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PERSONAL DETAILS

NAME: Hong Zou
POSITION: Professor in the School of Earth
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MAJOR AND RESEARCH

Space Physics

- Space Detection Technology
- Magnetosphere-Radiation belt
- Planetary Science-Mars ionosphere and atmosphere

EDUCATION BACKGROUND

1994.9-1998.7 Department of Electronics & Communications, Beijing Information Technology Institute (BITI), Beijing
Major: Communication Engineering
Degree: B.S. (July, 1998)
1998.9-2003.7 Department of Geophysics, Peking University
Major: Space Physics
Degree: Ph.D (July, 2003)

RESEARCH EXPERIENCE

2003.08-2004.12 Study in MAX-PLANCK Institute for Aeronomie, Germany, Post Doctor;
2005.04-2007.04 Study in the Institute of Space Physics and Applied Technology, School of Earth and Space Science, Peking University, Post Doctor;
2005.10-2005.11 Visit in MAX-PLANCK Institute for Aeronomie, Germany, Visiting student
2006.09-2006.11 Visit in MAX-PLANCK Institute for Solar System Research, Germany funded by Germany DAAD Scholarship, Visiting Scholar;
2007.04-2009.07 Work in the Institute of Space Physics and Applied Technology, School of Earth and Space Science, Peking University, Lecturer;
2009.08-2020.07 Work in the Institute of Space Physics and Applied Technology, School of Earth and Space Science, Peking University, Associated Professor;
2010.9-2011.6 Visit in Space Science Lab in UC Berkeley, CA, USA, Visiting Scholar.
2020.08-Now Work in the Institute of Space Physics and Applied Technology, School of

RESEARCH PROJECTS

No.	Project name	Source	Role	Foundation (RMB Yuan)	Start and Stop
1	Research of the Martian ionosphere by the new radar and long term radio occultation observations	National Natural Science Foundation (Yonth)	Project Leader	190,000	2008.01-2010.12
2	Study on storm-time and long-term variations of the radiation belt	National Natural Science Foundation	Project Leader	800,000	2014.01-2018.12
3	Study on the neutral atmosphere in the lower thermosphere of Mars with Martian ionospheric observations	National Natural Science Foundation	Project Leader	800,000	2017.01-2020.12
4	High-resolution compact imaging spectrometer for 10~100 keV electrons in geomagnetosphere	National Natural Science Foundation	Project Leader	800,000	2023.01-2026.12

SCIENTIFIC PAYLOAD DEVELOPMENT

- 【1】 High Energy Particle Detector onboard China-Brazil Earth Resource Satellite -1 (CBERS-1-01/02/02C/03/04/04A), 1998~2021, 6 payloads;
- 【2】 BEIDA-Imaging Electron Spectrometer (BD-IES) onboard BEIDOU-IGSO test satellite, 2013~2015, 1 payload;
- 【3】 Medium and High Energy Electron Detector onboard BEIDOU 3M satellites (M17/18/19), 2018-2020, 3 payloads;
- 【4】 Imaging Electron Spectrometer onboard FengYun-4B satellites 2018~2021, 1 payload;
- 【5】 Imaging Electron Spectrometer onboard FengYun-3E satellites 2017~2021, 1 payload;
- 【6】 Energetic Electron Spectrometer onboard Macau Science Satellite-1 (MSS-1), 2019~2022, 1 payload.

PUBLICATIONS (the first and corresponding authors)

- 【1】 J. Sun, **H. Zou**, Y. Ye and J. Chen, "On-Orbit Cross Calibration of Energetic Electron Flux Measurements From Three Chinese Satellites and GPS ns70 and ns71," in *IEEE Transactions on Nuclear Science*, vol. 72, no. 7, pp. 2163-2172, July 2025, doi: 10.1109/TNS.2025.3580760
- 【2】 Lou Y, **Zou H**, Ye Y G, et al. Effects of Martian Dust Storms on Ionospheric Peak Altitudes[J]. The Astrophysical Journal, 2025, 981(1):42.DOI:10.3847/1538-4357/adae01.

- 【3】 Ye Y G, Liu Y, **Zou H**, et al. High-energy electron spectrometer on Macao Science Satellite-1. *Sci China Tech Sci*, 2024, 67, <https://doi.org/10.1007/s11431-023-2647-2>
- 【4】 Ye Y G, Liu Y, **Zou H**, et al. Medium-energy electron spectrometers on Macao Science Satellite-1. *Sci China Tech Sci*, 2024, 67: 3324 – 3343, <https://doi.org/10.1007/s11431-023-2676-6>
- 【5】 Chen, J. L., **Zou, H.**, and Ye, Y. G. (2024). Explaining the dynamics of the sub-relativistic electron third belt in the Earth’ s radiation belts by using medium Earth orbit satellite observations. *Earth Planet. Phys.*, 8(5), 762 – 775. <http://doi.org/10.26464/epp2024054>
- 【6】 Chen, J. - L., **Zou, H.**, Hao, Y. - X., Ye, Y. - G., Miyoshi, Y., Matsuoka, A., et al. (2024). A sub - relativistic electron threebelt event in the Earth's radiation belts: Observation and explanation. *Journal of Geophysical Research: Space Physics*, 129, e2023JA032213. <https://doi.org/10.1029/2023JA032213>
- 【7】 Yu XiangQian, Yang Xin, **Zou Hong**, Chen HongFei , Ye YuGuang , Zong QiuGang , Qu YaNan , Shi WeiHong, and Wang YongFu. Deep Dielectric Charging Effect Measurement Using DDCE Monitor (2023). *IEEE TRANSACTIONS ON NUCLEAR SCIENCE*, VOL. 70, NO. 4
- 【8】 Ye, Y.-G., Li, J.-W., Huang, C., **Zou, H.***, Zong, Q.-G., Zhang, X.-X., et al. (2023). Medium-energy electron detector onboard the FY-3E satellite. *Space Weather*, 21, e2022SW003241. <https://doi.org/10.1029/2022SW003241>
- 【9】 Ye Y G, **Zou H***, Wang Y F, et al. A cross-type imaging electron spectrometer. *Sci China Tech Sci*, 2023, 66, <https://doi.org/10.1007/s11431-022-2103-7>;
- 【10】 Chen, X., Zhang, H., Zong, Q., Zhou, X., **Zou, H.***, Wang, Y., & Yue, C. (2022). Non-adiabatic acceleration of injected electrons in the inner magnetosphere: Joint observations by the Van Allen Probe and the BeiDa Imaging Electron Spectrometer. *Geophysical Research Letters*, 49, e2022GL100606. <https://doi.org/10.1029/2022GL100606>
- 【11】 Qin, J.F., **Zou, H.***, Ye, Y.G., Hao, Y.Q., & Wang, J.S. (2022). A denser and elevated Martian nightside ionosphere during Mars season Ls 180–360°. *ICARUS*, 388, 115255.
- 【12】 Qin, J.F., **Zou, H.***, Lee, Y., Ye, Y.G., Hao, Y.Q., & Wang, J.S. (2022). Effect of the 2018 Martian global dust storm on the main species in the upper ionosphere: Observations and simulations. *Journal of Geophysical Research: Planets*, 127, e2022JE007297. <https://doi.org/10.1029/2022JE007297>;
- 【13】 Song S Y, Chen H F, Yu X Q, Zou H, et al. Analysis of the internal charging data in medium earth orbit with numerical simulation and ground experiment. *Sci China Tech Sci*, 2022, 65: 977 – 986, <https://doi.org/10.1007/s11431-021-1809-1>
- 【14】 Qin, J., Zou, H., Futaana, Y., Ye, Y., Hao, Y., Nielsen, E., & Wang, J. (2021). Double-peak structures of Martian nightside total electron content in strong crustal magnetic cusp regions. *Geophysical Research Letters*, 48, e2021GL092662. <https://doi.org/10.1029/2021GL092662>
- 【15】 Ye, Y. G., Zou, H., Zong, Q.-G., Chen, H. F., Zou, J. Q., Shi, W. H., Yu, X. Q., Zhong, W. Y., Wang, Y. F., Hao, Y. X., Liu, Z. Y., Jia, X. H., Wang, B., Yang, X. P. and Hao, X. Y. (2021). Energetic electron detection packages on board Chinese navigation satellites in MEO. *Earth Planet. Phys.*, 5(2), 158 – 179. <http://doi.org/10.26464/epp2021021>

- 【16】 Qin, J. F., Zou, H., Ye, Y. G., Hao, Y. Q., Wang, J. S., and Nielsen, E. (2020). A method of estimating the Martian neutral atmospheric density at 130 km, and comparison of its results with Mars Global Surveyor and Mars Odyssey aerobraking observations based on the Mars Climate Database outputs. *Earth Planet. Phys.*, 4(4), 1 – 12.
<http://doi.org/10.26464/epp2020038>
- 【17】 Xingran C, Qiugang Z , Hong Z , et al. Distribution of energetic electrons in the near earth space: New observations from the BeiDa Imaging Electron Spectrometer and the Van Allen Probes[J]. *Planetary and Space Science*, 2020, 186:104919.
- 【18】 Yu, X., Song, S. , Chen, H. , Qu, Y. , Zou, H. , & Zong, Q. , et al. (2019). Monitoring deep dielectric charging effects in space. *IEEE Transactions on Nuclear Science*, PP(99), 1-1
- 【19】 Chen, X., Zong, Q. , Zou, H. , Zhou, X. , & Wang, Y. . (2020). Beida imaging electron spectrometer observation of multi-period electron flux modulation caused by localized ultra-low-frequency waves. *Annales Geophysicae*, 38(4), 801-813.
- 【20】 Liu, Z.-Y., Zong, Q.-G., Zou, H., Wang, Y. F., & Wang, B. (2019). Drifting electron holes occurring during geomagnetically quiet times: BD-IES observations. *Journal of Geophysical Research: Space Physics*, 124. <https://doi.org/10.1029/2019JA027194>
- 【21】 Yin Zefan, Zou Hong, Ye Yuguang, Zong Qiugang & Wang Yongfu; Superposed epoch analysis of the energetic electron flux variations during CIRs measured by BD - IES. *Space Weather*; 2019, 17(12): 1765-1782.
- 【22】 Qin Jinfeng, Zou Hong, Ye Yuguang, Yin Zefan, Wang Jinsong and Nielsen Erling; Effects of local dust storms on the upper atmosphere of Mars: Observations and simulations. *Journal of Geophysical Research: Planets*; 2019, 124(2): 602-616.
- 【23】 Zou Hong, Ye Yuguang, Zong Qiugang, Chen Hongfei, Luo Lin, Zhou Xuzhi, Chen Xingran, Hao Yixin, Ren Jie, Wang Yongfu, Shi Weihong, Yu Xiangqian, Jia Xianghong, Xu Feng and Zhang Xiaoxin; Monte Carlo simulations of the sensor head of imaging energetic electron spectrometer onboard a Chinese IGSO navigation satellite; *Sci China Tech Sci*; 2019, 62(7): 1169-1181.
- 【24】 Zou Hong, Ye Yuguang, Zong Qiugang, et al.; Imaging energetic electron spectrometer onboard a Chinese navigation satellite in the inclined GEO orbit; *Sci China Tech Sci*; 2018, 61(12): 1845-1865.
- 【25】 Zong Qiuqang, Wang Yongfu, Zou Hong, Wang Linghua, Rankin Robert & Zhang XiaoXin; New magnetospheric substorm injection monitor: Image electron spectrometer on board a Chinese navigation IGSO satellite. *Space Weather*, 2018, 16(2): 121-125.
- 【26】 Ye Yuguang, Zou Hong, Zong Qiugang, Chen Hongfei, Wang Yongfu, Yu Xiangqian, and Shi Weihong; The secular variation of the center of geomagnetic South Atlantic Anomaly and its effect on the distribution of inner radiation belt particles. *Space Weather*; 2017, 15
- 【27】 Zou Hong, Ye Yuguang, Wang Jinsong, Nielsen Erling, Cui Jun, and Wang Xiaodong; A method to estimate the neutral atmospheric density near the ionospheric main peak of Mars; *Journal of Geophysical Research-Space Physics*; 2016, 121(4): 3464-3475.
- 【28】 Chen Yang, Zou Hong, Chen Hongfei et al.; Study on the loss and recovery mechanisms of high-energy protons in the inner radiation belt during geomagnetic storms; *Chinese Journal of Geophysics*; 2016, 59(7): 2344-2355.
- 【29】 Li Chenfang, Zou Hong, Zong Qiugang, et al; An analysis of the correlation between the fluxes of high-energy electrons and low-middle-energy electrons in the magnetosphere;

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- 【30】 Zou Hong, Li Chenfang, Zong Qiugang, Parks G., Pu Zuyin, Chen Hongfei, Xie Lun, and Zhang Xianguo; Short-term variations of the inner radiation belt in the South Atlantic anomaly; Journal of Geophysical Research-Space Physics; 2015, 120(6): 4475-4486.
- 【31】 Luo L, Zou H, Zong Q G, et al. Anti-proton contamination design of the imaging energetic electron spectrometer based on Geant4 simulation. Sci China Tech Sci, 2015, doi: 10.1007/s11431-015-5863-7
- 【32】 Zou H, Luo L, Li C F, et al. Angular response of ‘pin-hole’ imaging structure measured by collimated source. Sci China Tech Sci, 56: 2675~2680, doi: 10.1007/s11431-013-5376-1, 2013
- 【33】 Li C F, H. Zou, H. F. Chen, et al. Obtain martian magnetic pileup boundary by spectrum of low energy electrons. Sci China Tech Sci, 56:2349~2354, doi: 10.1007/s11431-013-5300-8, 2013;
- 【34】 Zou H., Q.-G. Zong, G. K. Parks, Z. Pu, H.-F. Chen, and L. Xie, Response of high-energy protons of the inner radiation belt to large magnetic storms, J. Geophys. Res. -Space Physics, doi:10.1029/2011JA016733, 2011
- 【35】 Zou H., R. Lillis, J.-S. Wang, and E. Nielsen, Determination of seasonal variations in the Martian neutral atmosphere from observations of ionospheric peak height, J. Geophys. Res. –Planet, doi:10.1029/2011JE003833, 2011;
- 【36】 Zou H., E. Nielsen, J.-S. Wang, and X.-D. Wang, Reconstruction of nonmonotonic electron density profiles of the Martian topside ionosphere, Planetary and Space Science, Volume 58, Issue 10, p. 1391-1399, 2010;
- 【37】 Zou H., CHEN HongFei, SHI WeiHong, et al., Effects of Martian crustal magnetic field on its ionosphere, Sci China Tech Sci, 53(6): 1717-1724, 2010;
- 【38】 Zou H., J.-S. Wang, and E. Nielsen, 2006, Reevaluating the relationship between the Martian ionospheric peak density and the solar radiation, J. Geophys. Res., 111, A07305, doi:10.1029/2005JA011580, 2006
- 【39】 Zou H., J.-s. Wang, E. Nielsen, Effect of the seasonal variations in the lower atmosphere on the altitude of the ionospheric main peak at Mars, J. Geophys. Res., Vol. 110, A09311, doi:10.1029/2004JA010963, 2005