Xiangyu Zhang

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RESEARCH INTERESTS

Interstellar medium (847) | Stellar physics (1621) | Astrochemistry (75)

EDUCATION

Graduate student October 2021-July 2025

Max Planck Institute for Astronomy (MPIA, Heidelberg)

Thesis defensed: July 3rd, 2025.

Supervisor: Dr. Gregory M. Green

Bachelor's degree for natural science August 2017-June 2021

Department of physics, Tsinghua University (THU), Beijing

Supervisor: Prof. Shude Mao

Selected awards: Lin-bridge scholarship (highest distinction for astronomy undergrads)

SELECTED LIST OF PUBLICATIONS

See NASA ADS for the full list of work.

7. Zhang, X, & Green, G., (2025) Mapping dust beyond stellar color: a binned Poisson-corrected dust $R(V)$ map. in prep.

6. Zhang, X., Hensley, B., & Green, G., (2025) Dust extinction-curve variation in the translucent interstellar medium is driven by PAHs. The Astronomical Journal Letters,. 979(1), L17, 9 pp.

5. Green, G., Zhang, X., & Zhang, R. , (2025) The Dust Extinction Curve: Beyond R(V). The Astrophysical Journal. 988(1), 5, 22.

4. Zhang, X. & Green, G., (2025) Three-dimensional maps of the interstellar dust extinction curve within the Milky Way galaxy. Science 387, 12091214 (2025). DOI:10.1126/science.ado9787. *Selected as the Cover article*.

3. Zhang, X., Green, G., & Rix. H.-W. (2023) Parameters of 220 million stars from Gaia BP/RP spectra. Monthly Notices of the Royal Astronomical Society 524, no. 2 (2023): 1855-1884.

2. Zhang, X., et al. (2020). OGLE-2015-BLG-1771Lb: A Microlens Planet Orbiting an Ultracool Dwarf?" The Astronomical Journal, 159(3), 116.

1. Yang, H., Zhang, X., et al. (2020). KMT-2016-BLG-1836Lb: A Super-Jovian Planet from a High-cadence Microlensing Field. The Astronomical Journal, 159(3), 98.

DATASETS PUBLISHED

"XPPARAMS" – Parameters of 220 million stars from Gaia BP/RP spectra, available on zenodo and GAVO

"R(V) in 3D" – Precise determination of extinction R(V) for over 130 million stars, available on zenodo.

SELECTED HIGHLIGHTS OR RECOGNITIONS

4. Cover Article in *Science* (2025):
My work on three-dimensional dust mapping was selected as the cover paper of *Science*.

3. Interview in *Sterne und Weltraum* (2025):
Featured in the leading popular astronomy magazine in the German-speaking world.

2. Coverage on China Central Television (CCTV, 2025):
Featured in a national news report by the most widely viewed broadcaster in the Chinese-speaking world. Link to news report.

1. MPIA Press Release (2025):
highlighting my work on 3D dust mapping. Link to release.

SELECTED PRESENTATIONS & SEMINAR

(Place, Title, Time)

7. Harvard CfA: Mapping dust extinction beyond stellar color. October 2025.

6. MIT: Searching for interstellar organics in translucent dust clouds, October 2025.

5. LBNL/Berkeley: DESI lunch talk, 3D Dust mapping and Interstellar organics, October 2025.

4. Stanford: KIPAC Tea talk, An all-sky 3D dust R(V) map of the Milky Way: Insights into Interstellar Organics. September 2025.

3. Université Paris-Saclay Interstellar Institute: 3D dust mapping and its implications for interstellar organics. July 2025.

2. NAOC Invited talk: Mapping $R(V)$ in 3D in the Milky Way, LMC and SMC. March 2025.

1. Caltech: R(V) variation in 3D and its implications for dust evolution, June 2024

OUTREACH AND SERVICE

Referee for MNRAS (Since 2023)

Referee for AAS (APJ/APJS/AJ/...) (Since 2024)

Local Organizing Committee member for the conference:

New Computational Methods in Milky Way Dynamics and Structure
Ringberg Castle, Bavaria, July, 2024

LEADERSHIP

Vice president of Students' Union (2019-2021)

Department of physics, Tsinghua University

TEACHING EXPERIENCE

Teaching Assistant, Introduction to astronomy @ Universität Heidelberg, 2023 Spring & Fall.