Yuanzheng Wen

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RESEARCH INTERESTS

My current research revolves around the physics of the space environment of Earth and other solar system planets like Mars. Using the observation data of spacecraft and simulation models, I aim to gain a better understanding of the space environment of the planets and piece together the processes of planet evolution, along with their implications for life beyond Earth.

EDUCATION

Chengdu University of Technology September 2018 – June 2022 (Expected)
B.S. Candidate in Space Sciences and Engineering
Minor in English

ACADEMIC POSITIONS AND RESEARCH EXPERIENCE

Swedish Institute of Space Physics, Kiruna, Sweden March 2021 – Present
Undergraduate Researcher
Supervisor: ***Prof. Hans Nilsson*** *and* ***Prof. Mats Holmstrom***
Project: Investigation of the tail boundary layer of Mars with ASPERA-3 data

I will be collaborating with Dr. Hans Nilsson and Dr. Mats Holmstrom to investigate the tail boundary layer of Mars using the moment data of ASPERA-3 onboard Mars Express.

National Space Science Center, Chinese Academy of Sciences July 2020 – August 2020
Undergraduate Researcher
Supervisor: ***Dr. Yiteng Zhang***
Project: MHD Simulation of Martian Plasma Environment

Worked with Dr. Yiteng Zhang on MHD simulation of Martian space environment with simulation data provided by Dr. Yingjuan Ma at UCLA. We used the MHD models to investigate the effects of crustal fields self-rotation on the space environment of Mars (magnetic field, current system, ion escape rate, etc). Currently analyzing the spacecraft data (MEX and MAVEN) to compare the simulation with the observations.

Chengdu University of Technology September 2019-December 2020
Undergraduate Research Assistant
Supervisor: ***Dr. Dan Tao***
Project: Analysis of data from the GPS and the *China Seismo-Electromagnetic Satellite (CSES)* to study the seismic-ionospheric anomalies (Principal Investigator).
Worked with a class mate and served as the PI of the project. We analyzed the total electron content (TEC) data from GPS and the electron density, electron temperature, ion density data derived from the CSES Langmuir Probe (LAP) and Plasma Analyzer Package (PAP) prior to strong earthquakes. Unusual perturbations in TEC and plasma parameters before 2019 Mw7.2 Laiwui earthquake were detected. Manuscript submitted to the Springer journal *Earth, Planets and Space.*

OUTREACH

Student Member of AGU September 2020 – Present

Student Member of EGU January 2021 – Present

Project Organizer, TEDxCDUT December 2019

Team Member of CDUT Badminton Team October 2018 – Present

SELETED HONORS AND AWARDS

Undergraduate Research Fellowship, Chinese Academy of Sciences September 2020
Receiving funding from Chinese Academy of Sciences to conduct research at National Space Science Center (NSSC)

Honorary Students of 2020 USTC-CAS International Summer School August 2020
Selected as the honorary student of the USTC-CAS international summer school in planetary sciences with an awarded certificate.

2 nd Prize in Mathematical Competitions for College Students, Chinese Mathematical Society October 2019
Wining the second prize (10%) in the mathematical competition out of 3000 participants.

National Scholarship, Ministry of Education of China September 2020
Nominated by the Committee of School of Geophysics at Chengdu University of Technology for the 2020 National Scholarship.

INVITED TALKS AND MEETINGS

- Undergraduate Research Project Presentation of CDUT (October 2019)
- USTC-CAS International Summer School of Planetary Sciences (July, August 2020)
- The 5th International Workshop of China Seismo-Electromagnetic Satellite (CSES) Mission (October 2020)
- 35th ASPERA-3 and 27th ASPERA-4 Team Meeting (February 2021)

PUBLICATIONS

1. *Seismic-Ionospheric Perturbations in Ionospheric TEC and Plasma Parameters Associated with the 14 July 2019 Mw7. 2 Laiwui Earthquake Detected by the GPS and CSES (Under Review).*
   Y Wen, *G Wang, D Tao, J Zong, Z Zeren, X Shen*

SOFTWARE, PROGRAMMING AND COMPUTING EXPERIENCE

- Fluent in MATLAB and have experience using IDL (SPEDAS), Python, Mathematica, CERN ROOT
- Visualization and Data Analysis Tool: Tecplot
- Scientific Writing: Latex, Microsoft World.
- Operation Systems: Windows, Linux

TEACHING Experience

Teaching Assistant of the Course: College Physics (Ⅰ, Ⅱ)
Teaching Assistant of the Course: Mathematical Methods for Physics
Private Tutoring in Physics, Math, English and MATLAB