C. T. Russell (2018), Magnetospheric Multiscale Observations of Turbulence in the Magnetosheath on Kinetic Scales, *The Astrophysical Journal Letters*, 864(2). <http://doi.org/10.3847/2041-8213/AAD9A8>

★ Man, H. Y., Zhou, M., Deng, X. H., Fu, H. S., Zhong, Z. H., Chen, Z. Z., Russell, C. T., Strangeway, R. J., Paterson, W. R., Giles, B. L., Lindqvist, P.-A., Ergun, R. E., Burch, J. L. (2018). In situ observation of magnetic reconnection between an earthward propagating flux rope and the geomagnetic field. *Geophysical Research Letters*, 45, 8729–8737. <https://doi.org/10.1029/2018GL079778>

★ ★ Moretto, T., Hesse, M., Vennerstrøm, S., & Tenfjord, P. (2018). Estimating the rate of cessation of magnetospheric activity in AMPERE fieldaligned currents. *Geophysical Research Letters*, 45, 12,713–12,719. <https://doi.org/10.1029/2018GL080631>

Murphy, K. R., Inglis, A. R., Sibeck, D. G., Rae, I. J., Watt, C. E. J., Silveira, M., et al. (2018). Determining the mode, frequency, and azimuthal wave number of ULF waves during a HSS and moderate geomagnetic storm. *Journal of Geophysical Research: Space Physics*, 123, 6457–6477. <https://doi.org/10.1029/2017JA024877>

★ ★ ★ Oimatsu, S., Nosé, M., Teramoto, M., Yamamoto, K., Matsuoka, A., Kasahara, S., Yokota, S., Keika, K., Le, G., Nomura, R., Fujimoto, A., Sormakov, D., Troshichev, O., Tanaka, Y.-M., Shinohara, M., Shinohara, I., Miyoshi, Y., Slavin, J. A., Ergun, R. A., Lindqvist, P.-A. (2018). Drift-bounce resonance between Pc5 pulsations and ions at multiple energies in the nightside magnetosphere: Arase and MMS observations. *Geophysical Research Letters*, 45, 7277–7286. <https://doi.org/10.1029/2018GL078961>

★ Paschmann, G., S. E. Haaland, T. D. Phan, B. U. Ö. Sonnerup, J. L. Burch, R. B. Torbert, D. J. Gershman, J. C. Dorelli, B. L. Giles, C. Pollock, C. T. Russell, R. J. Strangeway, S. A. Fuselier (2018). Large-scale survey of the structure of the dayside magnetopause by MMS. *Journal of Geophysical Research: Space Physics*, 123, 2018–2033. <https://doi.org/10.1002/2017JA025121>

★ Pecora, F., Servidio, S., Greco, A., Matthaeus, W. H., Burgess, D., Haynes, C. T., ... & Veltri, P. (2018). Ion diffusion and acceleration in plasma turbulence. *Journal of Plasma Physics*, 84(6). <https://doi.org/10.1017/S0022377818000995>

★ Pezzi, O., Servidio, S., Perrone, D., Valentini, F., Sorriso-Valvo, L., Greco, A., ... & Veltri, P. (2018). Velocity-space cascade in magnetized plasmas: Numerical simulations. *Physics of Plasmas*, 25(6), 060704. <https://doi.org/10.1063/1.5027685>

★ Rezeau, L., Belmont, G., Manuzzo, R., Aunai, N., & Dargent, J. (2018). Analyzing the magnetopause internal structure: New possibilities offered by MMS tested in a case study. *Journal of Geophysical Research: Space Physics*, 123, 227–241. <https://doi.org/10.1002/2017JA024526>

★ ★ Roberts, O. W., Toledo-Redondo, S., Perrone, D., Zhao, J., Narita, Y., Gershman, D., Nakamura, R., Lavraud, B., Escoubet, C. P., Giles, B., Dorelli, J., Pollock, C., Burch, J. (2018). Ion-scale kinetic Alfvén turbulence: MMS measurements of the Alfvén ratio in the magnetosheath. *Geophysical Research Letters*, 45, 7974–7984. <https://doi.org/10.1029/2018GL078498>

★Tang, B. B., Li, W. Y., Wang, C., Dai, L., & Han, J. P. (2018). Effect of kinetic Alfvén waves on electron transport in an ion-scale flux rope. *Chinese Physics Letters*, 35(11), 119401. <https://doi.org/10.1088/0256-307X/35/11/119401>

★Tang, B., W. Li, C. Wang, L. Dai, Yuri Khotyaintsev, Per-Arne Lindqvist, Robert Ergun, Olivier Le Contel, Craig Pollock, Christopher Russell, and James Burch (2018), Magnetic depression and electron transport in an ion-scale flux rope associated with Kelvin–Helmholtz waves, *Ann. Geophys.*, 36, 879–889. <https://doi.org/10.5194/angeo-36-879-2018>

★Vasko, I. Y., Mozer, F. S., Krasnoselskikh, V. V., Artemyev, A. V., Agapitov, O. V., Bale, S. D., Avanov, L., Ergun, R., Giles, B., Lindqvist, P.-A., Russell, C. T., Strangeway, R., Torbert, R. (2018). Solitary waves across upper critical quasi-perpendicular shocks. *Geophysical Research Letters*, 45, 5809–5817. <https://doi.org/10.1029/2018GL077835>

★Vaverka, J., Nakamura, T., Kero, J., Mann, I. B., De Spiegeleer, A., Hamrin, M., et al. (2018). Comparison of dust impact and solitary wave signatures detected by multiple electric field antennas onboard the MMS spacecraft. *Space Physics*, 123, 6119–6129. <https://doi.org/10.1029/2018JA025380>

★Walia, N. K., Seki, K., Hoshino, M., Amano, T., Kitamura, N., Saito, Y., Yokota, S., Pollock C. J., Giles, B. L., Moore, T. E., Torbert, R. B., Russell, C. T., Burch, J. L. (2018). A statistical study of slow-mode shocks observed by MMS in the dayside magnetopause. *Geophysical Research Letters*, 45, 4675–4684. <https://doi.org/10.1029/2018GL077580>

★Wang, R., Lu, Q., Nakamura, R., Baumjohann, W., Huang, C., Russell, C. T., Burch, J. L., Pollock, C. J., Gershman, D., Ergun, R. E. (2018). An electron-scale current sheet without bursty reconnection signatures observed in the near-Earthtail. *Geophysical Research Letters*, 45, 4542–4549. <https://doi.org/10.1002/2017GL076330>

★Yao, S. T., Shi, Q. Q., Guo, R. L., Yao, Z. H., Tian, A. M., Degeling, A. W.,...Liu, H.(2018). Magnetospheric Multiscale observations of electron scale magnetic peak. *Geophysical Research Letters*, 45, 527–537. <https://doi.org/10.1002/2017GL075711>

★Yao, S. T., Shi, Q. Q., Liu, J., Yao, Z. H., Guo, R. L., Ahmadi, N., Degeling, A. W., Zong, Q. G., Wang, X. G., Tian, A. M., Russell, C. T., Fu, H. S., Pu, Z. Y., Fu, S. Y., Zhang, H., Sun, W. J., Li, L., Xiao, C. J., Feng, Y. Y., Giles, B. L. (2018). Electron dynamics in magnetosheath mirror-mode structures. *Journal of Geophysical Research: Space Physics*, 123, 5561–5570. <https://doi.org/10.1029/2018JA025607>

★Zhao, J. S., T. Y. Wang, M. W. Dunlop, J. S. He, X. C. Dong, D. J. Wu, Yu. V. Khotyaintsev, R. E. Ergun, C. T. Russell, B. L. Giles, R. B. Torbert, and J. L. Burch (2018), Modulation of Ion and Electron Pitch Angle in the Presence of Large-amplitude, Low-frequency, Left-hand Circularly Polarized Electromagnetic Waves Observed by MMS, *The Astrophysical Journal*, Volume 867, Number 1. <http://doi.org/10.3847/1538-4357/AAE097>

★Zhong, Z. H., R.X. Tang, M. Zhou, X.H. Deng, Y. Pang, W.R. Paterson, B.L. Giles, J.L. Burch, R.B. Torbert, R.E. Ergun, Y.V. Khotyaintsev, and P.-A. Lindqvist (2018), Evidence for Secondary Flux Rope Generated by the Electron Kelvin-Helmholtz Instability in a Magnetic Reconnection Diffusion Region, *Phys. Rev. Lett.* 120, 075101. <http://doi.org/10.1103/PHYSREVLETT.120.075101>

★Zhou, M., Berchem, J., Walker, R. J., El-Alaoui, M., Goldstein, M. L., Lapenta, G., Deng, X., Li, J., Le Contel, O., Graham, D. B., Lavraud, B., Paterson, W. R., Giles, B. L., Torbert, R. B., Russell, C. T., Strangeway, R. J., Zhao, C., Ergun, R. E., Lindqvist, P.-A., Marklund, G. (2018). Magnetospheric Multiscale observations of an ion diffusion region with large guide field at the magneto-pause: Current system, electron heating, and plasma waves. *Journal of Geophysical Research: Space Physics*, 123, 1834–1852. <https://doi.org/10.1002/2017JA024517>

2017

★☆☆ Allanson, O., F. Wilson, T. Neukirch, Y.-H. Liu, and J. D. B. Hodgson (2017), Exact Vlasov-Maxwell equilibria for asymmetric current sheets, *Geophys. Res. Lett.*, 44, 8685–8695. <https://doi.org/10.1002/2017GL074168>

★ Cao, D., Fu, H. S., Cao, J. B., Wang, T. Y., Graham, D. B., Chen, Z. Z., Peng, F. Z., Huang, S. Y., Khotyaintsev, Y., Andre, M., Russell, C. T., Giles, B. L., Lindqvist, P.-A., Torbert, R. B., Ergun, R. E., Le Contel, O., Burch, J. L. (2017), MMS observations of whistler waves in electron diffusion region, *Geophys. Res. Lett.*, 44, 3954–3962. <http://doi.org/10.1002/2017GL072703>

★☆☆ Cattell, C., Breneman, A., Colpitts, C., Dombeck, J., Thaller, S., Tian, S., Wygant, J., Fennell, J., Hudson, M. K., Ergun, R., Russell, C. T., Torbert, R., Lindqvist, P.-A., Burch, J. (2017), Dayside response of the magnetosphere to a small shock compression: Van Allen Probes, Magnetospheric MultiScale, and GOES-13, *Geophys. Res. Lett.*, 44, 8712–8720, <http://doi.org/10.1002/2017GL074895>.

★ Dai, L., C. Wang, Y. Zhang, B. Lavraud, J. Burch, C. Pollock, and R. B. Torbert (2017), Kinetic Alfvén wave explanation of the Hall fields in magnetic reconnection, *Geophys. Res. Lett.*, 44, 634–640. <http://doi.org/10.1002/2016GL071044>

★ Dimmock, A. P., A. Osmane, T. I. Pulkkinen, K. Nykyri, and E. Kilpua (2017), Temperature variations in the dayside magnetosheath and their dependence on ion-scale magnetic structures: THEMIS statistics and measurements by MMS, *J. Geophys. Res. Space Physics*, 122, 6165–6184, <http://doi.org/10.1002/2016JA023729>

★☆☆ Dong, X.-C., Dunlop, M. W., Trattner, K. J., Phan, T. D., Fu, H.-S., Cao, J.-B., Russell, C. T., Giles, B. L., Torbert, R. B., Le, G., Burch, J. L. (2017), Structure and evolution of flux transfer events near dayside magnetic reconnection dissipation region: MMS observations, *Geophys. Res. Lett.*, 44, 5951–5959. <http://doi.org/10.1002/2017GL073411>

Ek-In, S., Malakit, K., Ruffolo, D., Shay, M. A., & Cassak, P. A. (2017). Effects of a Guide Field on the Larmor Electric Field and Upstream Electron Temperature Anisotropy in Collisionless Asymmetric Magnetic Reconnection. *The astrophysical journal*, 845(2), 113. <https://doi.org/10.3847/1538-4357/aa7f2c>

★ Han, D.-S., Li, J.-X., Nishimura, Y., Lyons, L. R., Bortnik, J., Zhou, M., Liu, J.-J., Liu, Z.-J., Hu, H.-Q., Yang, H.-G., Fuselier, S. A., Le Contel, O., Ergun, R. E., Malaspina, D., Lindqvist, P.-A., Pollock, C. J. (2017), Coordinated observations of two types of diffuse auroras near magnetic local noon by Magnetospheric Multiscale mission and ground all-sky camera, *Geophys. Res. Lett.*, 44, 8130–8139. <http://doi.org/10.1002/2017GL074447>

★ Huang, S. Y., F. Sahraoui, Z. G. Yuan, J. S. He, J. S. Zhao, O. Le Contel, X. H. Deng, M. Zhou, H. S. Fu, Q. Q. Shi, Lavraud, B., Pang, Y., Jang, J., Wang, D. D., Li, H. M., Yu, X. D., Pollock, C. J., Giles, B. L., Torbert, R. B., Russell, C. T., Goodrich, K. A., Gershman, D. J., Moore, T. E., Ergun, R. E., Khotyaintsev, Y. V., Lindqvist, P.-A., Strangeway, R. J., Magnes, W., Bromund, K., Leinweber, H., Plaschke, F., Anderson, B. J., Burch, J. L. (2017), Magnetospheric Multiscale Observations of Electron Vortex Magnetic Hole in the Turbulent Magnetosheath Plasma, *The Astrophysical Journal Letters*, Volume 836, Number 2. <http://doi.org/10.3847/2041-8213/AA5F50>

★ Huang, S. Y., Du, J. W., Sahraoui, F., Yuan, Z. G., He, J. S., Zhao, J. S., Le Contel, O., Breuillard, H., Wang, D. D., Yu, X. D., Deng, X. H., Fu, H. S., Zhou, M., Pollock, C. J., Torbert, R. B., Russell, C. T., Burch, J. L. (2017), A statistical study of kinetic-size magnetic holes in turbulent magnetosheath: MMS observations, *J. Geophys. Res. Space Physics*, 122, 8577–8588. <http://doi.org/10.1002/2017JA024415>

★Li, J., Bortnik, J., Li, W., Ma, Q., Thorne, R. M., Kletzing, C. A., Kurth, W. S., Hospodarsky, G. B., Wygant, J., Breneman, A., Thaller, S., Funstein, H. O., Mitchell, D. G., Manweiler, J. W., Torbert, R. B., Le Contel, O., Ergun, R. E., Lindqvist, P.-A., Torkar, K., Andriopoulou, M., Russell, C. T. (2017), "Zipper-Like" Periodic Magnetosonic Waves: Van Allen Probes, THEMIS, and Magnetospheric Multiscale Observations, *J. Geophys. Res. Space Physics*, 122, <http://doi.org/10.1002/2016JA023536>

★Peng, F. Z., Fu, H. S., Cao, J. B., Graham, D. B., Chen, Z. Z., Cao, D., Xu, Y., Huang, S. Y., Wang, T. Y., Khotyaintsev, Y. V., Andre, M., Russell, C. T., Giles, B., Lindqvist, P.-A., Torbert, R. B., Ergun, R. E., Burch, J. L. (2017), Quadrupolar pattern of the asymmetric guide-field reconnection, *J. Geophys. Res. Space Physics*, 122, 6349–6356. <http://doi.org/10.1002/2016JA023666>

Pucci, F., Servidio, S., Sorriso-Valvo, L., Olshevsky, V., Matthaeus, W. H., Malara, F., ... & Lapenta, G. (2017). Properties of turbulence in the reconnection exhaust: numerical simulations compared with observations. *The Astrophysical Journal*, 841(1), 60. <https://doi.org/10.3847/1538-4357/aa704f>

★Teh, W.-L., Nakamura, T. K. M., Nakamura, R., Baumjohann, W., Russell, C. T., Pollock, C., Lindqvist, P.-A., Ergun, R. E., Burch, J. L., Torbert, R. B., Giles, B. L. (2017), Evolution of atypical ion-scale magnetic flux rope caused by thermal pressure enhancement, *J. Geophys. Res. Space Physics*, 122, 2040–2050. <http://doi.org/10.1002/2016JA023777>.

★Teh, W.L., R.E. Denton, B.U.O. Sonnerup, and C. Pollock (2017), MMS observations of oblique small-scale magnetopause flux ropes near the ion diffusion region during weak guide-field reconnection, *Geophys. Res. Lett.*, 44 (13). <https://doi.org/10.1002/2017gl074291>

★Wang, R., Lu, Q., Nakamura, R., Baumjohann, W., Russell, C. T., Burch, J. L., Ergun, R. E., Gershman, D. (2017). Interaction of magnetic flux ropes via magnetic reconnection observed at the magnetopause. *Journal of Geophysical Research: Space Physics*, 122, 10,436–10,447. <https://doi.org/10.1002/2017JA024482>

★Wang, X. Y., S. Y. Huang, R. C. Allen, H. S. Fu, X. H. Deng, M. Zhou, J. L. Burch, and R. B. Torbert (2017), The occurrence and wave properties of EMIC waves observed by the Magnetospheric Multiscale (MMS) mission, *J. Geophys. Res. Space Physics*, 122, 8228–8240. <http://doi.org/10.1002/2017JA024237>

★Yao, S. T., X. G. Wang, Q. Q. Shi, T. Pitkänen, M. Hamrin, Z. H. Yao, Z. Y. Li, X. F. Ji, A. De Spiegeleer, Y. C. Xiao, A. M. Tian, Z. Y. Pu, Q. G. Zong, C. J. Xiao, S. Y. Fu, H. Zhang, C. T. Russell, B. L. Giles, R. L. Guo, W. J. Sun, W. Y. Li, X. Z. Zhou, S. Y. Huang, J. Vaverka, M. Nowada, S. C. Bai, M. M. Wang, J. Liu (2017), Observations of kinetic-size magnetic holes in the magnetosheath, *J. Geophys. Res. Space Physics*, 122, 1990–2000. <http://doi.org/10.1002/2016JA023858>

★Yao, Z., I. J. Rae, R. L. Guo, A. N. Fazakerley, C. J. Owen, R. Nakamura, W. Baumjohann, C. E. J. Watt, K. J. Hwang, B. L. Giles, C. T. Russell, R. B. Torbert, A. Varsani, H. S. Fu, Q. Q. Shi, X. J. Zhang (2017), A direct examination of the dynamics of depolarization fronts using MMS, *J. Geophys. Res. Space Physics*, 122, 4335–4347. <http://doi.org/10.1002/2016JA023401>

★Yu, X., Z. Yuan, S. Huang, D. Wang, H. Li, Z. Qiao, and F. Yao (2017), EMIC waves covering wide L shells: MMS and Van Allen Probes observations, *J. Geophys. Res. Space Physics*, 122, 7387–7395, <http://doi.org/10.1002/2017JA023982>

★Zhang, Y. C., B. Lavraud, L. Dai, C. Wang, A. Marchaudon, L. Avanov, J. Burch, M. Chandler, J. Dorelli, S. P. Duan, R. E. Ergun, D. J. Gershman, B. Giles, Y. V. Khotyaintsev, P. A. Lindqvist, W. Paterson, C. T. Russell, C. Schiff, B. B. Tang, R. Torbert (2017), Quantitative analysis of a Hall system in the exhaust of asymmetric magnetic reconnection, *J. Geophys. Res. Space Physics*, 122, 5277–5289. <http://doi.org/10.1002/2016JA023620>

★Divin, A., V. Semenov, D. Korovinskiy, S. Markidis, J. Deca, V. Olshevsky, and G. Lapenta (2016), A new model for the electron pressure nongyrotropy in the outer electron diffusion region, *Geophys. Res. Lett.*, 43, 10,565–10,573, <http://doi.org/10.1002/2016GL070763>

★Fu, H. S., et al. (2016), Identifying magnetic reconnection events using the FOTE method, *J. Geophys. Res. Space Physics*, 121, 1263–1272. <http://doi.org/10.1002/2015JA021701>

★Huang, S. Y., F. Sahraoui, A. Retino, O. Le Contel, Z. G. Yuan, A. Chasapis, N. Aunai, H. Breuillard, X. H. Deng, M. Zhou, H. S. Fu, Y. Pang, D. D. Wang, R. B. Torbert, K. A. Goodrich, R. E. Ergun, Y. V. Khotyaintsev, P. A. Lindqvist, C. T. Russell, R. J. Strangeway, W. Magnes, K. Bromund, H. Leinweber, F. Plaschke, B. J. Anderson, C. J. Pollock, B. L. Giles, T. E. Moore, J. L. Burch (2016), MMS observations of ion-scale magnetic island in the magnetosheath turbulent plasma, *Geophysical Research Letters*, 43 (15), 7850-7858, <https://doi.org/10.1002/2016GL070033>

★Innocenti, M. E., C. Norgren, D. Newman, M. Goldman, S. Markidis, and G. Lapenta (2016), Study of electric and magnetic field fluctuations from lower hybrid drift instability waves in the terrestrial magnetotail with the fully kinetic, semi-implicit, adaptive multi level multi domain method, *PHYSICS OF PLASMAS*, 23 (5), <https://doi.org/10.1063/1.4952630>

★Nagai, T., N. Kitamura, H. Hasegawa, I. Shinohara, S. Yokota, Y. Saito, R. Nakamura, B. L. Giles, C. Pollock, T. E. Moore, J. C. Dorelli, D. J. Gershman, W. R. Paterson, L. A. Avanov, M. O. Chandler, V. Coffey, J. A. Sauvaud, B. Lavraud, C. T. Russell, R. J. Strangeway, M. Oka, K. J. Genestreti, J. L. Burch (2016), Thick escaping magnetospheric ion layer in magnetopause reconnection with MMS observations, *Geophysical Research Letters*, 43(12), 6028-6035, <https://doi.org/10.1002/2016GL069085>

★Zenitani, S., and T. Nagai (2016), Particle dynamics in the electron current layer in collisionless magnetic reconnection, *Physics of Plasmas*, 23(10), <https://doi.org/10.1063/1.4963008>

2015

★Cazzola, E., M. Innocenti, S. Markidis, M. Goldman, D. Newman, and G. Lapenta (2015), On the electron dynamics during island coalescence in asymmetric magnetic reconnection, *Physics of Plasmas*, 22(9), <https://doi.org/10.1063/1.4929847>

★Hamrin, M., L. Andersson, A. Vaivads, T. Pitkanen, and H. Gunell (2015), The use of the power density for identifying reconnection regions, *Journal of Geophysical Research-Space Physics*, 120(10), 8644-8662, <https://doi.org/10.1002/2015JA021535>

★★Olshevsky, V., A. Divin, E. Eriksson, S. Markidis, and G. Lapenta (2015), ENERGY DISSIPATION IN MAGNETIC NULL POINTS AT KINETIC SCALES, *Astrophysical Journal*, 807(2), <https://doi.org/10.1088/0004-637X/807/2/155>

★Rai, R. K., S. Sharma, N. Yadav, M. L. Goldstein, and R. P. Sharma (2015), Effect of magnetic islands on the localization of kinetic Alfvén wave, *Physics of Plasmas*, 22(12), <https://doi.org/10.1063/1.4936873>

★Zhang, L., A. Lui, W. Baumjohann, and J. Wang (2015), Probabilities of magnetic reconnection encounter at different activity levels in the Earth's magnetotail, *Advances in Space Research*, 56(4), 736-741, <https://doi.org/10.1016/j.asr.2015.05.001>

2014

★Huang, S., M. Zhou, Z. Yuan, X. Deng, F. Sahraoui, Y. Pang, and S. Fu (2014), Kinetic simulations of electric field structure within magnetic island during magnetic reconnection and their applications to the satellite observations, *Journal of Geophysical Research-Space Physics*, 119(9), <https://doi.org/10.1002/2014JA020054>

2013

★Karimabadi, H., H. Karimabadi, V. Roytershteyn, M. Wan, W. H. Matthaeus, W. Daughton, P. Wu, M. Shay, B. Loring, J. Borovsky, E. Leonardis, S. C. Chapman, and T. K. M. Nakamura (2013), Coherent structures, intermittent turbulence, and dissipation in high-temperature plasmas, *Physics of Plasmas*, 20(1), <https://doi.org/10.1063/1.4773205>