

Jerry Xuan

51 Pegasi b Fellow

University of California, Los Angeles

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Employment

51 Pegasi b Fellow , University of California, Los Angeles	Oct 2025-Present
Postdoctoral Scholar , California Institute of Technology	2025 (7 months)
Keck Visiting Scholar , W. M. Keck Observatory	2022 (4 months)

Education

Ph.D. in Astrophysics	2020-2025
California Institute of Technology	
“Probing the Origins of Directly Imaged Planets and Brown Dwarfs: From Atmospheric Compositions to Binarity”	
M.Phil. in Astronomy	2019-2020
University of Cambridge	
“Constraining 3D orbital architectures in systems with giant planets”	
B.A. in Physics	2015-2019
Pomona College (Cum Laude, Downing Scholar)	

Awards & Distinctions

Total External Funding as PI: \$600k

Heising Simons Foundation 51 Pegasi b Fellow (\$450k)	2025-
NASA Hubble Fellowship Program Sagan Fellow	2025 (declined)
Future Investigators in NASA Earth and Space Science and Technology (\$150k)	2023-2025
Phi Beta Kappa	2019
Sigma Xi	2019
Downing Scholarship (for M.Phil. at Cambridge)	2019
The Brackett Prize in Astronomy, Pomona College	2019
Tileston Physics Prize, Pomona College	2018

Grants and Telescope Time

James Webb Space Telescope (Total JWST Grants: \$430k)

PI GO 8714 (19.8 hours, \$159,288)	JWST Cycle 4
Combining isotopic and elemental abundances to unveil the formation and accretion history of a cold Jupiter	
PI GO 5342 (13.2 hours, \$150,900)	JWST Cycle 3
Spectroscopic characterization of the lowest-mass imaged Jupiter analog	
PI GO 3762 (3.8 hours, \$74,911)	JWST Cycle 2
Stringent tests of atmospheric and evolutionary models with a benchmark T dwarf companion	

Co-I GO 8063 (59.0 hours, atmospheric analysis lead)	JWST Cycle 4
Beyond C/O and metallicity: Can refractory abundances reveal the origin of the largest planets?	
Co-I GO 4982 (19.3 hours, \$42,619 , atmospheric analysis lead)	JWST Cycle 3
First image and spectrum of a true Jupiter-Saturn analog	
GO 6362 (30.3 hours, atmosphere analysis co-lead)	JWST Cycle 3
Breaking the degeneracy: substellar anchors for evolutionary models	
Co-I GO 8877 (25.9 hours)	JWST Cycle 4
The core of the matter: Constraining the formation history of a super-Jupiter	

ESO Very Large Telescope

Total of 40 hours as PI on VLTI/GRAVITY & CRIRES+	P112-115
Total of 90 hours as co-I on VLTI/GRAVITY	P114-Present

Gemini Observatory

Total of 20 hours as PI on IGRINS	2023
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Keck Observatory

Total of 2 nights as PI on KPIC, NIRSPEC	2025
Over 50 nights as co-I on KPIC, NIRC2	2018-2025

Service & Outreach

Keck AO Working Group & NGS Performance Subgroup Member	2025-Present
ExSoCal 2025 SOC Member	2025-Present
Keck/SCALES Science Team Member	2024-Present
Keck/KPIC Instrument Team Member	2020-Present
Referee for MNRAS, A&A, AAS Journals, Scientific Reports	2021-Present
Habitable Worlds Observatory Working Group; Spectral Processing Focus Group	2024-Present
Astronomy Outreach at Partial Solar Eclipse	2023
Public Open Evenings at Institute of Astronomy, Cambridge	2020

Mentoring experience

Gavin Wang , undergraduate at JHU	2024-Present
<i>Project: Chemical and isotopic abundances of brown dwarf companions with high-resolution spectroscopy</i>	
Sage Santomenna , undergraduate at Pomona College	2025-Present
<i>Project: Characterizing substellar binarity with VLT/CRIRES+ high-resolution spectroscopy</i>	
Co-mentoring Aniket Sanghi , PhD student at Caltech, former Caltech SURF	2021-Present
<i>Project: Direct imaging with Keck/NIRC2 and JWST imaging of ϵ Indi Ab</i>	
Carrie He , PhD student at UCLA	2025-Present
<i>Project: Connecting JWST spectroscopy of directly imaged planets to planet formation</i>	
Co-mentoring Samuel Whitebook , PhD student at Caltech	2024-Present
<i>Project: Searching for substellar binaries with Keck/NIRSPEC high-resolution spectroscopy</i>	

Co-mentoring Yurou Liu , undergrad at Yale, Caltech SURF	2024-2025
<i>Project: Chemical abundances of brown dwarfs in young moving groups</i>	
Co-mentoring Joshua Liberman , post-bacc at Caltech	2022-2023
<i>Project: Keck/KPIC instrument development and data reduction pipelines</i>	
Aylin García Soto , PhD student at Dartmouth, advising for postdoc applications	2025-Present
Jacob Schimp , undergraduate at UIUC, advised for grad school applications	2024
Luke Handley , PhD student at Caltech, department peer mentoring	2023-2024

Teaching experience

Teaching and Residential Assistant for the Summer Science Program (seven weeks)	2019
Teaching Assistant at Caltech	2021
Bayesian Statistics	
High Energy Astrophysics	
Teaching Assistant at Pomona College	2016-2018
Techniques in Observational Astronomy (×2)	
Spacetime, Quanta, and Entropy	
Intro to Stars and Galaxies	
General Physics Lab	

Press

A brown dwarf discovered 30 years ago is actually twins circling each other. AP News	2024
Three decades later, first brown dwarf ever found offers a surprise. Reuters	2024
The first known brown dwarf is actually twins. Astronomy Magazine	2024
It's Twins! Mystery of Famed Brown Dwarf Solved. Caltech	2024
First Brown Dwarf Discovered is Actually Twins. AMNH	2024
Inventing Tools for Detecting Life Elsewhere. Caltech	2017

Selected Talks

Invited

Herzberg Astronomy and Astrophysics Colloquium , Victoria, Canada	2025
“Mapping formation pathways of giant exoplanets from chemical composition”	
CIPS Seminar at UC Berkeley, Berkeley, CA	2025
“Mapping formation pathways of giant exoplanets from chemical composition”	
Astronomy Seminar at Carnegie EPL, Washington DC	2025
“Atmospheric compositions and binarity of directly imaged exoplanets and brown dwarfs”	
Astrocoffee at Institute for Astronomy, Honolulu, HI	2024
“A modern view of Gliese 229 B: binarity and atmospheric analysis with JWST/MIRI”	
UCSD/SDSU Astronomy & Astrophysics Colloquium , San Diego, CA	2024

“Atmospheric compositions and binarity of directly imaged exoplanets and brown dwarfs”	
UCLA Tuesday Seminar, Los Angeles, CA	2024
<i>Ibid.</i>	
Workshop talk at Cloud Zwei Con, Ringberg Castle, Bavaria, Germany	2023
“Retrieving Atmospheric Compositions of Directly Imaged Companions with High-Resolution Spectroscopy”	
Other Worlds Laboratory Summer Program, Santa Cruz, CA	2023, 2024, 2025
“Atmospheric abundances of directly imaged companions from KPIC and JWST”	
Exocoffee at Max Planck Institute for Astronomy, virtual	2022
“A Clear View of a Cloudy Brown Dwarf Companion from High-Resolution Spectroscopy”	
Public Talk at Keck Observatory for the Visiting Scholars Program, Waimea, HI	2022
“Unlocking the Science Potential of Keck Planet Imager and Characterizer (KPIC) Phase II”	
Exoplanet Seminar at Ohio State University, virtual	2022
“A Clear View of a Cloudy Brown Dwarf Companion from High-Resolution Spectroscopy”	
Astrophysics Seminar at American Museum of Natural History, New York, NY	2022
<i>Ibid.</i>	
<u>Plenary and Contributed</u>	
Contributed talk at Aspen Center for Physics, Aspen, CO	2025
“Mapping volatile-to-refractory abundance ratios for the four giant planets in HR 8799”	
Plenary talk at Cool Stars 22, San Diego, CA	2024
“The first methane brown dwarf Gliese 229 B is a close binary”	
Plenary talk at Exoplanets 5, Leiden, Netherlands	2024
“High-resolution spectroscopy of imaged planets and brown dwarfs with KPIC: abundances, spins, and RVs”	
Contributed talk at ExSoCal 2023, Pasadena, CA	2023
“Are These Planets or Brown Dwarfs? Elemental Abundances in the Atmosphere of Substellar Companions”	
Contributed talk at Keck Science Meeting, Berkeley, CA	2023
<i>Ibid.</i>	
Contributed talk at Keck Science Meeting, Pasadena, CA	2022
“Early Science Results from Phase II of the Keck Planet Imager and Characterization”	
Contributed talk at Spirit of Lyot, Leiden, Netherlands	2022
“High resolution spectroscopy of directly imaged exoplanets with KPIC”	
Contributed talk at Keck Science Meeting, San Diego, CA	2021
“Atmospheric composition of a cloudy brown dwarf companion from high and low resolution spectroscopy”	
Contributed talk at Exoplanets Orbit and Dynamics workshop, virtual	2021
“Mutual inclinations between giant planets and their debris discs with Hipparcos, Gaia, and radial velocity”	

Refereed Journal Articles (Jerry Xuan)

Total: **57** First-author: **11** Second-author: **9** Third-author: **9**

Total citations: 1,067 First-author citations: 317 (from ADS)

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First-author

- **Xuan, J. W.**, Mérand, A., Thompson, W., Zhang, Y., et al. 2024, “The cool brown dwarf Gliese 229 B is a close binary”, *Nature* 634, 1070–1074.
- Ruffio, J.-B., **Xuan, J. W. (shared first authorship)**, Chachan, Y., Kesseli, A., et al. 2025, “Jupiter-like uniform metal enrichment in a system of multiple giant exoplanets”, *Nature Astronomy* (accepted).
- **Xuan, J. W.**, Ruffio, J.-B., Chachan, Y., Ohno, K., et al. 2026, “The compositions of the HR 8799 planets reflect accretion of both solids and metal-enriched gas”, *ApJ* (submitted).
- **Xuan, J. W.**, Perrin, M. D., Mawet, D., Knutson, H. A., et al. 2024, “Atmospheric Abundances and Bulk Properties of the Binary Brown Dwarf Gliese 229Bab from JWST/MIRI Spectroscopy”, *ApJ* 977, L32.
- **Xuan, J. W.**, Hsu, C.-C., Finnerty, L., Wang, J., et al. 2024, “Are These Planets or Brown Dwarfs? Broadly Solar Compositions from High-resolution Atmospheric Retrievals of 10-30 MJup Companions”, *ApJ* 970, 71.
- **Xuan, J. W.**, Wang, J., Finnerty, L., Horstman, K., et al. 2024, “Validation of Elemental and Isotopic Abundances in Late-M Spectral Types with the Benchmark HIP 55507 AB System”, *ApJ* 962, 10.
- **Xuan, J. W.**, Wang, J., Ruffio, J.-B., Knutson, H., et al. 2022, “A Clear View of a Cloudy Brown Dwarf Companion from High-resolution Spectroscopy”, *ApJ* 937, 54.
- **Xuan, J. W.**, Kennedy, G. M., Wyatt, M. C., Yelverton, B., 2020, “Mutual inclinations between giant planets and their debris discs in HD 113337 and HD 38529”, *MNRAS* 499, 5059–5074.
- **Xuan, J. W.**, Wyatt, M. C., 2020, “Evidence for a high mutual inclination between the cold Jupiter and transiting super Earth orbiting π Men”, *MNRAS* 497, 2096–2118.
- **Xuan, J. W.**, Bryan, M. L., Knutson, H. A., Bowler, B. P., et al. 2020, “A Rotation Rate for the Planetary-mass Companion DH Tau b”, *AJ* 159, 97.
- **Xuan, W. J.**, Mawet, D., Ngo, H., Ruane, G., et al. 2018, “Characterizing the Performance of the NIRC2 Vortex Coronagraph at W. M. Keck Observatory”, *AJ* 156, 156.

Student-led

- Wang, G., **Xuan, J. W.**, Picos, D., Zhang, Z., et al. 2025, “Chemical and Isotopic Homogeneity Between the L Dwarf CD-35 2722 B and its Early M Host Star”, arXiv e-prints (accepted to ApJ). arXiv:2511.19588.
- Liu, Y., Zhang, Y., **Xuan, J. W.**, Mawet, D., 2025, “Chemistry and Isotope Ratios of Substellar Atmospheres in the β Pictoris Young Moving Group”, *ApJ* (submitted).
- Sanghi, A., **Xuan, J. W.**, Wang, J. J., Mawet, D., et al. 2024, “Efficiently Searching for Close-in Companions Around Young M Dwarfs Using a Multiyear PSF Library”, *AJ* 168, 215.

Second or Third-author

- Finnerty, L., Fitzgerald, M. P., **Xuan, J. W.**, Echeverri, D., 2025, “Possible stratospheric emission in the warm Neptune GJ 436 b from high-resolution spectroscopy”, *AJ* (submitted).
- Hsu, C.-C., Wang, J., **Xuan, J. W.**, Zhang, Y., 2025, “Distinct Rotational Evolution of Giant Planets and Brown Dwarf Companions”, *AJ* (submitted).
- Finnerty, L., Xin, Y., **Xuan, J. W.**, Inglis, J., et al. 2025, “Water Dissociation and Rotational Broadening in the Atmosphere of KELT-20 b from High-resolution Spectroscopy”, *AJ* 169, 333.
- Thompson, W., Blakely, D., **Xuan, J. W.**, Bouchard-Côté, A., et al. 2025, “On the Orbit of the Binary Brown Dwarf Companion GL229 Ba and Bb”, *AJ* 169, 193.
- Finnerty, L., Xin, Y., **Xuan, J. W.**, Inglis, J., et al. 2025, “True Mass and Atmospheric Composition of the Nontransiting Hot Jupiter HD 143105 b”, *AJ* 169, 94.
- Hejazi, N., **Xuan, J. W.**, Coria, D. R., Sawczynec, E., et al. 2025, “Chemical Links between a Young M-type T Tauri Star and Its Substellar Companion: Spectral Analysis and C/O Measurement of DH Tau A”, *ApJ* 978, 42.
- Zhang, Y., **Xuan, J. W.**, Mawet, D., Wang, J. J., et al. 2024, “Atmospheric Characterization of the Super-Jupiter HIP 99770 b with KPIC”, *AJ* 168, 131.
- Hsu, C.-C., Wang, J. J., **Xuan, J. W.**, Ruffio, J.-B., et al. 2024, “Rotation and Abundances of the Benchmark Brown Dwarf HD 33632 Ab from Keck/KPIC High-resolution Spectroscopy”, *ApJ* 971, 9.
- Costes, J. C., **Xuan, J. W.**, Vigan, A., Wang, J., et al. 2024, “Fresh view of the hot brown dwarf HD 984 B through high-resolution spectroscopy”, *A&A* 686, A294.
- Inglis, J., Wallack, N. L., **Xuan, J. W.**, Knutson, H. A., et al. 2024, “Atmospheric Retrievals of the Young Giant Planet ROXs 42B b from Low- and High-resolution Spectroscopy”, *AJ* 167, 218.

- Echeverri, D., **Xuan, J. W.**, Monnier, J. D., Delorme, J.-R., et al. 2024, “Vortex Fiber Nulling for Exoplanet Observations: First Direct Detection of M Dwarf Companions around HIP 21543, HIP 94666, and HIP 50319”, *ApJ* 965, L15.
- Finnerty, L., **Xuan, J. W.**, Xin, Y., Liberman, J., et al. 2024, “Atmospheric Metallicity and C/O of HD 189733 b from High-resolution Spectroscopy”, *AJ* 167, 43.
- Echeverri, D., **Xuan, J. W.**, Jovanovic, N., Ruane, G., et al. 2023, “Vortex fiber nulling for exoplanet observations: implementation and first light”, *Journal of Astronomical Telescopes, Instruments, and Systems* 9, 035002.
- Xin, Y., **Xuan, J. W.**, Mawet, D., Wang, J., et al. 2023, “On-sky speckle nulling through a single-mode fiber with the Keck Planet Imager and Characterizer”, *Journal of Astronomical Telescopes, Instruments, and Systems* 9, 035001.
- Mawet, D., Ruane, G., **Xuan, J. W.**, Echeverri, D., et al. 2017, “Observing Exoplanets with High-dispersion Coronagraphy. II. Demonstration of an Active Single-mode Fiber Injection Unit”, *ApJ* 838, 92.

Other Refereed Publications

- Jones, N. K., Wang, J. J., Nielsen, E. L., De Rosa, R. J., et al. 2025, “HD 143811 AB b: A Directly Imaged Planet Orbiting a Spectroscopic Binary in Sco-Cen”, *ApJ* 995, L41.
- Peck, A. E., Roberson, W., Nielsen, E. L., De Rosa, R. J., et al. 2025, “Characterization of the Host Binary of the Directly Imaged Exoplanet HD 143811 AB b”, *ApJ* 995, L40.
- Finnerty, L., Inglis, J., Fitzgerald, M. P., Echeverri, D., et al. 2025, “The Watery Atmosphere of HD 209458 b Revealed by Joint K- and L-band High-resolution Spectroscopy”, *AJ* 170, 223.
- Uyama, T., Kuzuhara, M., Beichman, C., Hirano, T., et al. 2025, “Direct Imaging Explorations for Companions from the Subaru/IRD Strategic Program II; Discovery of a Brown-dwarf Companion around a Nearby Mid-M-dwarf LSPM J1446+4633”, *AJ* 170, 272.
- Zhang, J., Huber, D., Bottom, M., Weiss, L. M., et al. 2025, “Dynamical Architectures of S-type Transiting Planets in Binaries II: A Dichotomy in Orbital Alignment of Small Planets in Close Binary Systems”, *AJ* (accepted). arXiv:2509.25332.
- Inglis, J., Millar-Blanchaer, M. A., Konopacky, Q. M., **Xuan, J. W.**, 2025, “The Orbital Architecture and Origins of the Young, Planetary Mass Companion Host System, ROXs 42 B”, *AJ* (submitted).
- Zhang, J., Weiss, L. M., Huber, D., **Xuan, J. W.**, et al. 2025, “Discovery of a Jupiter Analog Misaligned to the Inner Planetary System in HD 73344”, *AJ* 169, 200.
- Sappéy, B., Konopacky, Q., Ó, C. R. D., Barman, T., et al. 2025, “HD 206893 B at High Spectral Resolution with the Keck Planet Imager and Characterizer”, *AJ* 169, 175.

- Jovanovic, N., Echeverri, D., Delorme, J.-R., Finnerty, L., et al. 2025, “Technical description and performance of the phase II version of the Keck Planet Imager and Characterizer”, *Journal of Astronomical Telescopes, Instruments, and Systems* 11, 015005.
- Hsu, C.-C., Wang, J. J., Blake, G. A., **Xuan, J. W.**, et al. 2024, “PDS 70b Shows Stellar-like Carbon-to-oxygen Ratio”, *ApJ* 977, L47.
- Zhang, J., Huber, D., Weiss, L. M., **Xuan, J. W.**, et al. 2024, “A Testbed for Tidal Migration: The 3D Architecture of an Eccentric Hot Jupiter HD 118203 b Accompanied by a Possibly Aligned Outer Giant Planet”, *AJ* 168, 295.
- Zhang, Y., González Picos, D., de Regt, S., Snellen, I. A. G., et al. 2024, “The ESO SupJup Survey. III. Confirmation of ^{13}CO in YSES 1 b and Atmospheric Detection of YSES 1 c with CRIRES⁺”, *AJ* 168, 246.
- Horstman, K., Ruffio, J.-B., Batygin, K., Mawet, D., et al. 2024, “RV Measurements of Directly Imaged Brown Dwarf GQ Lup B to Search for Exosatellites”, *AJ* 168, 175.
- Morris, E. C., Wang, J. J., Hsu, C.-C., Ruffio, J.-B., et al. 2024, “ κ Andromedae b Is a Fast Rotator from KPIC High-resolution Spectroscopy”, *AJ* 168, 144.
- Wallack, N. L., Ruffio, J.-B., Ruane, G., Ren, B. B., et al. 2024, “A Survey of Protoplanetary Disks Using the Keck/NIRC2 Vortex Coronagraph”, *AJ* 168, 78.
- Do Ó, C. R., Sappey, B., Konopacky, Q. M., Ruffio, J.-B., et al. 2024, “Orbital and Atmospheric Characterization of the 1RXS J034231.8+121622 System using High-resolution Spectroscopy Confirms that the Companion is a Low-mass Star”, *AJ* 167, 278.
- Salama, M., Guthery, C., Chambouleyron, V., Jensen-Clem, R., et al. 2024, “Keck Primary Mirror Closed-loop Segment Control Using a Vector-Zernike Wavefront Sensor”, *ApJ* 967, 171.
- Maire, A.-L., Delrez, L., Pozuelos, F. J., Becker, J., et al. 2023, “Workshop Summary: Exoplanet Orbits and Dynamics”, *PASP* 135, 106001.
- Finnerty, L., Schofield, T., Sappey, B., **Xuan, J. W.**, et al. 2023, “Keck Planet Imager and Characterizer Emission Spectroscopy of WASP-33b”, *AJ* 166, 31.
- Long, F., Ren, B. B., Wallack, N. L., Harsono, D., et al. 2023, “A Large Double-ring Disk Around the Taurus M Dwarf J04124068+2438157”, *ApJ* 949, 27.
- Ruffio, J.-B., Horstman, K., Mawet, D., Rosenthal, L. J., et al. 2023, “Detecting Exomoons from Radial Velocity Measurements of Self-luminous Planets: Application to Observations of HR 7672 B and Future Prospects”, *AJ* 165, 113.
- Wang, J., Wang, J. J., Ruffio, J.-B., Blake, G. A., et al. 2023, “Retrieving C and O Abundance of HR 8799 c by Combining High- and Low-resolution Data”, *AJ* 165, 4.
- Wang, J., Kolecki, J. R., Ruffio, J.-B., Wang, J. J., et al. 2022, “Retrieving the C and O Abundances of HR 7672 AB: A Solar-type Primary Star with a Benchmark Brown Dwarf”, *AJ* 163, 189.

- Quiroz, J., Wallack, N. L., Ren, B., Dong, R., et al. 2022, “Improving Planet Detection with Disk Modeling: Keck/NIRC2 Imaging of the HD 34282 Single-armed Protoplanetary Disk”, *ApJ* 924, L4.
- Llop-Sayson, J., Wang, J. J., Ruffio, J.-B., Mawet, D., et al. 2021, “Constraining the Orbit and Mass of epsilon Eridani b with Radial Velocities, Hipparcos IAD-Gaia DR2 Astrometry, and Multiepoch Vortex Coronagraphy Upper Limits”, *AJ* 162, 181.
- Wang, J. J., Ruffio, J.-B., Morris, E., Delorme, J.-R., et al. 2021, “Detection and Bulk Properties of the HR 8799 Planets with High-resolution Spectroscopy”, *AJ* 162, 148.
- Bryan, M. L., Ginzburg, S., Chiang, E., Morley, C., et al. 2020, “As the Worlds Turn: Constraining Spin Evolution in the Planetary-mass Regime”, *ApJ* 905, 37.
- Ruane, G., Ngo, H., Mawet, D., Absil, O., et al. 2019, “Reference Star Differential Imaging of Close-in Companions and Circumstellar Disks with the NIRC2 Vortex Coronagraph at the W. M. Keck Observatory”, *AJ* 157, 118.

Non-refereed Publications (11 total)

- Horstman, K. A., Ruffio, J.-B., Wang, J. J., Hsu, C.-C., et al. 2025, “Fringing analysis and forward modeling of Keck Planet Imager and Characterizer (KPIC) spectra”, *Journal of Astronomical Telescopes, Instruments, and Systems* 11, 035004.
- Echeverri, D., Jovanovic, N., Delorme, J.-R., Guthery, C., et al. (2024a). “Recent upgrades to the Keck Planet Imager and Characterizer”. In: *Ground-based and Airborne Instrumentation for Astronomy X*. Vol. 13096. SPIE Conference Series, 130962D, 130962D.
- Wang, J. J., Mawet, D., **Xuan, J. W.**, Hsu, C.-C., et al. (2024). “The high-contrast performance of the Keck Planet Imager and Characterizer”. In: *Ground-based and Airborne Instrumentation for Astronomy X*. Vol. 13096. SPIE Conference Series, 130961X, 130961X.
- Echeverri, D., **Xuan, J.**, Jovanovic, N., Delorme, J.-R., et al. (2023a). “First light of the vortex fiber nulling mode on the Keck planet imager and characterizer”. In: *SPIE Conference Series*. Vol. 12680. SPIE Conference Series, 126800M, 126800M.
- Finnerty, L., Horstman, K., Ruffio, J.-B., Wang, J. J., et al. (2023a). “Characterization of hot Jupiter atmospheres with Keck/KPIC”. In: *SPIE Conference Series*. Vol. 12680. SPIE Conference Series, 1268006, 1268006.
- Hillman, S., Echeverri, D., Millar-Blanchaer, M. A., **Xuan, J.**, et al. 2023, “Exploring calibration algorithms to maximize the null depth in KPIC’s vortex fiber nulling mode”, arXiv e-prints, arXiv:2309.16073.
- Echeverri, D., Jovanovic, N., Delorme, J.-R., Xin, Y., et al. (2022). “Phase II of the Keck Planet Imager and characterizer: system-level laboratory characterization and preliminary on-sky commissioning”. In: *Ground-based and Airborne Instrumentation for Astronomy IX*. Vol. 12184. SPIE Conference Series, 121841W, 121841W.

- Finnerty, L., Schofield, T., Delorme, J.-R., Sappey, B., et al. (2022). “On-sky performance and lessons learned from the phase I KPIC fiber injection unit”. In: *Ground-based and Airborne Instrumentation for Astronomy IX*. Vol. 12184. SPIE Conference Series, 121844Y, 121844Y.
- Echeverri, D., Ruane, G., Jovanovic, N., Delorme, J.-R., et al. (2021). “Broadband vortex fiber nulling: high-dispersion exoplanet science at the diffraction limit”. In: *Techniques and Instrumentation for Detection of Exoplanets X*. Vol. 11823. SPIE Conference Series, 118230A, 118230A.
- Bailey, V. P., Bottom, M., Cady, E., Cantalloube, F., et al. (2018). “Lessons for WFIRST CGI from ground-based high-contrast systems”. In: *Space Telescopes and Instrumentation 2018: Optical, Infrared, and Millimeter Wave*. Vol. 10698. SPIE Conference Series, 106986P, 106986P.
- Klimovich, N., Xin, Y., Mawet, D., Ruane, G., et al. (2017). “Utilizing active single-mode fiber injection for speckle nulling in exoplanet characterization”. In: *SPIE Conference Series*. Vol. 10400. SPIE Conference Series, 104000Y, 104000Y.