YUANZHENG WEN

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EDUCATION

University of Iowa — Aug 2023-present
Department of Physics and Astronomy — Ph.D. Student in Physics

University of Iowa — Dec 2025
Department of Physics and Astronomy — M.S. in Astronomy

Chengdu University of Technology — Jun 2022
Department of Geophysics and Space Sciences — B.S. in Space Sciences and Technology

PUBLICATION (CITATION: 37 H-INDEX:3)

1. Ionospheric TEC and plasma anomalies possibly associated with the 14 July 2019 Mw 7.2 Indonesia Laiwui earthquake, from analysis of GPS and CSES data

YZ Wen, D Tao, GX Wang et al.

Earth and Planetary Physics, doi: http://doi.org/10.26464/epp2022028

2. Statistical investigations of the radial IMF component on the current sheet structure in the Martian magnetotail: MAVEN observations

Y. Wen, Z. Rong, H. Nilsson et al.

The Astrophysical Journal, doi: https://doi.org/10.3847/1538-4357/ae11b3

3. Multi-Point Observations of the Magnetic Reconnection in the Martian Magnetotail Triggered by an Interplanetary Magnetic Field Rotation

Y. Wen, J. S. Halekas, H. W. Shen et al.

The Astrophysical Journal Letters , doi: https://doi.org/10.3847/2041-8213/adbf10

4. Magnetic Reconnection as a Potential Trigger for Magnetotail Flapping at Mars: Insights from MAVEN and Tianwen-1 Observations

Y. Wen, J. S. Halekas, H. W. Shen et al.

AGU Advances (In revision)

5. Are the Significant Ionospheric Anomalies Associated with the 2007 Great Deep-Focus Undersea Jakarta-Java Earthquake?

D. Tao, G. Wang, J. Zong, **Y. Wen** et al.

Remote Sensing, doi: https://doi.org/10.3390/rs14092211

6. Statistical Analysis of Ion Properties in the Martian Magnetosheath Based on MAVEN Observations: A Comparison of Core and Total Populations

H. Shen, J. S. Halekas, S. M. Currcy, C. Zhang, **Y. Wen** et al.

The Astrophysical Journal, doi: https://dx.doi.org/10.3847/1538-4357/adf6a9

RESEARCH EXPERIENCE

University of Iowa — Jan 2024 - present
Graduate Research Assistant — **Supervisor: Prof. Jasper Halekas**

- **Project: Exploring the Dynamic Magnetosphere of Mars Through Multi-point Approach**

- Revealed IMF rotation-triggered magnetic reconnection in the magnetotail of Mars
- Identified the magnetic reconnection as a potential triggering mechanism for tail flapping at Mars

LASP-University of Colorado, Boulder May 2022 - Aug 2023
Undergraduate Researcher **Supervisor: Prof. David Brain & Prof. Hans Nilsson**

- **Project: Joint Observations of Mars' Tail Ion Escape Evolution from MAVEN and MEX**
- Analyzed synchronized MAVEN STATIC and Mars Express ASPERA-3 plasma observation to study ion escape evolution in Mars' magnetotail
- **Presentation at ASEPRA Team Meeting by IRF**

Institute of Geology and Geophysics, Chinese Academy of Sciences Jul 2021 - Oct 2021
Undergraduate Researcher **Supervisor: Prof. Zhaojin Rong**

- **Project: Statistical Investigations of the Flow-Aligned Component of IMF Impact on Magnetic Field Structure in Martian Magnetotail: MAVEN Observations**
- Analysis of magnetic field and plasma data from MAVEN to study IMF influences on Mars' magnetotail structure
- **Oral Presentation at 2022 AOGS Meeting in Singapore.**
- **First-author paper at *The Astrophysical Journal*.**

Swedish Institute of Space Physics (IRF), Kiruna Apr 2021 - Present
Unddergraduate Researcher **Supervisor: Prof. Hans Nilsson & Prof. Mats Holmstrom**

- **Project: Solar Wind and Planetary Ions Mixing Investigations in the Vicinity of Martian Tail Region with MEX and MAVEN**
- Search and analysis of physical characters of ion mixing region near the Mars' tail boundary based on Mars Express and MAVEN observations

National Space Science Center, Chinese Academy of Sciences Jul 2020 - Sep 2020
Undergraduate Researcher **Supervisor: Dr. Yiteng Zhang**

- **Project: MHD Simulation of Mars Space Environment**
- Modeling the plasma environment of Mars and studied crustal magnetic fields influence on space environment
- **Supported by Chinese Academy of Sciences Research Fellowship.**

Chengdu University of Technology Sep 2019 - Dec 2020
Undergraduate Research Assistant **Supervisor: Prof. Dan Tao**

- **Project: Investigations of Seismic Ionospheric Disturbances with GPS and CSES**
- Analysis of global and local ionospheric anomalies before strong earthquakes based on satellite observations
- **First-author paper at *Earth and Planetary Physics*** and co-author paper at *Remote Sensing*

SELECTED HONORS AND AWARDS

NASA Heliophysics Summer School Awardee, UCAR 2025

AGU 2024 Outstanding Student Presentation Award (top 2%-5% of student presenters) 2025

Pfeiffer and Maltby Scholarship, University of Iowa 2025

Undergraduate Research Fellowship, Chinese Academy of Sciences Sep 2020/2021

Honorary Student of CAS-USTC International Summer School in Planetary Sciences Aug 2020/2021

Honorary Student of Space Physics Summer School, ISPAT, Peking University Jul 2021

National Scholarship, Ministry of Education of China Sep 2020

CONFERENCES & TALKS

Y. Wen, J. S. Halekas, H. Shen, et al. "Magnetic Reconnection As Potential Drivers for Tail Flapping at Mars" AGU, New Orleans, LA, Dec 2025

Y. Wen, Z. Rong, H. Nilsson, et al. "Statistical Investigations of the Radial IMF Component Impact on the Magnetotail Current Sheet Structure of Mars: MAVEN Observations" AGU, New Orleans, LA, Dec 2025

Y. Wen, J. S. Halekas, H. Shen, et al. "Magnetic Reconnection associated Tail Flapping at Mars" MAVEN Project Science Groups Meeting, Boulder, CO, Sep 2025

Y. Wen, J. S. Halekas, H. Shen, et al. "Multi-Point Observations of the Dynamic Magnetotail of Mars: Exploring the Potential Mechanism for Magnetotail Current Sheet Flapping" MAVEN Project Science Groups Meeting, Morgantown, WV, May 2025

Y. Wen, J. S. Halekas, H. Shen, et al. "Multi-point Observations of Magnetic Reconnection in the Martian Magnetotail Triggered by an Interplanetary Magnetic Field Rotation" AGU, Washington DC, Dec 2024

Y. Wen, D. A. Brain, H. Nilsson, et al. "IMA-MAVEN comparison in the magnetotail of Mars" ASPERA Team Meeting at IRF, Sweden, Jun 2023

Y. Wen, Z. Rong, H. Nilsson, et al. "Statistical Investigations of the Flow-aligned Component of IMF Impact on the Current Sheet Structure in the Martian Magnetotail: MAVEN Observations" AOGS Singapore, Aug 2022

PROFESSIONAL SERVICE

Geophysical Research Letters, Publications, Reviewed one manuscript 2025

TEACHING EXPERIENCE

Teaching Assistant of PHYS 3811: Electricity and Magnetism Aug 2023-Dec 2023
Teaching Assistant of Mathematical Methods for Physics Mar 2020-Jun 2020
Teaching Assistant of College Physics Sep 2020-Jan 2021
Private Tutoring in Math, Physics and MATLAB Programming

COMUPTER SKILLS

Programming	MATLAB, IDL (SPEDAS), Python (irfpy)
Operation System	Windows, Linux (Ubuntu)
Space Mission Instruments	MAVEN (STATIC, SWIA, MAG), Mars Express (ASPERA-3 IMA) CSES (LAP, PAP), Tianwen-1 (MOMAG)

REFERENCES

Prof. Jasper Halekas Professor, University of Iowa
Ph.D. Advisor **jasper-halekas@uiowa.edu**

Prof. David Brain Professor, University of Colorado, Boulder
Ph.D. Committee Member **david.brain@lasp.colorado.edu**

Dr. Han-Wen Shen Postdoc Researcher, University of Iowa
Collaborator **han-wen-shen@uiowa.edu**

Dr. Yaxue Dong
Collaborator
Research Scientist, LASP
yaxue.dong@lasp.colorado.edu

Prof. Hans Nilsson
Undergraduate Research Advisor
Senior Scientist, Swedish Institute of Space Physics, Kiruna
hans.nilsson@irf.se

Prof. Zhaojin Rong
Undergraduate Research Advisor
Professor, Institute of Geology and Geophysics, CAS
rongzhaojin@mail.iggcas.ac.cn

Prof. Dan Tao
Undergraduate Research Advisor
Associate Professor, Chengdu University of Technology
dan.tao@cdut.edu.cn