

Binzheng Zhang

Office Address:
303 James Lee Science Building
Department of Earth and Planetary Sciences
University of Hong Kong
Pokfulam Rd., Hong Kong S.A.R. China, 999077

Work Phone: +852 3917 8251

Work Email: binzh@hku.hk

Academic Qualifications

Year	Degree	Field	Institution
2005	B.Sc.	Electrical Engineering	Zhejiang University (China)
2007	M.Sc.	Electrical Engineering	Zhejiang University (China)
2012	Ph.D.	Engineering Sciences	Dartmouth College (USA)

Academic Appointments

Period	Position	Institution
2023-Present	Associate Professor	University of Hong Kong (S.A.R. China)
2018-2023	Assistant Professor	University of Hong Kong (S.A.R. China)
2016-2018	Postdoctoral Fellow	National Center for Atmospheric Research (USA)
2012-2015	Lecturer, Research Scientist	Dartmouth College (USA)

Honorary Academic Appointments

Period	Position	Institution
2019-Present	McQueen Fellow	National Center for Atmospheric Research (USA)

Honours and Awards

- Research Fellow, RGC, Hong Kong, 2025
- Outstanding Young Researcher Award, HKU, 2023
- Excellent Young Scientist Award, NSFC, 2019
- Early Career Scheme Award, UGC Research Grants Council, 2018
- Science and Technique Achievement Award, UCAR, 2016
- NASA-Space Grant Award, 2011

Research and Scholarship

Journal Publications

1. **Yin, Q.**, Feng, E., **Zhang, B.**, Lotko, W., Pham, K. H., Zheng, Z., Yang, Z., Dang, T., Fu, H., & Brambles, O. (2026). Alfvénic Poynting flux characterized by a substorm-SMC cycle and ionospheric influence. *Space Weather*, 24(8), e2026SW005078.
2. **Luo, H.**, **Zhang, B.**, Tian, J., Cai, J., Chen, J., Feng, E., Zheng, Z., Xi, S., & Lyon, J. G. (2026). GAMERA-OP: A three-dimensional finite-volume magnetohydrodynamic solver for orthogonal curvilinear geometries. *The Astrophysical Journal Supplement Series*, 285(1), 15.
3. **Chen, J.**, Delamere, P. A., Lotko, W., Xu, Y., Yao, Z., Brambles, O., Feng, E., Yang, Z., Pham, K. H., & **Zhang, B.** (2026). The role of planetary rotation in polar cusp localization. *Geophysical Research Letters*, 53(10), e2026GL122024.
4. **Zhang, M.**, Dang, T., Lei, J., **Zhang, B.**, Wang, R., Xiao, S., Zhang, T., Chen, J., & Yan, M. (2026). Shock-induced magnetic reconnection in the Venusian magnetotail. *Nature Communications*, 17(1), 6513.
5. **Yan, M.**, Lei, J., Terada, N., **Zhang, B.**, Dang, T., Sakata, R., Sakai, S., & Ma, Y. (2026). Asymmetrically distributed Kelvin-Helmholtz instability at Venusian magnetosphere. *Geophysical Research Letters*, 53(7), e2026GL121691.
6. **Xu, Y.**, Yao, Z. H., Arridge, C. S., **Zhang, B.**, Chen, J. J., Badman, S. V., Ray, L. C., Coates, A. J., Ye, S.-Y., Qin, T. S., Zheng, Z. Q., Dunn, W. R., & Wei, Y. (2026). Dawn-dusk asymmetrical distribution of Saturn's cusp. *Nature Communications*, 17(1), 1861.

7. Yan, T., Yu, Y., Ma, L., An, D., Wei, Z., **Zhang, B.**, Chen, J., & Wu, X. (2026). Proton trapping in Ganymede's magnetosphere: A quantitative test particle study. *The Astrophysical Journal*, 999(2), 208.
8. Gu, W., Wei, Y., Yao, Z., Yan, L., Xu, Y., & **Zhang, B.** (2026). An investigation on the apparent north-south asymmetry identified in multiple current sheet crossing events in Jovian dawn outer magnetosphere. *Journal of Geophysical Research: Space Physics*, 131(3), e2025JA034597.
9. Yan, M., Lei, J., Yang, Z., **Zhang, B.**, & Dang, T. (2026). A simulation study of an HFA-like event at Mars. *The Astrophysical Journal*, 999(1), 7.
10. Cai, J., Dang, T., Lei, J., **Zhang, B.**, Yao, Z., Chen, J., Xu, X., Xiao, S., & Zhang, T. (2026). Response of Venusian plasma environment to the interplanetary coronal mass ejections on 5 November 2011: A magnetohydrodynamics simulation study. *Astronomy & Astrophysics*, 706, A118.
11. Yan, T., Yu, Y., An, D., Ma, L., **Zhang, B.**, Chen, J., Gong, F., Bai, K., & Wu, X. (2026). Off-equatorial electron trajectories in Ganymede's magnetosphere: Implications for a bifurcated ring current under different Jovian wind conditions. *The Astrophysical Journal*, 997(2), 305.
12. Sun, J. W., Xie, L., Yao, Z. H., Fu, S. Y., **Zhang, B.**, Xu, Y., Leppard, F., Chen, Y. N., Grodent, D., Ray, L. C., Bonfond, B., & Dunn, W. R. (2025). Determining the state of Jupiter's magnetosphere using in situ and remote sensing observations. *The Astrophysical Journal*, 995(1), 7.
13. Yao, Z. H., Xu, Y., Zeng, Z. L., **Zhang, B.**, Grodent, D., Bonfond, B., Chen, Y. N., Dunn, W. R., Sun, J. W., Ebert, R. W., Connerney, J. E. P., & Allegrini, F. (2025). Rotating finger-like structures of Jovian magnetodisc. *Geophysical Research Letters*, 52(15), e2025GL116277.
14. Feng, E., **Zhang, B.**, Yao, Z., Delamere, P. A., Zheng, Z., Dunn, W. R., & Ye, S.-Y. (2025). Control of the Jovian magnetopause by iogenic plasma: Initial results from global MHD simulations. *Geophysical Research Letters*, 52(7), e2024GL112624.
15. Yang, Z., **Zhang, B.**, Lotko, W., & Lei, J. (2025). Global evolution, energetics, and origins of auroral streamers. *Geophysical Research Letters*, 52(12), e2025GL115681.
16. Dang, T., Lei, J., **Zhang, B.**, Xiao, S., Zhang, T., He, J., Chen, J., Yan, M., & Yao, Z. (2025). Unveiling the global characteristics of turbulence in the Venusian space environment. *Geophysical Research Letters*, 52(14), e2025GL116892.
17. Long, M., Ni, B., Roussos, E., Summers, D., Blanc, M., Xiao, Z., Cao, X., Yao, Z., **Zhang, B.**, Ye, S., & others. (2025). Long-term enhancing of Jupiter's electrostatic waves as diagnostic of Io's mass loading activity. *Science Bulletin*.
18. Jiang, K., Lei, J., Yan, M., & **Zhang, B.** (2025). Numerical simulation of Martian ionospheric irregularities. *Journal of Geophysical Research: Planets*, 130(3), e2024JE008898.
19. Leppard, F., Patrick, A., Ray, L., Dunn, W. R., Smith, H. T., Yao, Z., **Zhang, B.**, Sun, T., & Wang, C. (2025). Estimating solar wind charge exchange generated soft x-rays in the Jovian magnetosheath. *Journal of Geophysical Research: Space Physics*, 130(7), e2024JA033415.
20. Feng, E., Zheng, Z., **Zhang, B.**, Yao, Z., & Delamere, P. A. (2025). Dawn-dusk asymmetry of Kelvin-Helmholtz vortices along the Kronian magnetopause. *Geophysical Research Letters*, 52(11), e2025GL114758.
21. Shang, Z., Yao, Z., Liu, J., Xu, L., Xu, Y., **Zhang, B.**, Guo, R., Yu, Y., & Wei, Y. (2025). Statistical study of auroral variability under different solar wind conditions based on classification using deep learning techniques. *Earth and Planetary Physics*, 9(6), 1163-1170.
22. Luo, H., **Zhang, B.**, Lyon, J. G., & Tian, J. (2025). Enhanced partial donor cell method for hyperbolic equations in orthogonal curvilinear coordinates. *Computer Physics Communications*, 109808.
23. Yang, Z., **Zhang, B.**, Lei, J., & Lotko, W. (2024). Why Doesn't the Observed Field-Aligned Current Saturate With Increasing Interplanetary Electric Field? *Geophysical Research Letters*, 51(21), e2024GL110037.
24. Yan, T., **Zhang, B.**, Chen, J., Yang, Z., Ye, S., & Cui, J. (2024). Unveiling the Connection between the Alfvénic Oval and the Open-Closed Field Line Boundary at Ganymede. *The Astrophysical Journal*, 975(1), 107.
25. Fu, S., **Zhang, B.**, Lei, J., Lotko, W., Yang, Z., Dang, T., & Luan, X. (2024). What Controls the Dawn-Dusk Asymmetry of Dayside Alfvénic Power: Interplanetary Magnetic Field or Ionospheric Conductance? *Geophysical Research Letters*, 51(20), e2024GL112011.
26. **Zhang, B.**, Yao, Z., Brambles, O. J., Delamere, P. A., Lotko, W., Grodent, D., Bonfond, B., Chen, J., Sorathia, K. A., Merkin, V. G., & others. (2024). A unified framework for global auroral morphologies of different planets. *Nature Astronomy*, 8(8), 964-972.
27. Yin, Q., Pham, K. H., Chen, J., & **Zhang, B.** (2024). Validation of simulated statistical characteristics of magnetosphere-ionosphere coupling in global geospace simulations over an entire Carrington rotation. *Space Weather*, 22(6), e2023SW003749.
28. Xu, Y., Ray, L., Yao, Z., **Zhang, B.**, Bonfond, B., Badman, S., Grodent, D., Feng, E., Qin, T., & Wei, Y. (2024). Revealing the local time structure of the Alfvén radius in Jupiter's magnetosphere through high-resolution simulations. *Journal of Geophysical Research: Planets*, 129(6), e2024JE008368.
29. Pan, D.-X., Yao, Z.-H., Guo, R.-L., Arridge, C. S., Ray, L. C., Zhao, Y., Clark, G., Rae, I. J., Lui, A. T. Y., **Zhang, B.-Z.**, & others. (2024). The Colocation of Magnetic Reconnection and Current Disruption in Jovian Middle Magnetosphere. *The Astrophysical Journal Letters*, 969(2), L35.
30. Tan, Y., Lei, J., Dang, T., Wang, W., **Zhang, B.**, Luan, X., & Dou, X. (2024). A numerical study of the high latitudinal ion-neutral coupling time scale under disturbed conditions. *Journal of Geophysical Research: Space Physics*, 129(7), e2024JA032497.
31. Liu, Z., Lei, J., Yan, M., Cao, Y.-T., Dang, T., Cui, J., & **Zhang, B.** (2024). Parameterization of secondary ionization rates and photoelectron heating rates of Venus and Mars. *Journal of Geophysical Research: Space Physics*, 129(5), e2024JA032411.
32. Yan, T., **Zhang, B.**, Chen, J., Zheng, Z., Yang, Z., Ye, S., & Cui, J. (2024). Three-dimensional Magnetohydrodynamic Simulations of Periodic Variations of Ganymede's Footprint. *The Astrophysical Journal*, 965(1), 82.
33. Delamere, P. A., Wilson, R. J., Wing, S., Smith, A. R., Mino, B., Spitler, C., Damiano, P., Sorathia, K., Sciola, A., Caggiano, J., & **Zhang, B.** (2024). Signatures of open magnetic flux in Jupiter's dawnside magnetotail. *AGU Advances*, 5(2), e2023AV001111.
34. Chen, Y., Ye, S., Yao, Z., & **Zhang, B.** (2024). The Response of Broadband Kilometric Radiation to Compressions of the Jovian Magnetosphere. *The Astrophysical Journal*, 972(2), 154.
35. Chen, J., **Zhang, B.**, Delamere, P. A., Yao, Z., Guo, R., & Brambles, O. (2024). Numerical investigation of magnetic reconnection in Jupiter's dayside magnetodisc. *Astronomy & Astrophysics*, 691, A13.
36. Chen, J., **Zhang, B.**, Delamere, P. A., Yao, Z., & Brambles, O. (2024). The dynamic response of Jovian magnetotail reconnection to enhanced solar wind ram pressure. *The Astrophysical Journal*, 969(2), 137.

37. Gu, W. D., Yao, Z. H., Wei, Y., Qin, T. S., **Zhang, B. Z.**, Xu, Y., Dunn, W. R., Delamere, P. A., & Chen, Y. N. (2024). A survey of magnetic field line curvature in Jovian dawn magnetodisc. *Geophysical Research Letters*, 51(1), e2023GL106971.
38. Xu, Y., Arridge, C. S., Yao, Z. H., **Zhang, B.**, Ray, L. C., Badman, S. V., Dunn, W. R., Ebert, R. W., Chen, J. J., Allegrini, F., & others. (2024). In situ evidence of the magnetospheric cusp of Jupiter from Juno spacecraft measurements. *Nature Communications*, 15(1), 6062.
39. Tan, Y., Dang, T., Lei, J., Wang, W., & **Zhang, B.** (2023). A Numerical Investigation on the Formation of the Stalling of the Cross-Polar Jet in Midnight Thermospheric Winds. *Journal of Geophysical Research: Space Physics*, 128(12), e2023JA031489.
40. De Becker, A., Head, L. A., Bonfond, B., Jehin, E., Manfroid, J., Yao, Z., **Zhang, B.**, Grodent, D., Schneider, N., & Benkhaldoun, Z. (2023). A study of Io's sodium jets with the TRAPPIST telescopes. *Astronomy & Astrophysics*, 680, A3.
41. Xu, Y., Yao, Z. H., Ye, S.-Y., Badman, S. V., Dialynas, K., Sergis, N., Ray, L. C., Guo, R. L., Pan, D. X., Dunn, W. R., & **Zhang, B.** (2023). A possible unified picture for the connected recurrent magnetic dipolarization, quasi-periodic ENA enhancement, SKR low-frequency extension and narrowband emission at Saturn. *Journal of Geophysical Research: Space Physics*, 128(9), e2023JA031445.
42. Feng, E., **Zhang, B.**, Yao, Z., Delamere, P. A., Zheng, Z., Dunn, W. R., & Ye, S.-Y. (2023). Variation of the Jovian magnetopause under constant solar wind conditions: Significance of magnetodisc dynamics. *Geophysical Research Letters*, 50(12), e2023GL104046.
43. Xu, Y., Yao, Z. H., **Zhang, B.**, Delamere, P. A., Ray, L. C., Dunn, W. R., Badman, S. V., Feng, E. H., Zheng, Z. Q., Bolton, S. J., & others. (2023). On the relation between Jupiter's aurora and the dawnside current sheet. *Geophysical Research Letters*, 50(13), e2023GL104123.
44. Luo, H., Lyon, J. G., & **Zhang, B.** (2023). Gas kinetic schemes for solving the magnetohydrodynamic equations with pressure anisotropy. *Journal of Computational Physics*, 490, 112311.
45. Schok, A. A., Delamere, P. A., Mino, B., Damiano, P. A., **Zhang, B.**, Sciola, A., Sorathia, K., Wing, S., Johnson, J. R., Ma, X., & others. (2023). Periodicities and plasma density structure of Jupiter's dawnside magnetosphere. *Journal of Geophysical Research: Planets*, 128(2), e2022JE007637.
46. Li, Z., Lei, J., & **Zhang, B.** (2023). Three-dimensional simulation of equatorial spread F: Effects of field-aligned plasma flow and ionospheric conductivity. *Journal of Geophysical Research: Space Physics*, 128(3), e2022JA031070.
47. Gu, W. D., Yao, Z. H., Pan, D. X., Xu, Y., **Zhang, B.**, Delamere, P. A., Fu, S. Y., Xie, L., Ye, S. Y., Chen, Y. N., & others. (2023). Hourly periodic variations of ultralow-frequency (ULF) waves in Jupiter's magnetosheath. *Journal of Geophysical Research: Planets*, 128(2), e2022JE007625.
48. Dang, T., **Zhang, B.**, Yan, M., Lyon, J., Yao, Z., Xiao, S., Zhang, T., & Lei, J. (2023). A new tool for understanding the solar wind-Venus interaction: three-dimensional multifluid MHD model. *The Astrophysical Journal*, 945(2), 91.
49. Chen, J., **Zhang, B.**, Lin, D., Delamere, P. A., Yao, Z., Brambles, O., Sorathia, K. A., Merkin, V. G., & Lyon, J. G. (2023). Prediction of axial asymmetry in jovian magnetopause reconnection. *Geophysical Research Letters*, 50(9), e2022GL102577.
50. Shang, Z., Yao, Z., Liu, J., Xu, L., Xu, Y., **Zhang, B.**, Guo, R., & Wei, Y. (2023). Automated classification of auroral images with deep neural networks. *Universe*, 9(2), 96.
51. Gong, F., Yu, Y., Cao, J., Wei, Y., Gao, J., Li, H., **Zhang, B.**, & Ridley, A. (2022). Simulating the solar wind-magnetosphere interaction during the Matuyama-Brunhes paleomagnetic reversal. *Geophysical Research Letters*, 49(3), e2021GL097340.
52. Zhao, Y., Yan, L., Yao, Z., Wei, Y., Guo, R., Lai, H., & **Zhang, B.** (2022). Auroral responses to the visit of comet 73P/Schwassmann-Wachmann 3 in 2006. *Geoscience Letters*, 9(1), 36.
53. Yan, M., Dang, T., Cao, Y.-T., Cui, J., **Zhang, B.**, Liu, Z., & Lei, J. (2022). A comparative study of ionospheric response to solar flares at Earth, Venus, and Mars. *The Astrophysical Journal*, 939(1), 23.
54. Tan, Y., Dang, T., Lei, J., **Zhang, B.**, Wang, W., Yang, Z., Pham, K., & Sorathia, K. (2022). Interplanetary control of high-latitude thermospheric winds: Results from HIWIND and model simulations. *Journal of Geophysical Research: Space Physics*, 127(9), e2022JA030394.
55. Dang, T., Li, X., Luo, B., Li, R., **Zhang, B.**, Pham, K., Ren, D., Chen, X., Lei, J., & Wang, Y. (2022). Unveiling the space weather during the Starlink satellites destruction event on 4 February 2022. *Space Weather*, 20(8), e2022SW003152.
56. Yang, Z., **Zhang, B.**, Lotko, W., Sorathia, K. A., Pham, K., Luan, X., Dou, X., & Lei, J. (2022). Formation of Alfvén wave ducts by magnetotail flow bursts. *Journal of Geophysical Research: Space Physics*, 127(9), e2022JA030841.
57. Pham, K. H., **Zhang, B.**, Sorathia, K., Dang, T., Wang, W., Merkin, V., Liu, H., Lin, D., Wiltberger, M., Lei, J., & others. (2022). Thermospheric density perturbations produced by traveling atmospheric disturbances during August 2005 storm. *Journal of Geophysical Research: Space Physics*, 127(2), e2021JA030071.
58. Feng, E., **Zhang, B.**, Yao, Z., Delamere, P. A., Zheng, Z., Brambles, O. J., Ye, S.-Y., & Sorathia, K. A. (2022). Dynamic Jovian magnetosphere responses to enhanced solar wind ram pressure: Implications for auroral activities. *Geophysical Research Letters*, 49(19), e2022GL099858.
59. Dang, T., Lei, J., **Zhang, B.**, Zhang, T., Yao, Z., Lyon, J., Ma, X., Xiao, S., Yan, M., Brambles, O., & others. (2022). Oxygen ion escape at Venus associated with three-dimensional kelvin-helmholtz instability. *Geophysical Research Letters*, 49(6), e2021GL096961.
60. Wang, L., Luan, X., Lei, J., Lynch, K. A., & **Zhang, B.** (2021). The universal time variations of the intensity of afternoon aurora in equinoctial seasons. *Journal of Geophysical Research: Space Physics*, 126(8), e2020JA028504.
61. Li, Z., Lei, J., & **Zhang, B.** (2021). Numerical considerations in the simulation of equatorial spread F. *Journal of Geophysical Research: Space Physics*, 126(10), e2021JA029622.
62. McGranaghan, R. M., Ziegler, J., Bloch, T., Hatch, S., Camporeale, E., Lynch, K., Owens, M., Gjerloev, J., **Zhang, B.**, & Skone, S. (2021). Toward a next generation particle precipitation model: Mesoscale prediction through machine learning (a case study and framework for progress). *Space Weather*, 19(6), e2020SW002684.
63. Pham, K. H., Lotko, W., Varney, R. H., & **Zhang, B.** (2021). Thermospheric impact on the magnetosphere through ionospheric outflow. *Journal of Geophysical Research: Space Physics*, 126(2), e2020JA028656.
64. Chen, X., Dang, T., **Zhang, B.**, Lotko, W., Pham, K., Wang, W., Lin, D., Sorathia, K., Merkin, V., Luan, X., & others. (2021). Global effects of a polar solar eclipse on the coupled magnetosphere-ionosphere system. *Geophysical Research Letters*, 48(23), e2021GL096471.

65. Xu, Y., Guo, R. L., Yao, Z. H., Pan, D. X., Dunn, W. R., Ye, S.-Y., **Zhang, B.**, Sun, Y. X., Wei, Y., & Coates, A. J. (2021). Properties of plasmoids observed in Saturn's dayside and nightside magnetodisc. *Geophysical Research Letters*, 48(24), e2021GL096765.
66. Pan, D.-X., Yao, Z.-H., Manners, H., Dunn, W., Bonfond, B., Grodent, D., **Zhang, B.-Z.**, Guo, R.-L., & Wei, Y. (2021). Ultralow-frequency waves in driving Jovian aurorae revealed by observations from HST and Juno. *Geophysical Research Letters*, 48(5), e2020GL091579.
67. Pan, D.-X., Yao, Z.-H., Guo, R.-L., Bonfond, B., Wei, Y., Dunn, W., **Zhang, B.-Z.**, Zong, Q.-G., Zhou, X.-Z., Grodent, D., & others. (2021). A statistical survey of low-frequency magnetic fluctuations at Saturn. *Journal of Geophysical Research: Space Physics*, 126(2), e2020JA028387.
68. Guo, R. L., Yao, Z. H., Dunn, W. R., Palmaerts, B., Sergis, N., Grodent, D., Badman, S. V., Ye, S. Y., Pu, Z. Y., Mitchell, D. G., & **Zhang, B.** (2021). A rotating azimuthally distributed auroral current system on Saturn revealed by the Cassini spacecraft. *The Astrophysical Journal Letters*, 919(2), L25.
69. Dang, T., **Zhang, B.**, Lei, J., Wang, W., Burns, A., Liu, H.-L., Pham, K., & Sorathia, K. A. (2021). Azimuthal averaging-reconstruction filtering techniques for finite-difference general circulation models in spherical geometry. *Geoscientific Model Development*, 14(2), 859-873.
70. **Zhang, B.**, Delamere, P. A., Yao, Z., Bonfond, B., Lin, D., Sorathia, K. A., Brambles, O. J., Lotko, W., Garretson, J. S., Merkin, V. G., & others. (2021). How Jupiter's unusual magnetospheric topology structures its aurora. *Science Advances*, 7(15), eabd1204.
71. Sorathia, K. A., Merkin, V. G., Panov, E. V., **Zhang, B.**, Lyon, J. G., Garretson, J., Ukhorskiy, A. Y., Ohtani, S., Sitnov, M., & Wiltberger, M. (2020). Ballooning-interchange instability in the near-Earth plasma sheet and auroral beads: Global magnetospheric modeling at the limit of the MHD approximation. *Geophysical Research Letters*, 47(14), e2020GL088227.
72. Yang, Z., **Zhang, B.**, Lei, J., & Dang, T. (2020). Nonlinear response of the cross polar cap potential to solar wind density under northward interplanetary magnetic field. *Geophysical Research Letters*, 47(8), e2020GL087559.
73. **Zhang, B.**, Brambles, O. J., Lotko, W., & Lyon, J. G. (2020). Is Nightside Outflow Required to Induce Magnetospheric Sawtooth Oscillations? *Geophysical Research Letters*, 47, e2019GL086419.
74. **Zhang, B.**, Sorathia, K. A., Lyon, J. G., Merkin, V. G., & Wiltberger, M. (2019). GAMERA: A three-dimensional finite-volume MHD solver for non-orthogonal curvilinear geometries. *The Astrophysical Journal Supplement Series*, 244(1), 20.
75. **Zhang, B.**, Sorathia, K. A., Lyon, J. G., Merkin, V. G., & Wiltberger, M. (2019). Conservative averaging-reconstruction techniques (Ring Average) for 3-D finite-volume MHD solvers with axis singularity. *Journal of Computational Physics*, 376, 276-294.
76. Dang, T., Lei, J., Wang, W., Wang, B., **Zhang, B.**, Liu, J., Burns, A., & Nishimura, Y. (2019). Formation of double tongues of ionization during the 17 March 2013 geomagnetic storm. *Journal of Geophysical Research: Space Physics*, 124(12), 10619-10630.
77. Lin, D., Wang, W., Scales, W. A., Pham, K., Liu, J., **Zhang, B.**, Merkin, V., Shi, X., Kunduri, B., & Maimaiti, M. (2019). SAPS in the 17 March 2013 storm event: Initial results from the coupled magnetosphere-ionosphere-thermosphere model. *Journal of Geophysical Research: Space Physics*, 124(7), 6212-6225.
78. Wang, W., Dang, T., Lei, J., Zhang, S.-R., & **Zhang, B.** (2019). Physical processes driving the response of the F2 region ionosphere to the 21 August 2017 solar eclipse at Millstone Hill. *Journal of Geophysical Research: Space Physics*, 124(4), 2978-2991.
79. Lotko, W., & **Zhang, B.** (2018). Alfvénic heating in the cusp ionosphere-thermosphere. *Journal of Geophysical Research: Space Physics*, 123(12), 10368-10383.
80. **Zhang, B.**, Delamere, P. A., Ma, X., Burkholder, B., Wiltberger, M., Lyon, J. G., Merkin, V. G., & Sorathia, K. A. (2018). Asymmetric Kelvin-Helmholtz instability at Jupiter's magnetopause boundary: Implications for corotation-dominated systems. *Geophysical Research Letters*, 45(1), 56-63.
81. Dang, T., **Zhang, B.**, Wiltberger, M., Wang, W., Varney, R., Dou, X., Wan, W., & Lei, J. (2018). On the relation between soft electron precipitations in the cusp region and solar wind coupling functions. *Journal of Geophysical Research: Space Physics*, 123(1), 211-226.
82. Liu, J., Wang, W., **Zhang, B.**, Huang, C., & Lin, D. (2018). Temporal variation of solar wind in controlling solar wind-magnetosphere-ionosphere energy budget. *Journal of Geophysical Research: Space Physics*, 123(7), 5862-5869.
83. Dang, T., Lei, J., Wang, W., **Zhang, B.**, Burns, A., Le, H., Wu, Q., Ruan, H., Dou, X., & Wan, W. (2018). Global responses of the coupled thermosphere and ionosphere system to the August 2017 Great American Solar Eclipse. *Journal of Geophysical Research: Space Physics*, 123(8), 7040-7050.
84. Lei, J., Dang, T., Wang, W., Burns, A., **Zhang, B.**, & Le, H. (2018). Long-lasting response of the global thermosphere and ionosphere to the 21 August 2017 solar eclipse. *Journal of Geophysical Research: Space Physics*, 123(5), 4309-4316.
85. Dang, T., Lei, J., Wang, W., Burns, A., **Zhang, B.**, & Zhang, S.-R. (2018). Suppression of the polar tongue of ionization during the 21 August 2017 solar eclipse. *Geophysical Research Letters*, 45(7), 2918-2925.
86. Wiltberger, M., Merkin, V., **Zhang, B.**, Toffoletto, F., Oppenheim, M., Wang, W., Lyon, J. G., Liu, J., Dimant, Y., Sitnov, M. I., & Stephens, G. K. (2017). Effects of electrojet turbulence on a magnetosphere-ionosphere simulation of a geomagnetic storm. *Journal of Geophysical Research: Space Physics*, 122(5), 5008-5027.
87. Hatch, S. M., LaBelle, J., Lotko, W., Chaston, C. C., & **Zhang, B.** (2017). IMF control of Alfvénic energy transport and deposition at high latitudes. *Journal of Geophysical Research: Space Physics*, 122(12), 12189-12209.
88. **Zhang, B.**, Brambles, O. J., Cassak, P. A., Ouellette, J. E., Wiltberger, M., Lotko, W., & Lyon, J. G. (2017). Transition from global to local control of dayside reconnection from ionospheric-sourced mass loading. *Journal of Geophysical Research: Space Physics*, 122(9), 9474-9488.
89. Lin, D., **Zhang, B.**, Scales, W. A., Wiltberger, M., Clauer, C. R., & Xu, Z. (2017). The role of solar wind density in cross polar cap potential saturation under northward interplanetary magnetic field. *Geophysical Research Letters*, 44(23), 11729-11736.
90. Varney, R. H., Wiltberger, M., **Zhang, B.**, Lotko, W., & Lyon, J. (2016). Influence of ion outflow in coupled geospace simulations: 2. Sawtooth oscillations driven by physics-based ion outflow. *Journal of Geophysical Research: Space Physics*, 121(10), 9688-9700.
91. Varney, R. H., Wiltberger, M., **Zhang, B.**, Lotko, W., & Lyon, J. (2016). Influence of ion outflow in coupled geospace simulations: 1. Physics-based ion outflow model development and sensitivity study. *Journal of Geophysical Research: Space Physics*, 121(10), 9671-9687.

92. Xi, S., Lotko, W., **Zhang, B.**, Wiltberger, M., & Lyon, J. (2016). Effects of auroral potential drops on plasma sheet dynamics. *Journal of Geophysical Research: Space Physics*, 121(11), 11129-11144.
93. Ouellette, J. E., Lyon, J. G., Brambles, O. J., **Zhang, B.**, & Lotko, W. (2016). The effects of plasmaspheric plumes on dayside reconnection. *Journal of Geophysical Research: Space Physics*, 121(5), 4111-4118.
94. **Zhang, B.**, Wang, W., Wu, Q., Knipp, D., Kilcommons, L., Brambles, O. J., Liu, J., Wiltberger, M., Lyon, J. G., & Häggström, I. (2016). Effects of magnetospheric lobe cell convection on dayside upper thermospheric winds at high latitudes. *Geophysical Research Letters*, 43(16), 8348-8355.
95. **Zhang, B.**, Brambles, O. J., Wiltberger, M., Lotko, W., Ouellette, J. E., & Lyon, J. G. (2016). How does mass loading impact local versus global control on dayside reconnection? *Geophysical Research Letters*, 43(5), 1837-1844.
96. **Zhang, B.**, Brambles, O. J., Lotko, W., Ouellette, J. E., & Lyon, J. G. (2016). The role of ionospheric O⁺ outflow in the generation of earthward propagating plasmoids. *Journal of Geophysical Research: Space Physics*, 121(2), 1425-1435.
97. **Zhang, B.**, Varney, R. H., Lotko, W., Brambles, O. J., Wang, W., Lei, J., Wiltberger, M., & Lyon, J. G. (2015). Pathways of F region thermospheric mass density enhancement via soft electron precipitation. *Journal of Geophysical Research: Space Physics*, 120(7), 5824-5831.
98. **Zhang, B.**, Lotko, W., Brambles, O., Wiltberger, M., & Lyon, J. (2015). Electron precipitation models in global magnetosphere simulations. *Journal of Geophysical Research: Space Physics*, 120(2), 1035-1056.
99. Xi, S., Lotko, W., **Zhang, B.**, Brambles, O. J., Lyon, J. G., Merkin, V. G., & Wiltberger, M. (2015). Poynting flux-conserving low-altitude boundary conditions for global magnetospheric models. *Journal of Geophysical Research: Space Physics*, 120(1), 384-400.
100. Lotko, W., Smith, R. H., **Zhang, B.**, Ouellette, J. E., Brambles, O. J., & Lyon, J. G. (2014). Ionospheric control of magnetotail reconnection. *Science*, 345(6193), 184-187.
101. **Zhang, B.**, Lotko, W., Brambles, O., Xi, S., Wiltberger, M., & Lyon, J. (2014). Solar wind control of auroral Alfvénic power generated in the magnetotail. *Journal of Geophysical Research: Space Physics*, 119(3), 1734-1748.
102. Brambles, O. J., Lotko, W., **Zhang, B.**, Ouellette, J., Lyon, J., & Wiltberger, M. (2013). The effects of ionospheric outflow on ICME and SIR driven sawtooth events. *Journal of Geophysical Research: Space Physics*, 118(10), 6026-6041.
103. **Zhang, B.**, Brambles, O., Lotko, W., Dunlap-Shohl, W., Smith, R., Wiltberger, M., & Lyon, J. (2013). Predicting the location of polar cusp in the Lyon-Fedder-Mobarry global magnetosphere simulation. *Journal of Geophysical Research: Space Physics*, 118(10), 6327-6337.
104. **Zhang, B.**, Lotko, W., Brambles, O., Damiano, P., Wiltberger, M., & Lyon, J. (2012). Magnetotail origins of auroral Alfvénic power. *Journal of Geophysical Research: Space Physics*, 117(A9), A09205.
105. **Zhang, B.**, Lotko, W., Brambles, O., Wiltberger, M., Wang, W., Schmitt, P., & Lyon, J. (2012). Enhancement of thermospheric mass density by soft electron precipitation. *Geophysical Research Letters*, 39(20), L20102.
106. Lynch, K. A., Hampton, D., Mella, M., **Zhang, B.**, Dahlgren, H., Disbrow, M., Kintner, P. M., Lessard, M., Lundberg, E., & Stenbaek-Nielsen, H. C. (2012). Structure and dynamics of the nightside poleward boundary: Sounding rocket and ground-based observations of auroral electron precipitation in a rayed curtain. *Journal of Geophysical Research*, 117(A11), A11202.
107. Brambles, O. J., Lotko, W., **Zhang, B.**, Wiltberger, M., Lyon, J., & Strangeway, R. J. (2011). Magnetosphere sawtooth oscillations induced by ionospheric outflow. *Science*, 332(6034), 1183-1186.
108. **Zhang, B.**, Lotko, W., Wiltberger, M. J., Brambles, O. J., & Damiano, P. A. (2011). A statistical study of magnetosphere-ionosphere coupling in the Lyon-Fedder-Mobarry global MHD model. *Journal of Atmospheric and Solar-Terrestrial Physics*, 73(5-6), 686-702.
109. Brambles, O. J., Lotko, W., Damiano, P. A., **Zhang, B.**, Wiltberger, M., & Lyon, J. (2010). Effects of causally driven cusp O⁺ outflow on the storm time magnetosphere-ionosphere system using a multifluid global simulation. *Journal of Geophysical Research: Space Physics*, 115(A9), A00J04.
110. Damiano, P. A., Brambles, O. J., Lotko, W., **Zhang, B.**, Wiltberger, M., & Lyon, J. (2010). Effects of solar wind dynamic pressure on the ionospheric O⁺ fluence during the 31 August 2005 storm. *Journal of Geophysical Research: Space Physics*, 115(A11), A00J07.

[Additional publications available on Google Scholar: <https://scholar.google.com/citations?hl=en&user=AC8jpb0AAAAJ>]

Conference Presentations

1. **Zhang, B.**, & Yao, Z. (2025). Unveiling Giant Magnetospheres: Research Advances in China and Prospectives for Future Missions. EGU General Assembly Conference Abstracts, EGU25-14477.
2. Yang, Z., **Zhang, B.**, Lei, J., Yao, Z., Chen, J., Zheng, Z., & Feng, E. (2024). Comparison of the Wave Poynting Flux Associated with Earth's Auroral Streamer and Saturn's Nightside Polar Arc. AGU Fall Meeting Abstracts, SM01-05.
3. Lotko, W., Pham, K. H., Lin, D., Varney, R. H., **Zhang, B.**, & Billett, D. (2024). Measures of Alfvénicity on dayside open field lines in global simulations and observations. AGU Fall Meeting Abstracts, SM33A-2597.
4. Pham, K., Lotko, W., Zou, Y., **Zhang, B.**, Varney, R., & Dredger, P. (2024). Examining Interhemispheric Properties of the Cusp. EGU General Assembly Conference Abstracts, 15192.
5. Smith, A., Delamere, P. A., Spitler, C., Mino, B., Wilson, R. J., **Zhang, B.**, Wing, S., Caggiano, J., Clark, G. B., Sorathia, K., & others. (2023). Meridional Magnetic Flux and Plasma Flow in Jupiter's Midnight-Dawn Magnetosphere: A Juno Data-GAMERA Model Comparison. AGU Fall Meeting Abstracts, SM23D-2844.
6. Chen, J., Chen, Y., **Zhang, B.**, & Yao, Z. (2023). Exploring MHD Turbulence in the Jovian Magnetosphere: Insights from Juno/Galileo Data and Global MHD Code. AGU Fall Meeting Abstracts, SM23D-2849.
7. Lei, J., **Zhang, B.**, & Li, Z. (2023). Simulation of equatorial ionospheric bubble from a Three-dimensional EquatorialL spread F (TELF). AGU Fall Meeting Abstracts, SA52A-01.
8. Ye, S., Wu, S., Chen, Y., Yao, Z., Fischer, G., Taubenschuss, U., Zarka, P. M., **Zhang, B.**, Cecconi, B., Jackman, C. M., & others. (2023). Wave Phenomena Revealing The Impact Of Solar Wind On Planetary Magnetospheres. AGU Fall Meeting Abstracts, SM52A-05.
9. **Zhang, B.** (2021). The Open Polar Cap of Rotating Magnetospheres. European Planetary Science Congress, EPSC2021-829.

10. **Zhang, B.**, Sorathia, K., Merkin, V., & Lyon, J. (2021). Global Alfvénic power during geomagnetic substorms. AGU Fall Meeting Abstracts, SM12B-02.
11. **Dang, T.**, Xuetao, C., **Zhang, B.**, Lotko, W., Pham, K., Wang, W., Lin, D., Luan, X., Dou, X., Luo, B., & others. (2021). Geospace response to 10 June 2021 polar solar eclipse. AGU Fall Meeting Abstracts, SA31A-01.
12. **Pham, K.**, Dang, T., Wilder, F., Liu, H., **Zhang, B.**, Lotko, W., Wiltberger, M., Lei, J., Sorathia, K., Merkin, V., & others. (2021). Influence of Total Solar Eclipse on the Magnetosphere. AGU Fall Meeting Abstracts, SA31A-09.
13. **Lyon, J.**, Sorathia, K., **Zhang, B.**, Merkin, V., & Wiltberger, M. (2021). Hall Physics at the Magnetosphere Mesoscale. AGU Fall Meeting Abstracts, SM35C-1981.
14. **Pham, K. H.**, Varney, R. H., **Zhang, B.**, Dang, T., Wang, W., Sorathia, K., Bao, S., Lin, D., & Merkin, V. G. (2020). Characteristics of Global Traveling Ionospheric Disturbance. AGU Fall Meeting Abstracts, SA013-02.
15. **Sorathia, K.**, Merkin, V. G., Panov, E. V., **Zhang, B.**, Lyon, J., Ukhorskiy, A., Garretson, J., Michael, A., Ohtani, S., Sitnov, M. I., & others. (2020). Global modeling of magnetosphere-ionosphere coupling at the limit of the fluid approximation: Auroral beads and ballooning-interchange instability in the magnetosphere. AGU Fall Meeting Abstracts, SA033-02.
16. **Sorathia, K.**, Merkin, V. G., Toffoletto, F., Ukhorskiy, A., Garretson, J., Ohtani, S., Panov, E. V., **Zhang, B.**, Lyon, J., Michael, A., & others. (2020). Global multi-scale modeling of magnetosphere-ionosphere coupling during an isolated substorm. AGU Fall Meeting Abstracts, SM058-05.
17. **Neupane, B. R.**, Delamere, P. A., Wing, S., **Zhang, B.**, & Johnson, J. (2020). Electron Density Fluctuations in Saturn's Magnetosphere. AGU Fall Meeting Abstracts, SM054-0012.
18. **Zhang, B.**, Yao, Z., Delamere, P. A., Lotko, W., Sorathia, K., Brambles, O., Bonfond, B., Grodent, D. C., & Lyon, J. (2022). Magnetospheric origin of Jovian auroral dawn storms. AGU Fall Meeting Abstracts, SM41D-04.
19. **Delamere, P. A.**, Damiano, P. A., Mino, B., Schok, A., Ma, X., Johnson, J., **Zhang, B.**, Sorathia, K., Sciola, A., Wing, S., & others. (2022). Structure and dynamics of Jupiter's dawnside magnetosphere: model/data comparisons. AGU Fall Meeting Abstracts, SM46B-04.
20. **Mino, B.**, Neupane, B. R., Schok, A., Delamere, P. A., Sorathia, K., Sciola, A., Wing, S., Johnson, J., **Zhang, B.**, & Damiano, P. A. (2022). Applying Information Theory to GAMERA Simulations of Jupiter and Saturn-like Magnetospheres. AGU Fall Meeting Abstracts, SM45E-2279.
21. **Lotko, W.**, **Zhang, B.**, Varney, R. H., Yang, Z., Pham, K. H., Lin, D., & Billett, D. (2022). Poleward Moving Auroral Forms Induced by Transient Alfvénic Poynting Fluxes. AGU Fall Meeting Abstracts, SM33A-05.
22. **Feng, E.**, **Zhang, B.**, Yao, Z., Delamere, P. A., Zheng, Z., Brambles, O., Ye, S., & Sorathia, K. (2022). Dynamic Jovian Magnetosphere Responses to Enhanced Solar Wind Ram Pressure. AGU Fall Meeting Abstracts, SM42F-2237.
23. **Zheng, Z.**, **Zhang, B.**, Yao, Z., & Yang, J. (2022). Fast flow and Kelvin-Helmholtz Instability at Saturn's magnetopause during southward IMF: results from a three-dimensional global MHD simulation. AGU Fall Meeting Abstracts, SM45E-2283.
24. **Yin, Q.**, **Zhang, B.**, Lotko, W., Merkin, V. G., Chen, J., Pham, K. H., Sorathia, K., Yang, J., Lin, D., & Zheng, Z. (2022). A Statistical Study of Magnetosphere-Ionosphere Coupling During a Carrington Rotation Using the MAGE Global Model. AGU Fall Meeting Abstracts, SM35B-1754.
25. **Chen, J.**, **Zhang, B.**, Lin, D., Delamere, P. A., Yao, Z., Brambles, O., Sorathia, K., & Merkin, V. G. (2022). Axial Asymmetry in Jovian Magnetopause Reconnection. AGU Fall Meeting Abstracts, SM46B-10.
26. **Lyon, J.**, Merkin, V. G., Sorathia, K., **Zhang, B.**, Wiltberger, M. J., & Garretson, J. (2022). Multi-fluid Hall/drift Simulations of the Magnetosphere. AGU Fall Meeting Abstracts, SM12A-06.
27. **Zhang, B.**, Yao, Z., Delamere, P. A., & Brambles, O. (2023). Explosive magnetotail activities in rotating magnetosphere-implication for dawnstorms? Advances in Understanding Alfvén Waves in the Sun and the Heliosphere, AGU.
28. **Yan, T.**, **Zhang, B.**, & Cui, J. (2023). Alfvénic Poynting Flux generated within Ganymede Magnetosphere: Implications for Aurora Emission. Advances in Understanding Alfvén Waves in the Sun and the Heliosphere, AGU.
29. **Lotko, W.**, **Zhang, B.**, Varney, R. H., Yang, Z., Pham, K. H., & Chen, J. (2023). Earth's Poleward Moving Alfvénic Forms. Advances in Understanding Alfvén Waves in the Sun and the Heliosphere, AGU.
30. **Pham, K. H.**, **Zhang, B.**, Lotko, W., Wiltberger, M. J., Wilder, F. D., Dang, T., Lin, D., Wang, W., & Sorathia, K. (2022). Influence of Total Solar Eclipse on the Magnetosphere. AGU Fall Meeting Abstracts, SA36A-03.
31. **Caggiano, J.**, Clark, G., Damiano, P., Delamere, P., Johnson, J., Merkin, S., Sciola, A., Sorathia, K., Wing, S., & **Zhang, B.** (2024). A global magnetohydrodynamic analysis of radial interchange instability from Enceladus mass-loading and entropy bubbles in Saturn's magnetosphere. Outer Planet Moon-Magnetosphere Interaction Workshop, Dublin Institute for Advanced Studies.
32. **Lei, J.**, Li, Z., & **Zhang, B.** (2024). Simulation of equatorial ionospheric bubble from a Three-dimensional Eequatorial Spread F (TELF) model. 45th COSPAR Scientific Assembly, 665.
33. **Yang, Z.**, **Zhang, B.**, Lei, J., & Yao, Z. (2024). Recent advances in the magnetic reconnection, dipolarization, and auroral processes at giant planets from the perspective of comparative planetology. Earth and Planetary Physics, 8(5).
34. **Pan, D.-X.**, Yao, Z., Manners, H., Dunn, W., Bonfond, B., Grodent, D., & **Zhang, B.-Z.** (2021). Recent Advances in Magnetospheric Drivers of Auroral Variations at Jupiter. Magnetospheres of the Outer Planets meeting.
35. **De Becker, A.**, Bonfond, B., **Zhang, B.**, & Yao, Z. (2022). Analysis of the sodium jets detected on Io with TRAPPIST. Magnetospheres of the Outer Planets meeting.
36. **Zhang, B.**, Sorathia, K., Delamere, P. A., Merkin, V. G., & Lyon, J. (2019). Comparative Studies on Magnetotail Dynamics Between the Earth, Saturn and Jupiter. AGU Fall Meeting Abstracts, SM12A-06.
37. **Zhang, B.**, Delamere, P. A., Sorathia, K., Ma, X., Merkin, V. G., Lyon, J., & Yao, Z. (2019). The closed polar cap of the Jovian magnetosphere: implications for auroral precipitation from global MHD and test particle simulations. AGU Fall Meeting Abstracts, SM43B-02.

38. Zhang, B., Ma, X., Delamere, P. A., & Lyon, J. (2018). A Numerical Experiment of the global Jupiter Magnetosphere: Initial Results from Multifluid MHD. AGU Fall Meeting Abstracts, SM23E-3233.

39. Zhang, B., Wiltberger, M. J., & Merkin, V. G. (2017). Global Geospace Modeling of Upper Thermospheric Dynamics during Storm Time. AGU Fall Meeting Abstracts, SM32B-02.

[Additional invited lectures available upon request] [Full publication list can be found on Google: <https://scholar.google.com/citations?hl=en&user=AC8jpboAAAAJ>]

Scholarly Books, Monographs and Chapters

1. Zhang, B. and Brambles, O.J. (2021). Polar Cap O+ Ion Outflow and Its Impact on Magnetospheric Dynamics. In *Ionosphere Dynamics and Applications* (eds C. Huang, G. Lu, Y. Zhang and L.J. Paxton). <https://doi.org/10.1002/9781119815617.ch5>

Editorship and Editorial Board Membership

Editor, *AGU Advances*, 2022-present

Research Grants and Agreements

Current External Grants and Agreements

Project Title	Funding Scheme / Agency	Amount	Role	Award Year / Status
Multi-scale Modeling and Forecasting of Planetary Space Environment	RGC Research Fellow Scheme (RFS) 2025/26	HK\$ 5,465,160	PI	2025 / On-going
Scientific Research on Jupiter's Space Environment and Exploration Principles (#1)	Collaboration Agreement with Peking University	HK\$ 1,237,350	PI	2025 / 31-DEC-2025 to 30-NOV-2030
Interchange instability in the Jovian inner magnetosphere: the effects of pressure anisotropy and hot plasma populations	General Research Fund (GRF) 2025/26	HK\$ 890,587	PI	2025 / On-going
Responses of Jupiter's rotation-driven magnetic reconnection to upstream solar wind (2026A1515011076)	Guangdong Natural Science Fund, General Programme 2025	HK\$ 115,300	Co-I	2025 / On-going
Controlling Factors of Jupiter's Deep Magnetotail: External and Internal Influences	General Research Fund (GRF) 2024/25	HK\$ 910,742	PI	2024 / On-going
Joint Laboratory of Chemical Geodynamics, Guangzhou Institute of Geochemistry (CAS) and Department of Earth and Planetary Sciences (HKU)	RGC Co-funding Mechanism on Joint Laboratories with CAS	HK\$ 1,875,000	Co-I	2024 / On-going
木星磁层顶磁重联研究 (42374216)	General Program, National Natural Science Foundation of China (NSFC)	RMB 530,000	PI	2024 / On-going
Factors control global morphology of planetary auroral emissions	General Research Fund (GRF) 2023/24	HK\$ 877,079	PI	2023 / On-going

Current Internal Research Grants

Project Title	Funding Scheme	Amount	Role	Award Year / Status
Ionospheric Equatorial Spread F in Hong Kong: Observation and Simulations	Seed Fund for PI Research - Basic Research 2025/26	HK\$ 120,000	PI	2026 / On-going
Global MHD modeling of the Uranus magnetosphere	Seed Fund for PI Research - Basic Research 2024/25	HK\$ 110,760	PI	2025 / On-going
Global Magnetohydrodynamics with Three-dimensional Drift Kinetics	Seed Fund for PI Research - Basic Research 2023/24	HK\$ 108,546	PI	2024 / On-going
Outstanding Young Researcher Award 2021/22	University of Hong Kong	HK\$ 300,000	PI	2023 / On-going

Completed External Grants

Project Title	Funding Scheme / Agency	Amount	Role	Award Year
Magnetospheric origin of Jovian aurora: dawn storms and polar emissions	General Research Fund (GRF) 2022/23	HK\$ 783,000	PI	2022
Ionospheric Control and Low-Altitude Signatures of Magnetopause Activity	General Research Fund (GRF)	HK\$ 598,015	PI	2021
Effects of non-thermal plasma populations in the global configuration of the Jovian magnetosphere	General Research Fund (GRF)	HK\$ 899,792	PI	2020
Space Physics	NSFC Excellent Young Scientists Fund (Hong Kong and Macau)	HK\$ 1,628,000	PI	2020
Impact of Terrestrial-Sourced Plasma on the Dayside Solar Wind-Magnetosphere-Ionosphere interaction	General Research Fund (GRF)	HK\$ 502,444	PI	2019
Effects of Meso-Scale Ionosphere-Thermosphere Dynamics on Topside O+ Ion Upflow and Outflow	Early Career Scheme (ECS)	HK\$ 198,523	PI	2018

Teaching and Student Supervision

Courses Taught

Course Code	Course Title	Course Offered	Semester
EASC3420*	Machine Learning for Earth and Planetary Sciences	2025 to present	Sem 1
EASC2404*	Introduction to the Atmosphere and Hydrosphere	2019 to present	Sem 1
EASC2410*	Data Analysis and Modeling for Earth Sciences	2019 to present	Sem 2
EASC3408*	Geophysics	2018 to 2023	Sem 2
SPSC7002*	Introduction to Space Weather	2022-2023	Sem 1

*Served as course coordinator

Postgraduate Supervision

Name	Bachelor's	Program	Field of Study	Status	Start Year
Cai Jinshu	USTC	Ph.D.	Space and Planetary Physics	Continuing	2024
Tian Jiaying	USTC	Ph.D.	Planetary Science	Continuing	2024
Luo Hongyang	UCSB	Ph.D.	Space and Planetary Physics	Continuing	2022
Wang Zhengyang	New Brunswick	Ph.D.	Magnetohydrodynamics	Continuing	2022
Zheng Zhiqi	ZJU	Ph.D.	Space Physics	Graduated	2020
Feng Enhao	SYSU	Ph.D.	Astronomy and Astrophysics	Graduated	2019
Yin Qianfeng	UCAS	Ph.D.	Computational MHD	Graduated	2019
Xing Zexi*	NJU	Ph.D.	Astronomy	Graduated	2018

*Ph.D. students of a former Science faculty members who left HKU before their graduation

Knowledge Exchange

- Participated in Summer School on planetary science for high-school and first-year undergraduate students at Sun Yat-Sen University (2022)
- Advised student team on numerical simulation of auroral electrons
- Developed mini course on planetary aurorae and underlying physics

Services/Administration

- Chief Examiner (three years)
- Acting Associate Head (Teaching and Learning) (one year)
- Led the consolidation of the Geology and Earth System Science (ESS) majors into the new Earth and Planetary Sciences (EPS) major, including academic coordination and preparation of the programme proposal and supporting paperwork for formal submission
- Department outreach committee, in charge of department website (2018-2021)
- DRPC committee member, participated in RPG student admission (2021-2022)
- Department research committee (2023-present)

Last updated: August 2026