

Yuxuan Yuan

Email: yuanxuxuan@mail.ustc.edu.cn

Tel: +86-18148514551

D-320, East Campus, USTC

Hefei, Anhui 230026, P. R. China

Education

University of Science and Technology of China

Sep. 2022-Present

B. S. Department of Astronomy, School of Physics

- Selected to Jici Yan Talent Program in Physics
- GPA: 3.98 /4.3 Rank: 1/21

Research Experience

Hunt for exoplanet around Vega

May. 2024-Oct. 2024

Advisor: Prof. Fei Yan

- Attempted to confirm an exoplanet candidate around Vega by searching for atmospheric molecular signatures
- Reviewed literatures on exoplanet atmosphere, especially focused on the high-resolution observation
- Used cross-correlation methods to process and analyze data

Simulation of the internal structure of exoplanets

Aug. 2024-Nov. 2024

Advisor: Dr. Chengliang Huang

- Participated in the development of the MAGRATEHEA project, extended the parameter range of the equation of state for hydrogen (H) and helium (He).
- Reviewed literature on simulations of the ideal gas equation of state for hydrogen (H) and helium (He), identified non-physical aspects in existing simulations and implemented improvements to enhance the accuracy of numerical results.

Search for atmospheric signals on the lava planet HD 80653b

Oct. 2024-Present

Advisor: Prof. Fei Yan

- Addressed the issue of uncertain orbital period by improving the traditional cross-correlation method
- Surveyed literature on an alternative approach to addressing periodicity uncertainty in traditional cross-correlation methods, applied this method to process the data, and found results consistent with proposed improved method
- Several potential atmospheric molecular signals were discovered, with the potential to reveal the atmospheric dynamics and verify mechanisms of atmospheric escape on lava planets

Activity

May. 2023 Electromagnetism Short Paper Competition: Place a strong magnetic dipole at the Martia L1 point to shield Mars from the solar wind

- Aiming to explore the possibility of placing a magnetic dipole at the L1 point of Mars to shield the solar wind in the habitability transformation of Mars
- Calculated the theoretical magnitude of the magnetic moment and demonstrated the feasibility of the scheme combining various factors

Sep. 2022 Member of the Science Fiction Club at University of Science and Technology of China

May. 2024 Secretary of the Astronomy Amateurs Association of the University of Science and Technology of China

Honors and Awards

2023&2024 National Encouragement Scholarship

2023&2024 National Fundamental Science Talent Scholarship

2022 Outstanding Student Golden Scholarship(top 10%)

Skills

Languages C, Python, Matlab, Latex

Software Mathematica, Origin

