Weicheng Zang

Personal Information

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Education

2017.08 – 2022.06	PhD in Astronomy, Tsinghua University, Beijing, China Thesis: Detecting Exotrasolar Planets with Microlensing Advisor: Prof. Shude Mao
2013.08 – 2017.06	BS in Physics, Zhejiang University, Hangzhou, China

Professional Appointments

2022.11 – Now **CfA Postdoctoral Fellow**, Center for Astrophysics, | Harvard & Smithsonian

Research Interests

Gravitational microlensing: Using the Gravitational microlensing technique to study extrasolar planets, binary stars and stellar remnants (e.g., black hole).

Scientific Leadership/Membership

The Earth 2.0 Microlensing Space Telescope	PI
The Roman Galactic Exoplanet Survey Project Infrastructure Team	co-I
The LCOGT key project for high-magnification micorlensing events	PI
The CFHT microlensing survey	PI
The KMTNet microlensing survey	co-I
The *Spitzer* microlensing project	co-I

Fellowship & Awards

2022	CfA Fellowship, oversubscription rate is about 300 to 1
2022	51 Pegasi b Postdoctoral Fellowship (declined)
2021	Tsinghua University Special Scholarship (the highest in Tsinghua, 10 every year)

2023	Outstanding Ph.D. Thesis, Beijing
2022	Outstanding Ph.D. Graduate Award, Tsinghua University
2022	Outstanding Ph.D. Thesis, Tsinghua University
2018, 2019	China National Scholarship, Tsinghua University
2015	China National Scholarship, Zhejiang University
2017, 2018, 2020	First Prize in AMD Scholarship, Tsinghua University

MENTERSHIP

1. **Hanyue Wang**, Harvard University, undergraduate, 2021–2022
   Paper: **Wang, H.**, **Zang, W.**, Zhu, W., et al., 2022, MNRAS, 510, 1778
   Jung, Y., **Zang, W.**, **Wang, H.**, et al., 2023, AJ, 165, 226
2. **Xiangyu Zhang**, Tsinghua University, undergraduate, 2018–2020
   Paper: **Zhang, X.**, **Zang, W.**, Udalski, A., et al., 2020, AJ, 159, 116
   Yang, H., **Zhang, X.**, Hwang, K., **Zang, W.**, et al., 2020, AJ, 159, 98
3. **Jiyuan Zhang**, Tsinghua University, undergraduate/Ph.D., 2021–now
   Paper: **Zhang, J.**, **Zang, W.**, Jung, Y., et al., 2023, MNRAS 522, 6055
   Bell, A., **Zhang, J.**, **Zang, W.**, et al., 2024, PASP, 136, 054402
   Gould A., Shvartzvald, Y., **Zhang, J.**, et al., 2023, AJ, 166, 145
4. **Hongjing Yang**, Xiamen/Tsinghua University, undergraduate/Ph.D., 2019
   Paper: Yang, H., **Zhang, X.**, Hwang, K., **Zang, W.**, et al., 2020, AJ, 159, 98
5. **Yongxin Wen**, Sun Yat-sen University, MA student, 2022–2023
   Paper: **Wen, Y.**, **Zang, W.**, Ma, B., 2023, ApJS, 269, 28
6. **Ruocheng Zhai**, Tsinghua University, undergraduate, 2022–now
   Paper: **Zhai, R.**, Poleski, R., **Zang, W.**, et al., 2024, AJ, 167, 162
7. **Yuqian Gui**, Tsinghua University, undergraduate, 2022–now
   Paper: **Gui, Y.**, **Zang, W.**, Zhai, R., et al. 2024, AJ, 168, 49
8. **Aislyn Bell**, University of Colorado Boulder, undergraduate, 2023 summer
   Paper: **Bell, A.**, Zhang, J., **Zang, W.**, et al., 2024, PASP, 136, 054402
9. **Yunyi Tang**, Tsinghua University, undergraduate, 2022–now
10. **Qiyue Qian**, Tsinghua University, Ph.D. student, 2023–now
11. **Shi Yan**, Nankai University, undergraduate, 2022 Spring

OBSERVING EXPERIENCE (AS PI OR CO-PI)

CFHT (55.7 hrs in total)	22.0 hrs in 2018A, 6.4 hrs in 2018B, 5.5 hrs in 2020A
	4.1 hrs in 2021B, 11.7 hrs in 2022A, 6.0 hrs in 2022B
LCOGT (1366 hrs in total)	48 hrs in 2017B, 40 hrs in 2018A, 50 hrs in 2018B
	60 hrs in 2019A, 60 hrs in 2019B, 60 hrs in 2020A
	150 hrs in 2020B, 100 hrs in 2021A, 85 hrs in 2021B
	220 hrs in 2022A, 100 hrs in 2022B, 190 hrs in 2023A
	203 hrs in 2023B, 500 hrs in 2024A
Keck	0.5 nights in 2024B

Service and Outreach

Since 2017	Referee for AJ, ApJ, ApJS, ApJL, MNRAS
2024–2025	SOC member of the 27th International Microlensing Conference
2023 Summer	Mentor of NSF Research Experience for Undergraduates (REU) Summer Intern Program; Student: Aislyn Bell
Since 02/2023	Contributor for the CfA-Early Career Astronomers workshop, organized a workshop on "How to Build a Personal Website".
Since 08/2023	One of Two Organizers for the CfA Exoplanet Pizza Lunch
2021.12	Scientific organising committee and Session chair for 2021 Chinese Astronomical Union Conference
2021.9–2022.6	Scholarship Committee of Department of Astronomy, Tsinghua University
2020–2022	Founder and Organizer of the badminton club of Department of Astronomy, Tsinghua University

Teaching Experience

Teaching Assistant, *The beauty of the universe*, 2020 Fall and 2021 Fall

Teaching Assistant, *Roaming in the intersection of physics and Astronomy*, 2021 Spring

Publication List

148 papers including: 10 first-author, 17 second-author, and 9 third-author; 2000+ total citations; h-index = 25; Full list: ADS Link

First-Author; ADS Link

1. **Zang, W.**, Jung, Y., Yee, J., et al. *Super-Earths are common in Jupiter-like orbits*, Science, accepted

2. **Zang, W.**, Jung, Y., Yang H., et al. *Systematic KMTNet Planetary Anomaly Search, Paper VII: Complete Sample of $q < 10^{-4}$ Planets from the First 4 yr Survey*, 2023, AJ, 165, 103
3. **Zang, W.**, Yang H., Han, C., et al., *Systematic KMTNet Planetary Anomaly Search. IV. Completed Statistical Sample of 2019 KMTNet Prime-Field Microlensing Planets*, 2022, MNRAS, 515, 928
4. **Zang, W.**, Shvartzvald, Y., Udalski, A., et al., *OGLE-2018-BLG-0799Lb: a $q \sim 2.7 \times 10^{-3}$ planet with Spitzer parallax*, 2022, MNRAS, 514, 5952
5. **Zang, W.**, Han, C., Konda, I., et al., *An Earth-mass planet in a time of Covid-19: KMT-2020-BLG-0414Lb*, 2021, RAA, 21, 239
6. **Zang, W.**, Hwang, K., Udalski, A., et al., *Systematic KMTNet Planetary Anomaly Search, Paper I: OGLE-2019-BLG-1053Lb, A Buried Terrestrial Planet*, 2021, AJ, 162, 163
7. **Zang, W.**, Dong, S., Gould, A., et al., *Spitzer + VLTI-GRAVITY Measure the Lens Mass of a Nearby Microlensing Event*, 2020, ApJ, 897, 180
8. **Zang, W.**, Shvartzvald, Y., Udalski, A., et al., *Spitzer Microlensing Parallax Reveals Two Isolated Stars in the Galactic Bulge*, 2020 ApJ, 891, 3
9. **Zang, W.**, Hwang, K., Kim, H., et al., *KMT-2016-BLG-1397b: KMTNET-only Discovery of a Microlens Giant Planet*, 2018, AJ, 156, 236
10. **Zang, W.**, Penny, M., Zhu, W., et al., *Measurement of Source Star Colors with the K2C9-CFHT Multi-color Microlensing Survey*, 2018, PASP, 130, 104401

Second- or Third- Author including Corresponding Author (*); ADS Link

1. *Zhang, K., **Zang, W.**, El-Badry, K., et al., *An Earth-Mass Planet and a Brown Dwarf in Orbit Around a White Dwarf*, 2024, Nature Astronomy, in press
2. *Yang, H., **Zang, W.**, Gan, T., et al., *How Rare are TESS Free-Floating Planets?*, 2024, ApJL, 972, L12
3. *Gui, Y., **Zang, W.**, Zhai, R., et al., *Systematic KMTNet Planetary Anomaly Search. XII. Complete Sample of 2017 Subprime Field Planets*, 2024, AJ, 168, 49
4. *Zhang, J., **Zang, W.**, Jung, Y., et al. *KMT-2022-BLG-0440Lb: A New $q < 10^{-4}$ Microlensing Planet with the Central-Resonant Caustic Degeneracy Broken*, 2023, MNRAS, 522, 6055
5. *Hwang, K., **Zang, W.**, Gould, A., et al., *Systematic KMTNet Planetary Anomaly Search, Paper II: Five New $q < 2 \times 10^{-4}$ Mass-ratio Planets*, 2022, AJ, 163, 43
6. *Yee, J., **Zang, W.**, Udalski, A., et al., *OGLE-2019-BLG-0960Lb: The Smallest Microlensing Planet*, 2021, AJ, 162, 180
7. *Gould, A., **Zang, W.**, Mao, S., Dong, S., *Masses for free-floating planets and dwarf planets*, 2021, RAA, 21, 133

8. *Zhang, X., **Zang, W.**, Udalski, A., et al., *OGLE-2015-BLG-1771Lb: A Microlens Planet Orbiting an Ultracool Dwarf?*, 2020, AJ, 159, 116
9. Wen, Y., **Zang, W.**, Ma, B., *Towards Measuring Microlensing Event Rate in the Galactic Center: I. Events Detection from the UKIRT Microlensing Survey Data*, 2023, ApJS, 269, 28
10. Han, C., **Zang, W.**, Jung, Y., et al., *KMT-2021-BLG-1547Lb: Giant microlensing planet detected through a signal deformed by source binarity*, 2023, A&A, 678, 101
11. Jung, Y., **Zang, W.**, Wang, H., et al., *Systematic KMTNet Planetary Anomaly Search. VIII. Complete Sample of 2019 Subprime Field Planets*, 2023, AJ, 165, 226
12. Kuang, R., **Zang, W.**, Mao, S., et al. *Simulations of Triple Microlensing Events I: Detectability of a scaled Sun-Jupiter-Saturn System*, 2023, MNRAS, 520, 4540
13. Jung, Y., **Zang, W.**, Han, C., et al., *Systematic KMTNet Planetary Anomaly Search. VI. Complete Sample of 2018 Sub-Prime-Field Planets*, 2022, AJ, 164, 262
14. Yang, H., **Zang, W.**, Gould, A., et al., *KMT-2021-BLG-0171Lb and KMT-2021-BLG-1689Lb: Two Microlensing Planets in the KMTNet High-cadence Fields with Followup Observations*, 2022, MNRAS 516, 1894
15. Kuang, R., **Zang, W.**, Jung, Y., et al., *OGLE-2019-BLG-1470LABc: Another Microlensing Giant Planet in a Binary System*, 2022, MNRAS 516, 1704
16. Wang, H., **Zang, W.**, Zhu, W., et al., *Systematic Korea Microlensing Telescope Network planetary anomaly search - III. One wide-orbit planet and two stellar binaries*, 2022, MNRAS, 510, 1778
17. Li, S., **Zang, W.**, Udalski, A., et al., *OGLE-2017-BLG-1186: first application of asteroseismology and Gaussian processes to microlensing*, 2019, MNRAS, 488, 3308
18. Bell, A., Zhang, J., **Zang, W.**, et al., *KMT-2023-BLG-1431Lb: A New* $q < 10^{-4}$ *Microlensing Planet from a Subtle Signature*, 2024, PASP, 136, 054402
19. Shin, I., Yee, J., **Zang, W.**, et al., *Systematic KMTNet Planetary Anomaly Search. XI. Complete Sample of 2016 Sub-Prime Field Planets*, 2024, AJ, 167, 269
20. Zhai, R., Poleski, R., **Zang, W.**, et al., *OGLE-2017-BLG-0448Lb: A Low Mass-Ratio Wide-Orbit Microlensing Planet?*, 2024, AJ, 167, 162
21. Shin, I., Yee, J., **Zang, W.**, et al., *Systematic KMTNet Planetary Anomaly Search. IX. Complete Sample of 2016 Prime-Field Planets*, 2023, AJ, 166, 104
22. Han, C., Lee, C., **Zang, W.**, et al., *KMT-2021-BLG-2010Lb, KMT-2022-BLG-0371Lb, and KMT-2022-BLG-1013Lb: Three microlensing planets detected via partially covered signals*, 2023, A&A, 674, 90
23. Gould, A., Han, C., **Zang, W.**, et al., *Systematic KMTNet planetary anomaly search. V. Complete sample of 2018 prime-field*, 2022, A&A , 664, 13

24. Yang, H., Mao, S., **Zang, W.**, Zhang, X., *Microlensing predictions: impact of Galactic disc dynamical models*, 2021, MNRAS, 502, 5631
25. Jung, Y., Udalski, A., **Zang, W.**, et al., *KMT-2019-BLG-0842Lb: A Cold Planet below the Uranus/Sun Mass Ratio*, 2020, AJ, 160, 255
26. Jung, Y., Gould, A., **Zang, W.**, et al., *KMT-2017-BLG-0165Lb: A Super-Neptune-mass Planet Orbiting a Sun-like Host Star*, 2019, AJ, 157, 72

White Paper

1. Ge, J., Zhang H., **Zang, W.**, et al., *ET White Paper: To Find the First Earth 2.0*, arXiv:2206.06693

Conference Talks (* = Invited)

1. Micro-Workshop on the Frontiers of Astrophysics, Hangzhou, China, 06/2024
2. *ISSI-BJ: Toward detection of Earth-like planets in the Universe, Beijing, China, 06/2024
3. Roman SSC/RGES Microlensing Modeling Meeting, Pasadena, CA, 02/2024
4. 26th International Microlensing Conference, Livermore, CA, 01/2024
5. 243th Meeting of the American Astronomical Society, New Orleans, LA, 01/2024
6. *Roman RGES PIT Kick-Off Meeting, Columbus, OH, 10/2023
7. *The First workshop on time domain and lensing, virtual conference, 04/2023
8. The 7th Telescope Access Program (TAP) User Meeting, virtual conference, 12/2022
9. 25th International Microlensing Conference, virtual conference, 09/2022
10. 2021 Chinese Astronomical union conference, virtual conference, 12/2021
11. *The 6th Telescope Access Program (TAP) User Meeting, virtual conference, 12/2021
12. ACAMAR: Future of Traditional Survey Science, virtual conference, 09/2021
13. 2021 Chinese Planetary Science Conference, Suzhou, China, 06/2021
14. *The 5th Telescope Access Program (TAP) User Meeting, virtual conference, 01/2021
15. *Earth 2.0 Mission Science Discussion Meeting, virtual conference, 10/2020
16. 23rd International Microlensing Conference, New York, NY, 01/2019

Seminars (* = Invited)

1. Institute for Theory and Computation Luncheon Talk, Center for Astrophysics | Harvard & Smithsonian, 10/2024
2. *Astrophysics Seminar, Shanghai Astronomic Observatory, 07/2024
3. Origins Seminar, University of Arizona, 04/2024
4. EPL Seminar, Carnegie Sciences Earth & Planets Laboratory (EPL), 01/2024
5. Institute for Theory and Computation Luncheon Talk, Center for Astrophysics | Harvard & Smithsonian, 11/2023

6. Exoplanet Pizza Lunch Seminar, Center for Astrophysics | Harvard & Smithsonian, 09/2023
7. *Special Seminar, Zhejiang University, 09/2023
8. Exoplanet Group Seminar, Ohio State University, 05/2023
9. *Theoretical Astrophysics Center Seminar, Berkeley University, 03/2023
10. *The Earth 2.0 Mission Seminar, Online, 08/2022