

Xiangyu Zhang

xzhang@mpia.de | <https://github.com/Astrozy> | astrozy.github.io | [Orcid: 0000-0003-3112-3305](https://orcid.org/0000-0003-3112-3305)

RESEARCH INTERESTS

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

CURRENT POSITION:

KIPAC Postdoctoral Fellow

Sep 2026 -

Kavli Institute for Particle Astrophysics and Cosmology (KIPAC), Stanford University

EDUCATION

Postdoctoral Researcher

July 2025 - July 2026

Max Planck Institute for Astronomy (MPIA, Heidelberg)

Supervisor: Dr. Gregory M. Green **Graduate student**

October 2021-July 2025

Max Planck Institute for Astronomy (MPIA, Heidelberg) / Heidelberg University

Thesis defended: July 3rd, 2025.

Supervisor: Dr. Gregory M. Green

Selected Distinction: Ernst Patzer Award

(for the best refereed publications by MPIA and ZAH junior scientists)

Bachelor's degree for natural science

August 2017-June 2021

Department of physics, Tsinghua University (THU), Beijing

Supervisor: Prof. Shude Mao

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

SELECTED LIST OF PUBLICATIONS

See [NASA ADS](#) for the full list of work.

8. Sihan. J. [Zhang, X.](#), Green, G., et al. (2026) Asymmetry of PAH Mass Fraction in Andromeda: Insights into Extragalactic PAH Formation Channels. *in prep.*

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.

OBSERVING TIME

Approved proposals **as PI**:

2. The Green Bank Telescope (GBT), K-band (18-26.5 GHz), **30.0 h**.

Detecting HC₃N in M31: Verifying Extragalactic In-Situ PAH Formation.

Group A, Linear Ranked Score: 2.41 / 10.

1. The Green Bank Telescope (GBT), K-band (18-26.5 GHz), **5.0 h**.

Tracers of PAH formation at the edges of molecular clouds: source verification.

Group A, Linear Ranked Score: 0.65 / 10.

Approved proposals **as co-I, with significant contribution**:

1. Effelsberg 100-m Radio Telescope, K-band (18-26.5 GHz), **33.0 h**.

Detecting HC₃N in M31: Verifying Extragalactic In-Situ PAH Formation.

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

5. Ernst Patzer Award: (2025)

I was honored with the Ernst Patzer Award, recognizing the best refereed publications by junior scientists at MPIA and the Zentrum für Astronomie, Heidelberg University (ZAH).

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 Chemistry: 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. NAOJ 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.

FULL LIST OF FUNDING SOURCES

1. KIPAC Fellowship (2026.9–2029.9) from Kavli Institute for Particle Astrophysics and Cosmology (KIPAC), Stanford University, \$87,000 per year.
2. Ernst Patzer Award (2025), sponsored by the Ernst Patzer Foundation and awarded by the Max Planck Institute for Astronomy (MPIA), Germany, EUR 2,000, [Link](#).
3. Monthly Salary as a PhD Student (2021–July 2025) from the Max Planck Institute for Astronomy (MPIA), Germany, EUR 2,200 per month.
4. Monthly Salary as a Postdoctoral Researcher (July 2025–present) from the Max Planck Institute for Astronomy (MPIA), Germany, EUR 3,000 per month.
5. Lin-Bridge Scholarship (2019), sponsored by Prof. Douglas N. C. Lin, awarded to the best-performing astronomy undergraduate at Tsinghua University, China, CNY 10,000 (approximately \$1,400), [Link](#).
6. NAOC Scholarship (2019), sponsored by the National Astronomical Observatories, Chinese Academy of Sciences (NAOC), awarded to the best-performing astronomy undergraduate at Tsinghua University, China, CNY 5,000 (approximately \$700), [Link](#).
7. Distinction for Overall Excellence (2018), sponsored by the Alumni Association of Tsinghua University's Department of Physics and awarded by the Department of Physics, Tsinghua University, CNY 10,000 (approximately \$1,400).