

# ZJ (ZHOUJIAN) ZHANG

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## EMPLOYMENT HISTORY

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<b>Assistant Professor</b> , University of Rochester	07/2025 (expected) –
<b>NASA Sagan Fellow</b> , University of California, Santa Cruz <i>Host: Prof. Jonathan J. Fortney</i>	10/2022 – present
<b>Postdoctoral Researcher</b> , The University of Texas at Austin <i>Advisors: Prof. Brendan P. Bowler and Prof. Caroline V. Morley</i>	09/2021 – 09/2022
<b>Research Assistant</b> , University of Hawai‘i <i>Advisor: Prof. Michael C. Liu</i>	2016 – 2021
<b>Teaching Assistant</b> , University of Hawai‘i <i>Instructors: Prof. Robert Joseph and Prof. Geoff Mathews</i>	2015 – 2016
<b>REU Intern</b> , Harvard-Smithsonian Astrophysical Observatory <i>Advisors: Prof. Christine Jones and Prof. Marie Machacek</i>	Summer 2014

## EDUCATION

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<b>Ph.D. in Astronomy</b> , University of Hawai‘i <i>“Discovery and Characterization of Giant Planets and Brown Dwarfs on Wide Orbits”</i>	08/2021
<b>M.S. in Astronomy</b> , University of Hawai‘i at Mānoa (GPA: 4.0/4.0)	2017
<b>B.S. in Astronomy</b> , Nanjing University, China (Cum Laude)	2015

## GRANTS, AWARDS, & HONORS

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- 2023 OWL Mini-Grant (\$2,400)**, Heising-Simons Foundation & UC Santa Cruz  
*Grant for collaboration trips.*
- 2022 NASA Hubble Fellowship Program (NHFP) Sagan Fellowship (Science PI; \$380k)**  
*“Probing the Formation of Directly Imaged Exoplanets via Robust Atmospheric Characterization”*
- 2022 Rodger Doxsey Travel Prize (\$400)**, AAS  
*Travel prize for an oral presentation of PhD dissertation at the 241st AAS (10 recipients).*
- 2020 OVCR Student Excellence in Research Award (\$1,000)**, University of Hawai‘i  
*Awarded to 3 PhD students per year across all departments at the University of Hawai‘i.*
- 2019 OWL Mini-Grant (\$2,800)**, Heising-Simons Foundation & UC Santa Cruz  
*Travel grant for attending international conferences.*
- 2018 International Travel Grant (\$3,100)**, AAS  
*Travel grant for attending an international conference (deferred due to changes of travel plans).*
- 2017 Chambliss Astronomy Achievement Student Award**, AAS  
*Poster presentation at the 229th AAS Meeting.*

**2017 Friends of the IfA Research Project Award (\$250)**, University of Hawai'i  
*Top research project among 2nd-year graduate students at the Institute for Astronomy (IfA).*

**2016 Friends of the IfA Research Project Award (\$250)**, University of Hawai'i  
*Top research project among 1st-year graduate students at the Institute for Astronomy (IfA).*

**2015 Institute for Astronomy Director's Research Award (\$5,000)**, University of Hawai'i  
*1-2 awarded each year to incoming graduate students at the Institute for Astronomy.*

## TELESCOPE TIME AWARDED

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- JWST

- **ERS #1386 76.8 hours** as Co-I

- High Contrast Imaging of Exoplanets and Exoplanetary Systems with JWST*

- **GO #3375 24.4 hours** as Co-I

- Dancing 1-14 micron spectra to solve the cloudy and chemical puzzle of brown dwarf variability*

- **GO #3514 8.22 hours** as Co-I

- Panchromatic view of an Adolescent and Frigid Jovian Exoplanet*

- **DDT #4558 6.4 hours** as Co-I

- Establishing the Formation of AF Lep b with NIRCam: The Lowest-Mass Imaged Exoplanet with a Dynamical Mass*

- **GO #5226 20.5 hours** as Co-I

- The Weather Forecast in a Cloudy (or not) Cool Planetary-Mass Brown Dwarf*

- **GO #6005 Survey** as Co-I

- Imaging Young Sub-Jupiter Planets down to Solar-System Scales*

- **GO #6463 3.7 hours** as Co-I

- Testing a new formation tracer for cold gas giant planets with JWST/MIRI*

- HST

- **GO Cycle-26 #15628 40 orbits** as Co-I

- A search for sub-Jupiter mass companions to young planetary-mass brown dwarfs*

- **GO Cycle-28 #16268 16 orbits** as Co-I

- Resolving mass benchmarks for ultracool atmospheres*

- Keck II Telescope (10m)

- NIRSPEC + AO: **1 night as Science PI**

- Hobby-Eberly Telescope (10m)

- Habitable-zone Planet Finder: **73 hours as PI** and **29 hours as Science-PI.**

- Gemini North (8.1m)

- GNIRS: **139 hours as PI** and 51 hours as Co-I.

- GMOS: **31 hours as PI.**

- Gemini South (8.1m)

- IGRINS: **17 hours as PI.**
- FLAMINGOS-2: **10 hours as PI** and 5 hours as Co-I.
- Magellan II Telescope (6.5m)
  - MIKE: 0.5 night as Co-I
- United Kingdom Infrared Telescope (UKIRT; 3.8m)
  - WFCAM: **117 hours as PI.**
- Canada France Hawaii Telescope (CFHT; 3.6m)
  - WIRCcam: **53 hours as PI** and 20 hours as Co-I.
- NASA Infrared Telescope Facility (IRTF; 3m)
  - SpeX: **49 nights as PI** and 9 nights as Co-I.
- Harlan J. Smith Telescope (2.7m)
  - Tull Spectrograph: **19 nights as PI** and 7 nights as Co-I.
- UH88 (2.2m)
  - SNIFS: **4 nights as PI.**

## TEACHING, MENTORING, AND OUTREACH

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### • Teaching Experience

**Guest Lecturer:** AY 101 “Introduction to Astronomy”, University of Alabama 02/2024  
*A lecture about the formation of the solar system for about 150 undergraduate students*

**Guest Mentor:** ASTR 9A “Introduction To Research in Astrophysics” 01/2023 – 06/2023  
*Gave weekly 1-hour lectures (14 weeks in total) and provided projects to 4 students*  
*Undergraduate-level course in Department of Astronomy & Astrophysics at UC Santa Cruz*

**Session Lecturer:** “Young Planets Spectroscopy” (Sagan Exoplanet Summer Workshop) 07/2021  
*Gave two 1-hour interactive lectures about the properties of exoplanet atmospheres*

**Teaching Assistant:** ASTR 110A “Survey of Astronomy” (University of Hawai‘i) Fall 2015  
*Instructor: Prof. Robert Joseph*

**Teaching Assistant:** ASTR 110 “Survey of Astronomy” (University of Hawai‘i) Fall 2015  
*Instructor: Dr. Geoff Mathews (now Associate Professor at Foothill College)*

**Physics and Mathematics Tutor** for high-school student Spring 2015  
*Gave weekly 2-hour lectures on math and physics for SAT subject tests*

### • Teaching & Mentoring Training

**Equity-Minded Mentoring for Postdocs Program** ([link](#)) Summer 2023  
*Teaching & Learning Center at UC Santa Cruz ([completion certificate](#))*

**Teaching and mentorship workshop** Summer 2023  
*Lamat institute at UC Santa Cruz ([link](#))*

**Mentorship Training Series** 11/2022  
*NASA Hubble Fellowship Program*

<b>Mentorship Training Workshop for the TAURUS REU Program</b> ( <a href="#">link</a> )	05/2022
<i>Department of Astronomy, University of Texas at Austin</i>	
<b>Graduate Teaching Assistant Training Program</b>	01/2016
<i>University of Hawai'i</i>	
<b>• Mentored Students</b>	
<b>Aylin García Soto</b> (graduate student at Dartmouth College)	07/2024 –
◦ <a href="#">2024 AMP-UP scholar</a>	
<b>Maria Cuevas</b> (undergraduate student at Columbia University)	06/2023 –
◦ <a href="#">2023 Lamat REU scholar</a> at UC Santa Cruz	
◦ <i>Luminosity and Photometry of Directly Imaged Exoplanets</i>	
<b>Emily Mader</b> (undergraduate at UCSC; <a href="#">now also the UCSC 2023–2024 Koret scholar</a> )	11/2022 –
◦ <i>Atmospheric properties of benchmark brown dwarfs</i>	
<b>Fahham Kurji</b> (undergrad at UCSC; <a href="#">now also Lick Obs. Public Programs Assistant</a> )	11/2022 –
◦ <i>Atmospheric properties of free-floating planets</i>	
<b>Stuti Garg, Tatum Lexvold, Ben McBride, Simon Seo</b> (UCSC ASTR9A)	01/2023 – 06/2023
◦ <i>Photometric and kinematic properties of nearby young moving groups</i>	
<b>Malik Bossett</b> (undergraduate at NAU → <a href="#">now graduate at UC Santa Cruz</a> )	Summer 2022
◦ <a href="#">2022 TAURUS REU Scholar</a> at UT Austin (see <a href="#">blog</a> )	
◦ “Cloud properties of brown dwarfs and giant planets”	
<b>Neel Nagarajan</b> (undergraduate at UT Austin → <a href="#">now a graduate at UCLA</a> )	02/2022 – 07/2022
◦ “Helium outflows from hot Jupiters”	
<b>Spencer Hurt</b> (undergraduate at CU Boulder → <a href="#">now graduate at Univ. of Oregon</a> )	Summer 2021
◦ <a href="#">2021 NSF REU scholar</a> at University of Hawaii	
◦ “Atmospheric modeling of young L dwarfs” (REU program at University of Hawai'i)	
<b>Sage Constantinou</b> (graduate student at University of Hawai'i)	2020 – 2021
◦ <i>Peer Mentoring Program (IfAMiLY) at University of Hawai'i</i>	
<b>Bryan Yamashiro</b> (graduate student at University of Hawai'i)	2019 – 2021
◦ <i>Peer Mentoring Program (IfAMiLY) at University of Hawai'i</i>	
<b>• Outreach</b>	
Children & Youth Day at Hawai'i State Capitol	10/2019
Hawaii Astronomy Forum & Fair on campus of the University of Hawaii	07/2019
StarLab at the Hōkūlani Elementary School	05/2019
Annual Open House of the Institute for Astronomy	2017 – 2018

## LEADERSHIP AND SERVICE

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### • Professional Service

<b>Co-Organizer</b> , <a href="#">Cool Stars 22 Splinter Session</a> “ <i>Star-Planet Connection and Tracing Planetary Formation and Composition</i> ”	06/2024
<b>Referee</b> , <i>AJ</i> , <i>ApJ</i> , <i>A&amp;A</i>	2020 –
<b>Panel Reviewer</b> , NASA XRP Grant	–
<b>Proposal Reviewer</b> , Hubble Space Telescope	–
<b>Organizer</b> , <a href="#">Planetary Lunch Seminar</a> (PLUNCH) at UC Santa Cruz	01/2023 –
<b>Co-Organizer</b> , Weekly Club of Research Highlights (ExoUpdate) at UT Austin	2022
<b>Judge</b> , the 237th AAS Chambliss Poster Competition	01/2021
<b>Time Allocation Committee</b> , University of Hawai‘i	2019 – 2020

### • Diversity, Equity, and Inclusiveness

<b>Co-Leader</b> , <a href="#">Astronomy Mentorship Program for Upcoming Postdocs</a> (AMP-UP)	2024 –
<b>Mentor</b> , <a href="#">Astronomy Mentorship Program for Upcoming Postdocs</a> (AMP-UP)	2024 –
<b>Co-Leader</b> , <a href="#">NASA Hubble Fellowship Application Feedback Program</a>	2024 –
<b>Reviewer</b> , <a href="#">NASA Hubble Fellowship Application Feedback Program</a>	2022 –
<b>Mentor</b> , <a href="#">Lamat REU</a> at UC Santa Cruz	Summer 2023
<b>Mentor</b> , <a href="#">TAURUS REU</a> at UT Austin	Summer 2022
<b>Mentor</b> , <a href="#">NSF REU</a> at University of Hawaii	Summer 2021
<b>Hands-On Session Lecturer</b> , Sagan Exoplanet Summer Workshop	07/2021
<b>Peer mentor</b> , graduate students at Institute for Astronomy	2018 – 2021
<b>Student representative</b> , the Peer Mentoring Program at University of Hawai‘i	2018
<b>Student representative</b> , Graduate Student Organization at University of Hawai‘i	2015 – 2016

## PUBLICATIONS (TOTAL: 54)

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[NASA ADS](#) — [ORCID \(0000-0002-3726-4881\)](#) — [Google Scholar](#)

† student mentees

### • First-Author (13)

- Zhang, Z.**, Mukherjee, S., Liu, M. C., Fortney, J. J., et al., “Disequilibrium Chemistry, Diabatic Thermal Structure, and Clouds in the Atmosphere of COCONUTS-2b” 2024, *AJ*, in press
- Zhang, Z.**, “Initial Entropy and Potential Delayed Formation of the Directly Imaged Exoplanet AF Lep b” 2024, *RNAAS*, 8, 114
- Zhang, Z.**, Mollière, P., Hawkins, K., Manea, C., Fortney, J. J., et al., “ELEMENTAL abundances of Planets and brown dwarfs Imaged around Stars (ELPIS): I. Potential Metal Enrichment of the Exoplanet AF Lep b and a Novel Retrieval Approach for Cloudy Self-luminous Atmospheres” 2023c, *AJ*, 166, 198

10. **Zhang, Z.**, Morley, C. V., Gully-Santiago, M., MacLeod, M., Oklopčić, A., et al. “Giant Tidal Tails of Helium Escaping the hot Jupiter HAT-P-32 b”, 2023b, *Science Advances*, 9, 23
9. **Zhang, Z.**, Bowler, B. P., Dupuy, T. J., Brandt, T. D., Brandt, G. M., et al. “The McDonald Accelerating Stars Surveys (MASS): Architecture of the Ancient Five-Planet Host System Kepler-444”, 2023a, *AJ*, 165, 73
8. **Zhang, Z.**, Liu, M. C., Morley, C. V., Magnier, E. A., Tucker, M. A., et al. “COol Companions ON Ultrawide orbiTS (COCONUTS). III. An Unusually Red L Dwarf around a Young M Dwarf”, 2022, *ApJ*, 935, 15
7. **Zhang, Z.**, Liu, M. C., Claytor, Z. R., Best, W. M. J., et al. “The Second Discovery from the COol Companions ON Ultrawide orbiTS (COCONUTS) Program: A Cold Wide-Orbit Exoplanet around a Young Field M Dwarf at 10.9 pc”, 2021d, *ApJ Letters*, 916, 11
6. **Zhang, Z.**, Liu, M. C., Marley, M. S., Line, M. R., et al. “Uniform Forward-Modeling Analysis of Ultracool Dwarfs. II. Atmospheric Properties of 55 Late-T Dwarfs”, 2021c, *ApJ*, 921 95
5. **Zhang, Z.**, Liu, M. C., Marley, M. S., Line, M. R., et al. “Uniform Forward-Modeling Analysis of Ultracool Dwarfs. I. Methodology and Benchmarking”, 2021b, *ApJ*, 916, 53
4. **Zhang, Z.**, Liu, M. C., Best, W. M., et al. “Hawaii Infrared Parallax Program. V. New T-Dwarf Members and Candidate Members of Nearby Young Moving Groups”, 2021a, *ApJ*, 911, 7
3. **Zhang, Z.**, Liu, M. C., Hermes, J. J., Magnier, E. A., et al. “COol Companions ON Ultrawide orbiTS (COCONUTS). I. A High-Gravity T4 Benchmark around an Old White Dwarf and A Re-Examination of the Surface-Gravity Dependence of the L/T Transition”, 2020, *ApJ*, 891, 171
2. **Zhang, Z.**, Liu, M. C., Best, W. M., Magnier, E. A., et al. “The Pan-STARRS1 Proper-motion Survey for Young Brown Dwarfs in Nearby Star-forming Regions. I. Taurus Discoveries and a Reddening-free Classification Method for Ultracool Dwarfs”, 2018, *ApJ*, 858, 41
1. **Zhang, Z.**, Shi, Y., Rieke, G. H., et al. “Distributions of Quasar Hosts on the Galaxy Main Sequence Plane”, 2016, *ApJ Letters*, 819, 27

● **Second/Third-Author (6)**

6. Zhang, R., Liu, M. C., & **Zhang, Z.**, “A Possible Correlation between Metallicity and Near-IR Color for Late-M and L Dwarfs” 2023, *ApJ*, in press
5. Phillips, M. W., Liu, M. C., & **Zhang, Z.** “The Carbon-to-Oxygen Ratio in Cool Brown Dwarfs and Giant Exoplanets. I. Benchmark T dwarfs GJ 570D and Ross 458C”, 2023, *ApJ*, 961, 210
4. Bowler, B. P., Tran, Q. H., **Zhang, Z.**, et al. “Rotation Periods, Inclinations, and Obliquities of Cool Stars Hosting Directly Imaged Substellar Companions: Spin-Orbit Misalignments are Ubiquitous”, 2023, *AJ*, 165, 164
3. Hurt<sup>†</sup>, S. A., Liu, M. C., **Zhang, Z.**, et al. “Uniform Forward-Modeling Analysis of Ultracool Dwarfs. III. Late-M and L Dwarfs in Young Moving Groups, the Pleiades, and the Hyades”, 2023, *ApJ*, 961, 121
2. Sepulveda, A. G., Huber, D., **Zhang, Z.**, et al., “The Directly Imaged Exoplanet Host Star 51 Eridani is a Gamma Doradus Pulsator”, 2022, *ApJ*, 938, 49
1. Liu, M. C., Magnier, E. A., **Zhang, Z.**, et al., “On The Unusual Variability of the Young M6 Dwarf 2MASS J06195260–2903592”, 2022, *AJ*, 164, 165

● **Other Coauthor (35)**

35. Hejazi, N., et al. (incl. **Zhang, Z.**), “Chemical Links between a Young M-type T Tauri Star and its Substellar Companion: Spectral Analysis and C/O Measurement of DH Tau A”, 2024, [ApJ](#), in press
34. Nail, F., et al. (incl. **Zhang, Z.**), “Cold day-side winds shape large leading streams in evaporating exoplanet atmospheres”, 2024, [A&A](#), under review
33. Balmer, W. O., et al. (incl. **Zhang, Z.**), “VLTI/GRAVITY Observations of AF Lep b: Preference for Circular Orbits, Cloudy Atmospheres, and a Moderately Enhanced Metallicity”, 2024, [AAS Journals](#), in press
32. Franson, K., Balmer, W. O., Bowler, B. P., et al. (incl. **Zhang, Z.**), “JWST/NIRCam 4–5  $\mu\text{m}$  Imaging of the Giant Planet AF Lep b”, 2024, [ApJ Letters](#), 974, 11
31. Sanghi, Aniket, Liu, M. C., Dupuy, T. J., et al. (incl. **Zhang, Z.**), “Ultracool Dwarf Absolute Magnitude Versus Spectral Type Relations for Euclid and Roman Near-infrared Filters”, 2024, [RNAAS](#), in press
30. Sutliff, B. J., Chen, X., Liu, P., et al. (incl. **Zhang, Z.**), “Prioritizing High-Precision Photometric Monitoring of Exoplanet and Brown Dwarf Companions with JWST – Strategic Exoplanet Initiatives with HST and JWST White Paper”, 2024, [White Paper](#), [Strategic Exoplanet Initiatives with HST and JWST](#)
29. Petrus, S., Whiteford, N., Patapis, P., et al. (incl. **Zhang, Z.**), “The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems V: Do Self-Consistent Atmospheric Models Represent JWST Spectra? A Showcase With VHS 1256 b”, 2024, [ApJ](#), 966, 11
28. Sepulveda, Aldo G., Bedding, T. R., Murphy, S. J., (incl. **Zhang, Z.**), et al. “The Hybrid Debris Disk Host Star HD 21997 is a High-Frequency Delta Scuti Pulsator”, 2024, [RNAAS](#), 8, 98
27. Biddle, L. I., Bowler, B. P., Zhou, Y., et al. (incl. **Zhang, Z.**), “Deep Pa $\beta$  Imaging of the Candidate Accreting Protoplanet AB Aur b”, 2024, [AJ](#), 167, 172
26. Sallum, S., Ray, S., Kammerer, J., et al. (incl. **Zhang, Z.**), “The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems IV: NIRISS Aperture Masking Interferometry Performance and Lessons Learned”, 2024, [ApJ](#), 963, 2
25. Gully-Santiago, M., Morley, C. V., Luna, J., et al. (incl. **Zhang, Z.**), “A Large and Variable Leading Tail of Helium in a Hot Saturn Undergoing Runaway Inflation”, 2024, [AJ](#), 167, 142
24. Liu, P., Biller, B., Vos, J. M., et al. (incl. **Zhang, Z.**), “A Near-infrared Variability Survey of Young Planetary-mass Objects”, 2024, [MNRAS](#), 527, 6624
23. Sepulveda, Aldo G., Huber, D., Bedding, T. R., (incl. **Zhang, Z.**), et al. “HIP 65426 is a High-Frequency Delta Scuti Pulsator in Plausible Spin-Orbit Alignment with its Directly Imaged Exoplanet”, 2024, [AJ](#), 168, 13
22. Sanghi, Aniket, Liu, M. C., Best, W.M., (incl. **Zhang, Z.**), et al. “Ultracool Dwarf Absolute Magnitude versus Spectral Type Relations for JWST NIRCam Filters”, 2023, [RNAAS](#), 7, 194 [[Zenodo](#), [10.5281/zenodo.8328755](#)]
21. Sanghi, A., Liu, M. C., Best, W. M. J., et al. (incl. **Zhang, Z.**), “The Hawaii Infrared Parallax Program. VI. The Fundamental Properties of 1000+ Ultracool Dwarfs and Planetary-Mass Objects using Optical to Mid-infrared Spectral Energy Distributions”, 2023, [ApJ](#), 959, 63
20. Sepulveda, Aldo G., Huber, D., Li, G., (incl. **Zhang, Z.**), et al. “20 s Cadence TESS Photometry of HR 8799”, 2023, [RNAAS](#), 7, 2

19. Ray, S., Sallum, S., Hinkley, S., et al. (incl. **Zhang, Z.**), “The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems III: Aperture Masking Interferometric Observations of the star HIP 65426 at 3.8  $\mu\text{m}$ ”, 2023, *ApJL*, in press
18. Damian, B., Jose, J., Biller, B., et al. (incl. **Zhang, Z.**), “A novel survey for young substellar objects with the W-band filter VI: Spectroscopic census of sub-stellar members and the IMF of  $\sigma$  Orionis cluster”, 2023, *ApJ*, 951, 139
17. Franson, K., Bowler, B. P., Bonavita, M., et al. (incl. **Zhang, Z.**), “Astrometric Accelerations as Dynamical Beacons: Discovery and Characterization of HIP 21152 B, the First T-Dwarf Companion in the Hyades”, 2023, *AJ*, 165, 39
16. Dubber, S., Biller, B., Albert, L., et al. (incl. **Zhang, Z.**), “A Novel Survey for Young Substellar Objects with the W-band Filter IV: Detection and characterization of low-mass brown dwarfs in Serpens Core”, 2023, *MNRAS*, 520, 3383
15. Miles, B. E., Biller, B. A., Patapis, P., et al. (incl. **Zhang, Z.**), “The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems II: A 1 to 20 Micron Spectrum of the Planetary-Mass Companion VHS 1256-1257 b”, 2022, *ApJL*, 946, 6
14. Carter, A. L., Hinkley, S., Kammerer, J., et al. (incl. **Zhang, Z.**), “The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems I: High Contrast Imaging of the Exoplanet HIP 65426 b from 2-16 $\mu\text{m}$ ”, 2022, *ApJ*, 951, 20
13. Lalchand, B., Chen, W.-P., et al. (incl. **Zhang, Z.**), “A Novel Survey for Young Stellar Objects with the W-band filter V: Young Low-mass members in IC 348 and Barnard 5”, 2022, *AJ*, 164, 125
12. Zalesky, J., Saboi, K., Line, M. R., **Zhang, Z.**, et al., “A Uniform Retrieval Analysis of Ultra-cool Dwarfs. IV. A Statistical Census from 50 Late T-dwarfs”, 2022, *ApJ*, 936, 44
11. Gaidos, E., Hirano, T., Kraus, A. L., et al. (incl. **Zhang, Z.**), “Zodiacal Exoplanets in Time (ZEIT) XII: A Directly-Imaged Planetary-Mass Companion to a Young Taurus M Dwarf Star”, 2021, *MNRAS*, 512, 583
10. Dubber, S., Biller, B. A., Allers, K. N., et al. (incl. **Zhang, Z.**), “A novel survey for young substellar objects with the W-band filter III: Searching for very low-mass brown dwarfs in Serpens South and Serpens Core”, 2021, *MNRAS*, 505, 4215
9. Salama, M., Ou, J., Baranec, C., et al. (incl. **Zhang, Z.**), “Large Adaptive Optics Survey for Substellar Objects around Young, Nearby, Low-mass Stars with Robo-AO”, 2021, *AJ*, 162, 102
8. Best, W.M.J., Dupuy, T. J., Liu, M. C., Siverd, R. J., **Zhang, Z.**), “The UltracoolSheet: Photometry, Astrometry, Spectroscopy, and Multiplicity for 3000+ Ultracool Dwarfs and Imaged Exoplanets”, 2020, *Zenodo*, 10.5281/zenodo.4169085
7. Fontanive, C., Allers, K. N., Pantoja, B., et al. (incl. **Zhang, Z.**), “A Wide Planetary-mass Companion to a Young Low-mass Brown Dwarf in Ophiuchus”, 2020, *ApJ Letters*, 905, 14
6. Vedantham, H. K., Callingham, J. R., et al. (incl. **Zhang, Z.**), “Direct Radio Discovery of a Cold Brown Dwarf”, 2020, *ApJ Letters*, 903, 33
5. Jose, J., Biller, B. A., Albert, L., et al. (incl. **Zhang, Z.**), “A Novel Survey for Young Substellar Objects with the W-band Filter. II. The Coolest and Lowest Mass Members of the Serpens-South Star-forming Region”, 2020, *ApJ*, 892, 122
4. Dupuy, T., Liu, M. C., Best, W. M. J., et al. (incl. **Zhang, Z.**), “WISE J072003.20–084651.2B is a Massive T Dwarf”, 2019, *ApJ*, 158, 174



3. Dye, S., Lawrence, A., Read, M. A., et al. (incl. **Zhang, Z.**), “The UKIRT Hemisphere Survey: definition and J-band data release”, 2018, *MNRAS*, 473, 5113
2. Best, W. M., Magnier, E. A., Liu, M. C., et al. (incl. **Zhang, Z.**), “Photometry and Proper Motions of M, L, and T Dwarfs from the Pan-STARRS1  $3\pi$  Survey”, 2018, *ApJ*, 234, 1
1. Best, W. M., Liu, M. C., Magnier, E. A., et al. (incl. **Zhang, Z.**), “A Search for L/T Transition Dwarfs with Pan-STARRS1 and WISE. III. Young L Dwarf Discoveries and Proper Motion Catalogs in Taurus and Scorpius-Centaurus”, 2017, *ApJ*, 837, 95

## SCIENTIFIC ORAL PRESENTATIONS

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### • Invited Talks (17)

- 11/2024 Harvard Exoplanet Pizza Lunch  
*Characterizing the self-luminous worlds using ground-based and JWST spectroscopy*
- 09/2024 Astronomy Colloquium at the Max Planck Institute for Astronomy, Heidelberg, Germany  
*Characterizing the self-luminous worlds using ground-based and JWST spectroscopy*
- 04/2024 Astro Seminar at the University of Kansas  
*Deferred*
- 03/2024 Astronomy Seminar at the University of Rochester, Rochester, NY  
*“Studying Exoplanet Origins in the Era of JWST, ELTs, and LSST”*
- 02/2024 Astronomy Colloquium at the University of Alabama, Tuscaloosa, AL  
*“Studying Exoplanet Origins in the Era of JWST, ELTs, and LSST”*
- 12/2023 Thirty Minutes Talk (TMT) at European Southern Observatory Santiago, Chile  
*“A Holistic Perspective of Gas-Giant Planet Formation”*
- 11/2023 LPL Colloquium at Lunar & Planetary Laboratory, University of Arizona, Tucson, AZ  
*“A Holistic Perspective of Gas-Giant Planet Formation via Atmospheric Characterization, Planet-Star Synergy, and Large Sky Surveys”*
- 09/2023 Astrophysics Seminar Series at Boston University, Boston, MA  
*“A Holistic Perspective of Gas-Giant Planet Formation via Atmospheric Characterization, Planet-Star Synergy, and Large Sky Surveys”*
- 03/2023 Seminar at Max Planck Institute for Astronomy, Heidelberg, Germany  
*“Probing the formation pathway and evolution history of exoplanets via robust atmospheric characterization”*
- 04/2022 CEHW (Center for Exoplanets and Habitable Worlds) seminar at Penn State University  
*“Planet Formation and Evolution: from Irradiated Exoplanets to Self-Luminous Worlds”*
- 07/2021 Exocoffee Sminar, Max Planck Institute for Astronomy  
*“Uniform Forward-Modeling Analysis of Ultracool Dwarfs. II. Atmospheric Properties of 55 Late-T Dwarfs”*
- 02/2021 Exocoffee Sminar, Max Planck Institute for Astronomy  
*“Uniform Forward-Modeling Analysis of Ultracool Dwarfs. I. Methodology & Benchmarking”*
- 12/2020 Planetary Lunch Seminar at UC Santa Cruz, virtual  
*“Towards Robust Atmospheric Characterization of Directly Imaged Exoplanets”*
- 12/2020 Flatiron Center for Computational Astrophysics, virtual  
*“Towards Robust Atmospheric Characterization of Directly Imaged Exoplanets”*
- 11/2020 Cosmos Seminar at UT Austin, virtual  
*“Towards Robust Atmospheric Characterization of Directly Imaged Exoplanets”*

08/2017 Astronomy colloquium at Nanjing University  
*“Survey for Young Brown Dwarfs in Nearby Star-Forming Regions”*

08/2017 Lunch Talk at Purple Mountain Observatory  
*“Survey for Young Brown Dwarfs in Nearby Star-Forming Regions”*

• **Competitively Selected Talks (14)**

07/2024 Rubin Community Workshop 2024, Menlo Park, CA  
*Mining exoplanets and benchmark brown dwarfs from large sky surveys*

06/2024 Cool Stars 22, San Diego, CA  
*“Retrieving the Elemental Abundances of Directly Imaged Exoplanets and Their Host Stars”*

04/2024 SEEC Symposium, Pathways to Characterizing Non-Transiting Planets, NASA Goddard Space Flight Center  
*“Probing Formation Pathways of Exoplanets via Atmospheric Characterization”*

04/2024 Large Binocular Telescope Observatory Science Conference, Direct Imaging & Characterization of Exoplanets in the ELT Era, Tucson, AZ  
*“Connecting Compositions of Directly Imaged Exoplanets with Their Formation Pathways”*

01/2024 LSST ultracool dwarfs workshop, online  
*“Mining Benchmark Brown Dwarfs from Large Sky Surveys”*

12/2023 Open Problems in the Astrophysics of Gas Giants, Patagonia, Chile  
*“Elemental Abundance of Directly Imaged Exoplanets and Their Host Stars: Fossil Record of Planet Formation Pathways”*

09/2023 GMT Community Science Meeting, Washington DC  
*“Elemental abundance of Directly Imaged Exoplanets and Their Host Stars: Fossil Record of Planet Formation Pathways”*

07/2023 Bay Area Exoplanet Meeting, Santa Cruz, CA  
*“Elemental abundance of Directly Imaged Exoplanets and Their Host Stars: Fossil Record of Planet Formation Pathways”*

06/2023 6th Annual UCSC Postdoc Symposium, Santa Cruz, CA  
*“Elemental abundance of Directly Imaged Exoplanets as a Fossil Record of Formation Pathways”*

03/2023 Cloud Academy 3, Les Houches, France  
*“Benchmark Brown Dwarfs as Key Testbeds of Low-temperature Exoplanet Model Atmospheres”*

10/2022 42nd Bay Area Exoplanet Meeting at SETI  
*“Giant Tidal Tails of Helium Escaping the Hot Jupiter HAT-P-32 b”*

05/2022 Exoplanet IV, Las Vegas  
*“Benchmark Brown Dwarfs as a key of the Exoplanet Characterization”*

04/2021 STScI Spring Symposium, virtual ([link](#))  
*“Bayesian Spectroscopic Characterization of Cloudless Ultracool Atmospheres”*

03/2018 SPF2: Star and Planet Formation in the Southwest, Tucson  
*“A Pan-STARRS1 Survey for Young Brown Dwarfs in the Nearest Star-Forming Regions”*

• **Other Contributed Talks (10)**

07/2024 Exoplanet Summer Program at the Other Worlds Laboratory at UC Santa Cruz  
*“Studying the Atmospheres of Self-Luminous Worlds via Spectroscopy”*

- 09/2023 NASA Hubble Fellowship Symposium, Boston, MA  
*“Probing the formation of gas-giant exoplanets via atmospheric composition”*
- 01/2023 241st AAS Meeting, Seattle, WA (dissertation talk)  
*“Discovery and Characterization of Giant Planets and Brown Dwarfs on Wide Orbits”*
- 09/2022 2022 NASA Hubble Fellowship Program (NHFP) Symposium (hybrid)  
*“Benchmark Brown Dwarfs as a key of the Exoplanet Characterization”*
- 09/2022 Exoplanet Summer Program at the Other Worlds Laboratory at UC Santa Cruz  
*“An Extensive Survey of Helium Outflows from Irradiated Exoplanets with the Hobby-Eberly Telescope and the Super-Extended Exosphere of HAT-P-32 b”*
- 09/2021 Astronomy colloquium at the University of Texas at Austin  
*“Discovery and Characterization of Planetary-mass and Substellar Benchmarks”*
- 09/2021 Europlanet Science Congress, virtual  
*“Bayesian Spectroscopic Characterization of Cloudless Ultracool Atmospheres”*
- 01/2020 Direct Imaging Workshop at University of Hawai‘i  
*“Characterizing the Growing Census of Planetary and Substellar Benchmarks”*
- 01/2020 235th AAS Meeting, Honolulu, HI  
*“COCONUTS: COol Companions ON Ultrawide orbiTS”*
- 07/2019 Exoplanet Summer Program at the Other Worlds Laboratory at UC Santa Cruz  
*“Forward-Modeling of Late-T Atmospheres”*
- 02/2016 Astrocoffee talk at University of Hawai‘i  
*“Distributions of Quasar Hosts on the Galaxy Main Sequence Plane”*

## PRESS COVERAGE

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- **Giant Tails of Helium Escaping Jupiter-Like Planet** (Zhang et al. 2023b) 2023  
[\[Science Advances\]](#) [\[AGU Eos\]](#) [\[McDonald Observatory\]](#) [\[UCSC News\]](#) [\[HPC Wire\]](#) [\[Universe Today\]](#)
- **The updated architecture of the Kepler-444 planetary system** (Zhang et al. 2023a) 2023  
[\[AAS Nova\]](#) [\[Sky & Telescope\]](#)
- **COCONUTS-2b: the Closest Imaged Exoplanet to Earth** (Zhang et al. 2021d) 2021  
[\[Forbes\]](#) [\[UH News\]](#) [\[The Independent\]](#) [\[Universe Today\]](#) [\[The Daily Galaxy\]](#)
- **A Directly-Imaged Planet to a Young Taurus M Dwarf Star** (Gaidos et al. 2021) 2021  
[\[UH News\]](#) [\[Keck Observatory\]](#) [\[Forbes\]](#) [\[Space.com\]](#)
- **Direct Radio Discovery of a Cold Brown Dwarf** (Vedantham et al. 2020) 2020  
[\[UH News\]](#) [\[astrobit.es\]](#) [\[Universe Today\]](#) [\[Space.com\]](#)