Zhoujian (ZJ) Zhang

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Employment History

Assistant Professor, University of Rochester	07/2025 –
NASA Sagan Fellow, University of California, Santa Cruz	10/2022 – 07/2025
Postdoctoral Researcher, The University of Texas at Austin	09/2021 – 09/2022
Research Assistant, University of Hawai'i	2016 – 2021
Teaching Assistant, University of Hawai'i	2015 – 2016
REU Intern, Harvard-Smithsonian Astrophysical Observatory	Summer 2014

Education

Ph.D. in Astronomy, University of Hawai'i 08/2021
"Discovery and Characterization of Giant Planets and Brown Dwarfs on Wide Orbits"
Advisor: Michael C. Liu

M.S. in Astronomy, University of Hawai'i at Mānoa (GPA: 4.0/4.0) 2017

B.S. in Astronomy, Nanjing University, China 2015

Grants, Awards, & Honors

PI of the HST Cycle 33 Archival / Theory Research Program (AR 18150)
Fueling a New Era of Data-driven Exometeorology with the HST Legacy

PI of the 2025B–2028A Gemini Large & Long Program (GN-2025B-LP-115; 43 hours)
Over-subscription rate of 10:1

PI of the JWST Cycle 4 Guest Observer Program (GO 8106; 56.1 hours)
Probing the chemical (in)homogeneity of free-floating brown dwarfs and planets in the Upper Scorpius star-forming region

PI of the JWST Cycle 4 Guest Observer Program (GO 8140; 27.1 hours)
Empirically anchoring the physics of silicate clouds using L0- T9 benchmark brown dwarfs

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

- JWST

→ **GO #8106 56.1 hours as PI**
Probing the chemical (in)homogeneity of free-floating brown dwarfs and planets in the Upper Scorpius star-forming region

→ **GO #8140 27.1 hours as PI**
Empirically anchoring the physics of silicate clouds using L0- T9 benchmark brown dwarfs

→ **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

→ **AR Cycle-33 #18150 as PI**
Fueling a New Era of Data-driven Exometeorology with the HST Legacy

→ **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: **3 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: **182 hours as PI** and 51 hours as Co-I.

  → GMOS: **31 hours as PI**.

  → IGRINS-2: **5.7 hours as PI**.

- Gemini South (8.1m)

  → IGRINS: **17 hours as PI**.

  → FLAMINGOS-2: **15 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)

  → WIRCam: **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

- **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 Facilitator: "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: Robert Joseph

Teaching Assistant: ASTR 110 "Survey of Astronomy" (University of Hawai'i) Fall 2015
Instructor: Geoff Mathews

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

- **Mentored Students**

Delaney Cummins (graduate student at University of Rochester) 08/2025 –

Aylin García Soto (graduate student at Dartmouth College) 07/2024 –
- *2024 AMP-UP scholar*

Maria Cuevas 06/2023 –
- *Undergraduate student at Columbia University → 2023 Lamat REU scholar at UC Santa Cruz*
- *Luminosity and Photometry of Directly Imaged Exoplanets*

Emily Mader 11/2022 –
- *Undergraduate at UC Santa Cruz → graduate student at UC Berkeley*
- *Atmospheric properties of benchmark brown dwarfs*

Fahham Kurji 11/2022 – 2025
- *Undergraduate at UC Santa Cruz, also Lick Observatory Public Programs Assistant*
- *Atmospheric properties of free-floating planets*

Stuti Garg, Tatum Lexvold, Ben McBride, Simon Seo 01/2023 – 06/2023
- *UC Santa Cruz ASTR9A students*
- *Photometric and kinematic properties of nearby young moving groups*

Malik Bossett Summer 2022
- *Undergrad at NAU → graduate student at UC Santa Cruz*
- *"Cloud properties of brown dwarfs and giant planets"*

Neel Nagarajan 02/2022 – 07/2022
- *Undergrad at UT Austin → graduate at UCLA*
- *"Helium outflows from hot Jupiters"*

Spencer Hurt Summer 2021
- *Undergrad at CU Boulder → now graduate at Univ. of Oregon*
- *2021 NSF REU scholar at University of Hawaii*
- *"Atmospheric modeling of young L dwarfs" (REU program at University of Hawai'i)*

Sage Constantinou (graduate student at University of Hawai'i) 2020 – 2021
- *Peer Mentoring Program (IfAMiLY) at University of Hawai'i*

Bryan Yamashiro (graduate student at University of Hawai'i) 2019 – 2021
- *Peer Mentoring Program (IfAMiLY) at University of Hawai'i*

- **Outreach**

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

Co-Organizer, Cool Stars 22 Splinter Session *"Star-Planet Connection and Tracing Planetary Formation and Composition"*	06/2024
Referee, *AJ*, *ApJ*, *A&A*	2020 –
Panel Reviewer, NASA XRP Grant	–
Reviewer, NASA Postdoctoral Program Fellowships	–
Proposal Reviewer, Hubble Space Telescope	–
Organizer, Planetary Lunch Seminar (PLUNCH) at UC Santa Cruz	2023 – 2024
Co-Organizer, Weekly Club of Research Highlights (ExoUpdate) at UT Austin	2022
Judge, the 237th AAS Chambliss Poster Competition	01/2021
Time Allocation Committee, University of Hawai'i	2019 – 2020
Co-Leader, Astronomy Mentorship Program for Upcoming Postdocs (AMP-UP)	2024 – 2025
Mentor, Astronomy Mentorship Program for Upcoming Postdocs (AMP-UP)	2024 – 2025
Co-Leader, NASA Hubble Fellowship Application Feedback Program	2024 – 2025
Reviewer, NASA Hubble Fellowship Application Feedback Program	2022 – 2025
Hands-On Session Facilitator, Sagan Exoplanet Summer Workshop	07/2021
Peer mentor, graduate students at Institute for Astronomy	2018 – 2021
Student representative, the Peer Mentoring Program at University of Hawai'i	2018
Student representative, Graduate Student Organization at University of Hawai'i	2015 – 2016

Publications (Total: 59)

NASA ADS — ORCID (0000-0002-3726-4881) — Google Scholar

† student mentees

- **First-Author (14)**

14. **Zhang, Z.**, Mollière, P., Fortney, J. J., & Marley, M. S., "ELemental abundances of Planets and brown dwarfs Imaged around Stars (ELPIS): II. The Jupiter-like Inhomogeneous Atmosphere of the First Directly Imaged Planetary-Mass Companion 2MASS 1207 b" 2025b, AJ, 170, 64

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" 2025a, AJ, 169, 9

12. **Zhang, Z.**, "Initial Entropy and Potential Delayed Formation of the Directly Imaged Exoplanet AF Lep b" 2024, RNAAS, 8, 114

11. **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†, 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 (39)**

39. Walker, S. A. U. et al. (incl. **Zhang, Z.**), "Keck Observations in the INfrared of Taurus and ρ Oph Exoplanets And Ultracool dwarfs (KOINTREAU) I: A Planetary-Mass Companion and a Disk-Obscured Stellar Companion Discovered in Taurus", 2025, AAS Journals, under review

38. Mollière, P. et al. (incl. **Zhang, Z.**), "Evidence for SiO cloud nucleation in the rogue planet PSO J318", 2025, A&A, in press

37. Petrus, S. et al. (incl. **Zhang, Z.**), "X-SHYNE: X-Shooter spectra of young exoplanet analogues II. Presentation and analysis of the full library", 2025, A&A, in press

36. Whiteford, N. et al. (incl. **Zhang, Z.**), "The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems VI: Cloudy retrieval analysis of VHS 1256 b, lessons learned and outlook to the future", 2024, AAS Journals, under review

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", 2025, ApJ, 978, 42

34. Nail, F., et al. (incl. **Zhang, Z.**), "Cold day-side winds shape large leading streams in evaporating exoplanet atmospheres", 2024, A&A, 695, 186

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 μm 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. Sutlieff, 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 JWSTEarly 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 Paβ 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 JWSTEarly 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 JWSTEarly Release Science Program for Direct Observations of Exoplanetary Systems III: Aperture Masking Interferometric Observations of the star HIP 65426 at 3.8 μm", 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 σ 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 2-16μm", 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 3π 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

- **Invited Talks (19)**

12/2025 Five College Astronomy Department Colloquium, Amherst, MA
TBD

09/2025 Astronomy Colloquium at the University of Rochester, Rochester, NY
"Studying Exoplanets and Brown Dwarfs in the Era of JWST and LSST"

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)

12/2024 Bay Area Exoplanet Meeting, NASA Ames
"Characterizing the self-luminous worlds using ground-based and JWST spectroscopy"

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"