



Research Field: SPACE PHYSICS

Focused Field: SPACE ENERGETIC PARTICLES NUMERICAL SIMULATION

SHORT BIO

After receiving a Bachelor’s degree in Physics from Zhengzhou University in 2013, I obtained my Ph.D. in 2018 under the supervision of Prof. Gang Qin at the National Space Science Center, Chinese Academy of Sciences. In the same year, I joined the Institute of Space Science and Applied Technology at Harbin Institute of Technology, Shenzhen, as a postdoctoral researcher. In 2022, I was appointed as an Assistant Professor at the State Key Laboratory of Lunar and Planetary Sciences, Macau University of Science and Technology.

My research interests include theoretical and computational studies as well as data analysis in space physics, particularly focusing on the acceleration and transport processes of solar energetic particles and galactic cosmic rays in the heliosphere.

Asst. Prof.

ZHENNING SHEN
(申振宁)



PhD: SPACE PHYSICS

National Space Science Center, Chinese Academy of Sciences

Bachelor: PHYSICS

Zhengzhou University

KEY PUBLICATIONS (first / corresponding author)

Zhenning Shen, et al., 2025. Solar Modulation of Galactic Cosmic Rays from Hydrogen to Nickel Based on a Modified Force-field Approach, *The Astrophysical Journal*, 988 (2), 262.

Caixia Li, Zhenning Shen, et al., 2025. Application of a Low-dissipation HLLD Approximate Riemann Solver to Solar Wind Simulations, *The Astrophysical Journal*, 986 (1), 89.

Zhenning Shen, et al., 2021. Solar Modulation of Galactic Cosmic-Ray Protons Based on a Modified Force-Field Approach, *The Astrophysical Journal*, 921 (2), 109.

Zhenning Shen, et al., 2021. Numerical Modeling of Latitudinal Gradients for Galactic Cosmic-Ray Protons during Solar Minima: Comparing with Ulysses Observations, *The Astrophysical Journal Supplement Series*, 256 (1), 18.

Zhenning Shen, et al., 2020. A Study of Variations of Galactic Cosmic-Ray Intensity Based on a Hybrid Data-processing Method, *The Astrophysical Journal*, 900 (2), 143.

Zhenning Shen, et al., 2019. Modulation of Galactic Cosmic Rays from Helium to Nickel in the Inner Heliosphere, *The Astrophysical Journal*, 887 (2), 132.

Zhenning Shen, Gang Qin, 2018. Modulation of Galactic Cosmic Rays in the Inner Heliosphere over Solar Cycles, *The Astrophysical Journal*, 854 (2), 37.

Gang Qin, Zhenning Shen, 2017. Modulation of Galactic Cosmic Rays in the Inner Heliosphere, Comparing with PAMELA Measurements, *The Astrophysical Journal*, 846 (1), 56.

Zhenning Shen, Gang Qin, 2016. A study of cosmic ray flux based on the noise in raw CCD data from solar images, *Journal of Geophysical Research: Space Physics*, 121(11):10712

PROFESSIONAL EXPERIENCE

2022 — Present — Macau University of Science and Technology , Macau, China — Assistant Professor

2018 — 2022 — Harbin Institute of Technology, Shenzhen , Shenzhen, China — Postdoc

GRANTS

- Science and Technology Development Fund (FDTC), 2024.12 - 2026.12, PI
- Faculty Research Grants of the Macau University of Science and Technology, 2023.7 - 2025.1, PI
- National Natural Science Foundation of China (NSFC), 2020.1 - 2022.12, PI

