Yapeng Zhang

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Education & Experience

2019-2023 PhD in Astrophysics, Leiden University, the Netherlands
"Isotopes and the characterization of extrasolar planets" Advisor: I. Snellen

2017-2019 MSc in Astronomy and Data Science, Leiden University, The Netherlands, cum laude
"Effects of dust evolution and gap formation on multi-wavelength continuum observations of TW Hydrae disk" Advisor: M. Hogerheijde

2013-2017 BSc in Astronomy, Nanjing University, China
"Planet formation in highly inclined binary systems" Advisor: J. Xie

2016 Summer intern, European Southern Observatory
"Dipper stars in the Upper Sco and ρ Oph star forming regions identified from the K2 mission" Advisor: V. Ivanov

Honours & awards

2023 51 Pegasi b Fellowship, Heising-Simons Foundation
2023 NHFP Sagan Fellowship, NASA (*declined*)
2023 Minerva Fast Track Fellowship, MPG (*declined*)
2017-2019 Oort scholarship to excellent, non-Dutch Master's students, Leiden University

Publications

First author

2023 **Zhang, Y.**, Ginski, C., Huang, J., Zurlo, A., Beust H., et al. (2023) Disk Evolution Study Through Imaging of Nearby Young Stars (DESTINYS): Diverse outcomes of binary-disk interactions. **A&A**, in press

2022 **Zhang, Y.**, Snellen, I. A. G., Wyttenbach, A., Nielsen, L. D., Lendl, M., Casasayas-Barris, N., Chaverot, G., Kesseli, A. Y., Lovis, C., Pepe, F. A., Psaridi, A., Seidel, J. V., Udry, S., & Ulmer-Moll, S. (2022) Transmission spectroscopy of the ultra-hot Jupiter MASCARA-4b. Disentangling the hydrostatic and exospheric regimes of ultra-hot Jupiters. **A&A**, 666, A47.

2021a **Zhang, Y.**, Snellen, I. A. G., Bohn, A. J., Mollière, P., Ginski, C., Hoeijmakers, H. J., Kenworthy, M. A., Mamajek, E. E., Meshkat, T., Reggiani, M., & Snik, F. (2021) The ^{13}CO-rich atmosphere of a young accreting super-Jupiter. **Nature**, 595, 370.

2021b **Zhang, Y.**, Snellen, I. A. G., & Mollière, P. (2021) The ^{12}CO/^{13}CO isotopologue ratio of a young, isolated brown dwarf. Possibly distinct formation pathways of super-Jupiters and brown dwarfs. **A&A**, 656, A76.

2020 **Zhang, Y.**, Snellen, I. A. G., Mollière, P., Alonso-Floriano, F. J., Webb, R. K., Brogi, M., & Wyttenbach, A. (2020) Search for He I airglow emission from the hot Jupiter τ Boo b. **A&A**, 641, A161.

2018 **Zhang, Y.**, Li, Q., Xie, J.-W., Zhou, J.-L., Liu, H.-G., & Zhang, H. (2018) Planet Formation in Highly Inclined Binary Systems. II. Orbital Alignment and Planet Growth Boost in Intermediate Separation Binaries. **ApJ**, 861, 116.

Co-author

2023 Palma-Bifani P., Chauvin G., Bonnefoy M., Rojo P. M., Petrus S., et al., including **Zhang, Y**. (2023) Peering into the Young Planetary System AB Pic. Atmosphere, Orbit, Obliquity & Second Planetary Candidate **A&A**, 670, A90.

2022 Webb, R. K., Gandhi, S., Brogi, M., Birkby, J. L., de Mooij, E., Snellen, I. A. G., & **Zhang, Y**. (2022) Water observed in the atmosphere of τ Boötis A b with CARMENES/CAHA. **MNRAS**, 514, 4160.

Non-refereed

2022 **Zhang, Y.**, Snellen, I. A. G., Brogi, M., & Birkby, J. L. (2022) VLT/CRIRES science verification observations: A hint of $C^{18}O$ in the young brown dwarf 2M0355. **Res. Notes AAS**, 6, 194.

Talks

Contributed talks

2022.10.06 From clouds to planets II: the astrochemical link, *Berlin*
Isotopologue ratios in exoplanet atmospheres

2022.06.29 European Astronomical Society Annual Meeting: Exoplanets in the 2020s, *Valencia*
Transmission spectroscopy of ultra-hot Jupiters - disentangle the hydrostatic and exospheric regimes

2022.05.03 Exoplanets IV, *Las Vegas*
Isotopologue ratios in exoplanet atmospheres

2021.11.26 NOVA network II meeting, *Leiden*
Isotopologue ratios in exoplanet atmospheres as potential tracers of planet formation

2021.07.01 European Astronomical Society Annual Meeting: Exoplanets in the 2020s, *Virtual*
The ^{13}CO-rich atmosphere of a young accreting super-Jupiter

2021.04.21 STScI Spring Symposium. Towards the comprehensive characterization of exoplanets, *Virtual*
The ^{13}CO-rich atmosphere of a young accreting super-Jupiter

Invited seminar talks

2021-2022 Exoplanet seminar at University of Cambridge
Exoplanet seminar at ETH Zurich
Exocoffee journal club at MPIA/APEx Heidelberg
Exoplanets and Disks Meeting at API Amsterdam

Awarded telescope time

2023 VLT/CRIRES+, 3 hours, Program ID: 111.24KV (PI)
Comparative study on diverse origin and fate of planetary-mass objects in β Pictoris young moving group: brown dwarf members

2022 VLT/CRIRES+, 109 hours, Program ID: 110.23RW (co-I)
The ESO SupJup Survey: Disentangling formation pathways of Super Jupiters, free-floating planets, and Brown Dwarfs

2022 VLT/CRIRES+, 6 hours, Program ID: 109.23D8 (PI)
Comparative study on diverse origin and fate of planetary-mass objects in β Pictoris young moving group

2021 VLT/CRIRES+, 3.2 hours, Program ID: 108.222Y (PI)
CO isotopologue ratios in super-Jupiter atmospheres as a tracer of planet formation

2021 VLT/CRIRES+, Science Verification, Program ID: 107.22TG (PI)
Isotope inventory in an L dwarf: a benchmark for isotopologue ratios in exoplanets

Teaching & Mentoring

2021-2022 Supervision of Master's research project, Leiden University
The $^{12}CO/^{13}CO$ ratio in the atmospheres of super-Jupiters AB Pic b, DH Tau b, and GQ Lup b

2020-2021 Supervision of Master's research project, Leiden University
Search for Helium airglow emission in the atmosphere of τ Boo b

2020-2023 Teaching assistant of Exoplanet Interiors and Atmospheres, Leiden University

Service

2021 Reviewer for CFHT and GEMINI observing proposal

2020-2022 Organizer of exoplanet group meetings, Leiden University

Outreach

2021 Press releases
"First measurement of isotopes in the atmosphere of an exoplanet" – July 2021, https://www.astronomie.nl/nieuws/en/first-measurement-of-isotopes-in-atmosphere-of-exoplanet-2876
"A potential new tracer of exoplanet formation" – July 2021, https://www.mpia.de/news/science/2021-10-carbon13?c=5313826

2018 Volunteer in IAU100 Flagship Programmes

Last updated: March 2023