

Wang Wenrui

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Research Interests

Auroras are luminous phenomena from the precipitation of energetic particles into Earth's ionosphere-thermosphere system, and they are considered as the 2D manifestation of the 3D SW-M-I-T coupling processes. My research focuses on auroral dynamics, with specialized interest in characterizing auroral structures, analyzing their spatio-temporal evolution, and investigating the coupled magnetosphere-ionosphere processes. I am also interested in research topics related to space exploration and planetary science.

Education Background

- 2006-2012, Ph.D., Wuhan University
- 2002-2006, B.S., Wuhan University

Working Experience

- 2024-present, Assistant Professor, Macau University of Science and Technology
- 2021-2024, Research Associate Professor, Southern University of Science and Technology
- 2018-2021, Research Scientist, Sun Yat-Sen University
- 2016-2017, Visiting Scholar, Hokkaido University
- 2012-2018, Research Scientist, National Astronomical Observatories, CAS

Academic Service Experience

- Committee Member of Remote Sensing and Surveying in Deep Space Exploration
- Youth Editor of the Journal of Earth Science

Honors and Awards

- Pengcheng Peacock Plan, Shenzhen Government, 2023

Research Grants

1. Open Research Foundation of LIESMARS (No. 23P04), PI
2. National Science Foundation of China (No. 42241141), PI
3. National Science Foundation of China (No. 41304021), PI
4. Progress of Strategy Priority Research Program of CAS (No. XDB 41000000), CoI

Recent Publications (After 2019)

1. Zou XD, **Wang WR**, Tatsumi E. (2025). The spacecraft missions: Explorations of planets, *Reference Module in Materials Science and Materials Engineering*, Elsevier
2. Jiang XD, & **Wang WR***(2024). The Probabilistic Determination of Lunar Subsurface Fault Structure Across the Mare Crisium by Very Fast Simulated Annealing (VFSA) Approach, *IEEE GRSL*, 21.
3. Sun WQ, Yang J, **Wang WR**, et al. (2024). Archimedean spiral distribution of energetic particles in Earth's inner radiation belt. *Geophysical Research Letters*, 51, e2023GL106859.
4. **Wang WR**, Yang J, Toffoletto F, et al. (2022). Current sheet thinning in the wake of a bubble injection. *Geophysical Research Letters*, 49, e2022GL100737.
5. Wei D, Yang J, Liu CM, Zhang F, **Wang WR**, Sun WQ. (2022). Successive Westward Traveling Surges Driven by Sequential Plasma- Sheet Bubble Injections. *Geophysical Research Letters*, 49, e2022GL100774.

6. **Wang WR**, Yang J, Nishimura Y, et al. (2021). Magnetospheric source and electric current system associated with intense SAIDs, *Geophysical Research Letters*, 48, e2021GL093253.
7. Wei D, Zhang F, Yang J, **Wang WR**, et al. (2021). A Magnetospheric Driver of Westward Traveling Surge: Plasma-Sheet Bubble. *Geophysical Research Letters*, 48, e2021GL095539.
8. **Wang WR**, Yang J, Nishimura Y, et al. (2021). Effects of ion slippage in Earth's ionosphere and the plasma sheet. *Geophysical Research Letters*, 48, e2020GL091494.
9. Sun WQ, Sadeghzadeh S, Yang J, **Wang WR**, Cui J. (2021). Development of Multiple Injection Channels during a Sawtooth Substorm Event. *Geophysical Research Letters*, 48, e2021GL094097.
10. Sadeghzadeh S, Yang J, Wang C-P, Mousavi A, **Wang WR**, et al. (2021). Effects of bubble injections on the plasma sheet configuration. *Journal of Geophysical Research: Space Physics*, 126, e2021JA029127.
11. **Wang WR**, Yang J, Wang YF, et al. (2020). Spatially quasi-periodic finger-like aurora during substorms, *The Astrophysical Journal*, 897(2).
12. Nishimura Y, Yang J, Weygand J, **Wang WR**, et al. (2020). Magnetospheric conditions for STEVE and SAID: Particle injection, substorm surge and field-aligned currents. *Journal of Geophysical Research: Space Physics*, 2020JA027782.
13. He Z, Yu J, Chen L, Xia Z, **Wang WR**, et al. (2020). Statistical study on locally generated high-frequency plasmaspheric hiss and its effect on suprathermal electrons: Van Allen Probes observation and quasi-linear simulation. *Journal of Geophysical Research: Space Physics*, 125, e2020JA028526.
14. Liu JJ, Li CL, **Wang WR***, et al. (2019). Extraction of lunar domes from Chang'E-2 data with new method. *Icarus*, 321: 29-33.
15. Yang J, Wolf R, Toffoletto F, Sazykin S, **Wang WR**, Cui J. (2019). The Inertialized Rice Convection Model. *Journal of Geophysical Research: Space Physics*, 124: 10294-10317.
16. Yao MJ, Cui J, Wu XS, Huang YY, **Wang WR**. (2019). Variability of the Martian ionosphere from the MAVEN Radio Occultation Science Experiment. *Earth and Planetary Physics*, 3: 283-289.

Teaching Experience

Spring 2025: “Multisource Spatial Data Integration”, Course MSDE01, Macau University of Science and Technology.

Spring 2025: “Space Weather”, Course GSS-28, Macau University of Science and Technology.