

Huihao Zhang

STUDENT · RESEARCH ASSISTANT

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Education

The Ohio State University(OSU)

BS IN PHYSICS AND ASTRONOMY & ASTROPHYSICS

- Cumulative GPA of 3.88

Columbus, Ohio

Jan. 2021 - Present

Shandong Jiaotong University(SDJTU)

BE IN SAFETY ENGINEERING, ALREADY TRANSFERRED TO OSU

- Cumulative GPA of 3.24

Jinan, China

Aug. 2018 - Jan. 2021

Honors & Awards

- 2022 **Ann Slusher Tuttle Award**, Recognizes outstanding astronomy majors, nominated by faculty
- 2022 **URAP Research Fellowship**, Selected by the office of undergraduate education of Ohio State University.
- 2022 **Smith Sophomore Award**, Recognizes outstanding physics majors(sophomore), nominated by faculty.
- 2021-22 **Dean's List(4 out of 4)**, The Ohio State University
- 2020 **Third-class of scholarship**, Recognizes outstanding safety engineering majors, nominated by faculty

Columbus, Ohio

Columbus, Ohio

Columbus, Ohio

Columbus, Ohio

Jinan, China

Research Projects

Quantifying the Ability of JWST and ELT to Detect Biosignatures in the Atmosphere of Exoplanets.

Columbus, Ohio

ADVISOR: WANG JI; THE OHIO STATE UNIVERSITY

Nov. 2021 - Present

- Based on NASA's publicly available data, we assume that TRAPPIST-1 e has the atmosphere of Modern Earth and Archean Earth.
- We use PICASO/petitRADTRANS for simulating the transmission spectra of TRAPPIST-1 e and use PandExo for simulating JWST observation results of TRAPPIST-1 e
- We use the BT-Settl model to simulate the flux of TRAPPIST-1, assuming that TRAPPIST-1 e has an Earth-like albedo(Modern), and use the method proposed by Dr. Wang Ji and Dr. Mawet Dimitri et al. to simulate the results of ELT direct imaging of TRAPPIST-1 e.
- Based on the method proposed by Phillips Caprice and Dr. Wang Ji to quantify the ability of JWST and ELT to detect a single gas biosignature in the atmosphere of exoplanets, we proposed a method to detect the ability of JWST and ELT to detect a gas pair biosignatures.
- The main language of the project is Python, and the main libraries used in this project are PICASO, PandExo, petitRADTRANS, Astropy, NumPy, Pandas, and Matplotlib.
- This project was selected by Undergraduate Research Apprenticeship Program(URAP) of Ohio State University and was awarded a three-month(May - July, 2022) research fellowship for a total of \$6,000(Approx)

Presentation

Quantifying the Ability of JWST to Detect Biosignatures.

Columbus, Ohio

GREAT LAKE EXOPLANET AREA MEETING

Nov. 2022

- H., Zhang, J., Wang.

Exploring JWST's observations for gases of terrestrial planets

Columbus, Ohio

SIMINOR OF OSU EXOPLANET GROUP

Jan. 2022

- H., Zhang, J., Wang.

Skills

Programming	Python, Mathematica, LaTeX
Technology	PandExo, PICASO, petitRADTRANS, Astropy, sklearn, TensorFlow Keras, VS Code, Mathematica, Davinci Resolve, Premiere Pro
Languages	English(Fluent), Chinese(Native)

Extracurricular Activity & Volunteering

Friends of Ohio State Astronomy and Astrophysics

VOLUNTEER

- Providing directions, organizing signage
- Answer questions from participants

Columbus, Ohio

Oct. 2022

Fan translation(Chinese) of Youtube channel Launch Pad Astronomy

MEMBER&VOLUNTEER

- I was given permission to translate four videos as a volunteer and post them on the Chinese community Bili Bili.
- Videos currently receives 12k plays on Bili Bili.

Cyber Space

May. 2022 - PRESENT