

Christopher A. Theissen

University of California San Diego, Department of Astronomy & Astrophysics
9500 Gilman Drive, La Jolla, California 92093, USA
ctheissen at ucsd.edu <https://ctheissen.github.io/>

| | | |
|--|---|-------------------|
| PROFESSIONAL APPOINTMENTS | Assistant Professor UC San Diego, Department of Astronomy & Astrophysics | Jul 2023–Present |
| | UCSD Chancellor’s Postdoctoral Fellow | Sep 2021–Jun 2023 |
| | NASA Sagan Postdoctoral Fellow | Sep 2019–Sep 2022 |
| | Visting Scholar UC San Diego, Center for Astrophysics and Space Sciences | Jan 2019–Sep 2019 |
| | Postdoctoral Scholar – Konopacky Group UC San Diego, Center for Astrophysics and Space Sciences PI: Quinn Konopacky | Jan 2018–Jan 2019 |
| | Adjunct Professor – San Diego Mesa College Department of Physical Sciences | Jun 2017–Jan 2019 |
| EDUCATION | Boston University , Boston, Massachusetts, USA | |
| | Doctor of Philosophy (Ph.D.) in Astronomy Thesis: <i>Low-mass Stars with Extreme Mid-Infrared Excesses: Potential Signatures of Planetary Collisions</i> | Jan 2018 |
| | Master of Arts (M.A.) in Astronomy | May 2013 |
| | University of California San Diego , La Jolla, California, USA | |
| | Bachelor of Science (B.S.) in Physics Specialization in Astrophysics | Jun 2010 |
| | Bachelor of Arts (B.A.) in Mathematics Applied Science | Jun 2010 |
| San Diego Mesa College , San Diego, California, USA | | |
| Associate of Arts (A.A.) in Transfer Studies | Jun 2007 | |
| ACADEMIC AWARDS & HONORS | Scialog Fellow, Early Science with the LSST | 2024 |
| | UC San Diego Chancellor’s Postdoctoral Fellowship | 2021–2023 |
| | UC San Diego Chancellor’s Outstanding Postdoctoral Scholar Award | 2020–2021 |
| | NASA Hubble Fellowship Program Sagan Postdoctoral Fellowship | 2019–2022 |
| | Ford Foundation Dissertation Fellowship (Honorable Mention/Alternate) | 2016 |
| | National Science Foundation Graduate K–12 Fellowship | 2014–2015 |
| | Excellent Teaching Fellow Award, Boston University | 2012 |
| | Ford Foundation Predoctoral Fellowship | 2012–2016 |
| | California Alliance for Minority Participation Graduate School Application Award | 2011 |
| | Minority Undergraduate Research Fellowship, California Institute of Technology | 2009 |
| Opportunity Grant, University of California San Diego | 2009–2010 | |

| | |
|---------------------|--|
| RESEARCH EXPERIENCE | Konopacky Group, UC SAN DIEGO 2018–2019 Postdoctoral Scholar PI: Quinn Konopacky |
| | Cool Star Lab, UC SAN DIEGO 2015–2017 Visiting Graduate Student Researcher Mentor: Adam Burgasser |
| | West Group, BOSTON UNIVERSITY 2011–2017 Graduate Student Researcher Advisor: Andrew West |

| | |
|---------------------|--|
| TEACHING EXPERIENCE | Physics 164: Observational Astrophysics Lab, UC SAN DIEGO, SAN DIEGO, CA Winter 2024 |
| | Physics 253: Astrophysical Statistics, UC SAN DIEGO, SAN DIEGO, CA Fall 2023 |
| | Astronomy 101: Descriptive Astronomy, MESA COLLEGE, SAN DIEGO, CA Summer 2017 Adjunct Faculty |
| | 8th Grade Science, ATLANTIC MIDDLE SCHOOL, QUINCY, MASSACHUSETTS 2014–2015 Resident Scientist (NSF GK-12 Fellow) |
| | Astronomy 203: Principles of Astronomy II, BOSTON UNIVERSITY Spring 2012 Teaching Fellow |
| | Astronomy 101: The Solar System, BOSTON UNIVERSITY Fall 2011 Teaching Fellow |

FIRST & SECOND AUTHOR REFEREED PUBLICATIONS

*DIRECTLY MENTORED STUDENT CO-AUTHORS ARE UNDERLINED.

- A8 Wei, L., Theissen, C. A. et al., “The 3D Kinematics of the Orion Nebula Cluster. II. Mass-dependent Kinematics of the Inner Cluster,” *Astrophysical Journal*, 962, 174, Feb 2024.
- A7 Theissen, C. A. et al. (incl. Hsu, C., Wei, L.), “The 3-D Kinematics of the Orion Nebula Cluster: NIRSPEC-AO Radial Velocities of the Core Population,” *Astrophysical Journal*, 926, 141, Oct 2021.
- A6 Theissen, C. A., “Parallaxes of Cool Objects with *WISE*: Filling in for *Gaia*,” *Astrophysical Journal*, 862, 173, Aug 2018.
- A5 Theissen, C. A. et al., “2MASS J11151597 + 1937266: A Young, Dusty, Isolated, Planetary-Mass Object with a Potential Wide Stellar Companion,” *Astrophysical Journal*, 853, 75, Jan 2018.
- A4 Theissen, C. A. & West, A. A., “Collisions of Terrestrial Worlds: The Occurrence of Extreme Mid-Infrared Excesses around Low-mass Field Stars,” *Astronomical Journal*, 153, 165, Apr 2017.
- A3 Theissen, C. A. et al. (incl. Shippee, G.), “The Late-Type Extension to MoVeRS (LaTE-MoVeRS): Proper Motion Verified Low-mass Stars and Brown Dwarfs from SDSS, 2MASS, and *WISE*,” *Astronomical Journal*, 153, 92, Feb 2017.
- A2 Theissen, C. A., West, A. A., & Dhital, S., “Motion Verified Red Stars (MoVeRS): A Catalog of Proper Motion Selected Low-mass Stars from *WISE*, SDSS, and 2MASS,” *Astronomical Journal*, 151, 41, Feb 2016.
- A1 Theissen, C. A. & West, A. A., “Warm Dust around Cool Stars: *WISE* 12 and 22 μm Excesses around SDSS M Dwarfs,” *Astrophysical Journal*, 794, 146, Oct 2014.

CO-AUTHOR REFEREED PUBLICATIONS

- B45 Franson, K., et al. (incl. Theissen, C. A.), “JWST/NIRCam 4-5 μm Imaging of the Giant Planet AF Lep b,” *Astrophysical Journal Letters*, submitted, Jun 2024.

- B44 Do Ó, C. R., et al. (incl. **Theissen, C. A.**), “Orbital and Atmospheric Characterization of the 1RXS J034231.8+121622 System using High-resolution Spectroscopy Confirms that the Companion is a Low-mass Star,” *Astronomical Journal*, 167, 287, Jun 2024.
- B43 Rothermich, A., et al. (incl. **Softich, E., Karpoor, P. R., Theissen, C. A.**), “89 New Ultracool Dwarf Comoving Companions Identified with the Backyard Worlds: Planet 9 Citizen Science Project,” *Astronomical Journal*, 167, 253, Jun 2024.
- B42 Barkaoui, K., et al. (incl. **Karpoor, P. R., Softich, E., Theissen, C. A.**), “Three short-period Earth-sized planets around M dwarfs discovered by TESS: TOI-5720b, TOI-6008b and TOI-6086b,” *Astronomy & Astrophysics*, in press, May 2024.
- B41 Gillon, M., et al. (incl. **Theissen, C. A.**), “Detection of an Earth-sized exoplanet orbiting the nearby ultracool dwarf star SPECULOOS-3,” *Nature Astronomy*, 96, May 2024.
- B40 Petrus, S., et al. (incl. **Theissen, C. A.**), “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 1256–1257 b,” *Astrophysical Journal Letters*, 966, 11, May 2024.
- B39 Kirkpatrick, J. D., et al. (incl. **Theissen, C. A.**), “The Initial Mass Function Based on the Full-sky 20 pc Census of ~3600 Stars and Brown Dwarfs,” *Astrophysical Journal Supplement*, 271, 55, Apr 2024.
- B38 McCarthy, A. M., et al. (incl. **Theissen, C. A.**), “Multiple Patchy Cloud Layers in the Planetary-mass Object SIMP 0136+0933,” *Astrophysical Journal*, in press, Apr 2024.
- B37 Hsu, C. C., et al. (incl. **Theissen, C. A.**), “The Brown Dwarf Kinematics Project (BDKP). VI. Ultracool Dwarf Radial and Rotational Velocities from SDSS/APOGEE High-resolution Spectroscopy,” *AAS Journals*, submitted, Mar 2024.
- B36 Sallum, S., et al. (incl. **Theissen, C. A.**), “The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems. IV. NIRISS Aperture Masking Interferometry Performance and Lessons Learned,” *Astrophysical Journal Letters*, 963, 2, Mar 2024.
- B35 Ray, S., et al. (incl. **Theissen, C. A.**), “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 μm ,” *Astrophysical Journal Letters*, in press, Oct 2023.
- B34 Ruffio, J. B., et al. (incl. **Theissen, C. A.**), “JWST-TST High Contrast: Achieving direct spectroscopy of faint substellar companions next to bright stars with the NIRSpec IFU,” *Astronomical Journal*, in press, Oct 2023.
- B33 Vasylyev, S. S., et al. (incl. **Karpoor, P. R., Softich, E. R., Theissen, C. A.**), “Early Time Spectropolarimetry of the Aspherical Type II Supernova SN 2023ixf,” *Astrophysical Journal Letters*, 955, 37, Sep 2023.
- B32 Jacobson-Galán, W. V., et al. (incl. **Karpoor, P. R., Softich, E. R., Theissen, C. A.**), “SN 2023ixf in Messier 101: Photo-ionization of Dense, Close-in Circumstellar Material in a Nearby Type II Supernova,” *Astrophysical Journal Letters*, 954, 42, Sep 2023.
- B31 Hoch, K. K. W., et al. (incl. **Theissen, C. A.**), “Assessing the C/O Ratio Formation Diagnostic: A Potential Trend with Companion Mass,” *Astronomical Journal*, 166, 85, Sep 2023.
- B30 Ghachoui, M., et al. (incl. **Aganze, C., Gerasimov, R., Hsu, C., Theissen, C. A.**), “TESS discovery of a super-Earth orbiting the M-dwarf star TOI-1680,” *Astronomy & Astrophysics*, 677, A31, Sep 2023.
- B29 Franson, K., et al. (incl. **Theissen, C. A.**), “Astrometric Accelerations as Dynamical Beacons: A Giant Planet Imaged Inside the Debris Disk of the Young Star AF Lep,” *Astrophysical Journal Letters*, 950, 19, Jun 2023.

- B28 Pozuelos, F. J., et al. (incl. Aganze, C., Gerasimov, R., **Theissen, C. A.**), “A super-Earth and a mini-Neptune near the 2:1 MMR straddling the radius valley around the nearby mid-M dwarf TOI-2096,” *Astronomy & Astrophysics*, 672, A70, Apr 2023.
- B27 Hsu, C., Burgasser, A. J., & **Theissen, C. A.**, “Discovery of the Exceptionally Short Period Ultracool Dwarf Binary LP 413-53AB,” *Astrophysical Journal Letters*, 945, 6, Mar 2023.
- B26 Schneider, A. C., et al. (incl. Aganze, C., **Theissen, C. A.**), “Redder than Red: Discovery of an Exceptionally Red L/T Transition Dwarf,” *Astrophysical Journal Letters*, 943, 16, Feb 2023.
- B25 Franson, K., et al. (incl. **Theissen, C. A.**), “Astrometric Accelerations as Dynamical Beacons: Discovery and Characterization of HIP 21152 B, the First T-Dwarf Companion in the Hyades,” *Astronomical Journal*, 165, 39, Feb 2023.
- B24 Tamburo, P., et al. (incl. **Theissen, C. A.**), “The Perkins INfrared Exosatellite Survey (PINES) II. Transit Candidates and Implications for Planet Occurrence around L and T Dwarfs,” *Astronomical Journal*, 164, 252, Dec 2022.
- B23 Delrez, L., et al. (incl. Aganze, C., **Theissen, C. A.**), “Two Temperate Super-Earths Transiting a Nearby Late-type M Dwarf,” *Astronomy & Astrophysics*, 667, 59, Nov 2022.
- B22 Hoch, K. W. et al. (incl. **Theissen, C. A.**), “Moderate-Resolution *K*-Band Spectroscopy of the Substellar Companion VHS 1256 b,” *Astronomical Journal*, 164, 155, Oct 2022.
- B21 Gan, T., et al. (incl. **Theissen, C. A.**, Aganze, C. A.), “TESS discovery of a sub-Neptune orbiting a mid-M dwarf TOI-2136,” *Monthly Notices of the Royal Astronomical Society*, 514, 4120, Aug 2022.
- B20 Aganze, C. et al. (incl. **Theissen, C. A.**, Tejada Arevalo, R. A., Hsu, C.), “Beyond the Local Volume II: Population Scaleheights and Ages of Ultracool Dwarfs in Deep HST/WFC3 Parallel Fields,” *Astrophysical Journal*, 934, 73, Jul 2022.
- B19 Tamburo, P., et al. (incl. **Theissen, C. A.**), “The Perkins INfrared Exosatellite Survey (PINES) I. Survey Overview, Reduction Pipeline, and Early Results,” *Astronomical Journal*, 163, 253, Jun 2022.
- B18 Abdurro’uf et al. (incl. **Theissen, C. A.**), “The Seventeenth Data Release of the Sloan Digital Sky Surveys: Complete Release of MaNGA, MaStar and APOGEE-2 Data,” *Astrophysical Journal Supplement Series*, 259, 35, Apr 2022.
- B17 Aganze, C. et al. (incl. **Theissen, C. A.**, Tejada Arevalo, R. A., Hsu, C.), “Beyond the Local Volume: Surface Densities of Ultracool Dwarfs in Deep HST/WFC3 Parallel Fields,” *Astrophysical Journal*, 924, 114 Jan 2022.
- B16 Hsu, C. et al. (incl. **Theissen, C. A.**, Birky, J., Aganze, C.), “The Brown Dwarf Kinematics Project (BDKP). V. Radial and Rotational Velocities of T Dwarfs from Keck/NIRSPEC High-Resolution Spectroscopy,” *Astrophysical Journal*, 257, 45, Dec 2021.
- B15 Faherty, J. K., et al. (incl. Aganze, C., Hsu, C., Gerasimov, R., **Theissen, C. A.**), “A Wide Planetary Mass Companion Discovered Through the Citizen Science Project Backyard Worlds: Planet 9,” *Astrophysical Journal*, 923, 48, Dec 2021.
- B14 Schneider, A. C., et al. (incl. Aganze, C., Gerasimov, R., Hsu, C., **Theissen, C. A.**), “Ross 19B: An Extremely Cold Companion Discovered via the Backyard Worlds: Planet 9 Citizen Science Project,” *Astrophysical Journal*, 920, 140, Nov 2021.
- B13 Wells, R. D., et al. (incl. **Theissen, C. A.**), “A large sub-Neptune transiting the thick-disk M4V TOI-2406,” *Astronomy & Astrophysics*, 653, A97 Sep 2021.
- B12 Meisner, A. M., et al. (incl. **Theissen, C. A.**, Gerasimov, R., Aganze, C., Hsu, C.), “New Candidate Extreme T Subdwarfs from the Backyard Worlds: Planet 9 Citizen Science Project,” *Astrophysical Journal*, 915, 120, May 2021.

- B11 Kirkpatrick, J. D., et al. (incl. [Aganze, C.](#), [Gerasimov, R.](#), [Hsu, C.](#), [Theissen, C. A.](#)), “The Field Substellar Mass Function Based on the Full-sky 20-pc Census of 525 L, T, and Y Dwarfs,” *Astrophysical Journal Supplement Series*, 253, 7, May 2021.
- B10 [Wilcomb, K. K.](#) et al. (incl. [Theissen, C. A.](#)), “Moderate-Resolution *K*-Band Spectroscopy of Substellar Companion κ Andromedae b,” *Astronomical Journal*, 160, 270, Nov 2020.
- B9 Meisner, A. M., et al. (incl. [Hsu, C.](#), [Aganze, C.](#), [Gerasimov, R.](#), [Theissen, C. A.](#)), “*Spitzer* Follow-up of the Coldest Brown Dwarfs Discovered by the Backyard Worlds: Planet 9 Citizen Science Project,” *Astrophysical Journal*, 889, 123, Aug 2020.
- B8 Muirhead, P. S., et al. (incl. [Theissen, C. A.](#)), “Magnetic Inflation and Stellar Mass. V. Intensification and saturation of M dwarf absorption lines with Rossby number,” *Astronomical Journal*, 159, 52, Feb 2020.
- B7 Bardalez Gagliuffi, D. C., et al. (incl. [Theissen, C. A.](#)), “The Ultracool SpeXtoscopic Survey. I. Volume-limited Spectroscopic Sample and Luminosity Function of M7–L5 Ultracool Dwarfs,” *Astrophysical Journal*, 883, 205, Oct 2019.
- B6 Kim, D., et al. (incl. [Theissen, C. A.](#)), “Stellar Proper Motions in the Orion Nebular Cluster,” *Astronomical Journal*, 157, 118, Feb 2019.
- B5 Gagné, J., et al. (incl. [Theissen, C. A.](#)), “2MASS J13243553+6358281 is an Early T-Type Planetary-mass Object in the AB Doradus Moving Group,” *Astrophysical Journal Letters*, 854, 27, Feb 2018.
- B4 Favia, A., West, A. A., & [Theissen, C. A.](#), “Runaway M Dwarf Candidates from the Sloan Digital Sky Survey,” *Astrophysical Journal*, 813, 26, Nov 2015.
- B3 Arcavi, I., et al. (incl. [Theissen, C. A.](#)), “A Continuum of H- to He-rich Tidal Disruption Candidates With a Preference for E+A Galaxies,” *Astrophysical Journal*, 793, 38, Sep 2014.
- B2 Sfiligoi, I., et al. (incl. [Theissen, C. A.](#)), “Scalability of network facing services used in the Open Science Grid,” *Journal of Physics: Conference Series*, 331, 062023, Dec 2011.
- B1 Quimby, R. M., et al. (incl. [Theissen, C. A.](#)), “Hydrogen-poor superluminous stellar explosions,” *Nature*, 474, 487, Jun 2011.

**PREPRINTS &
OTHERS**

- C15 Alvarado, E., et al. (incl. [Theissen, C. A.](#)), “The Spectral ANalog of Dwarfs (SAND): New Model Atmospheres with Varying Chemistry for Galactic Archaeology with Ultracool Dwarfs,” *Research Notes of the American Astronomical Society*, 8, 134, May 2024.
- C14 Zhou, T., et al. (incl. [Theissen, C. A.](#)), “Spectral Typing with Artificial Intelligence: Classifying Low-resolution Near-infrared Spectra of Standard M/L/T Dwarfs,” *Research Notes of the American Astronomical Society*, 8, 102, Apr 2024.
- C13 [Mainieri, V.](#), et al. (incl. [Theissen, C. A.](#)), “The Wide-field Spectroscopic Telescope (WST) Science White Paper,” *White Paper*, Mar 2024.
- C12 [Humphreys, A.](#), et al. (incl. [Theissen, C. A.](#)), “Spectroscopic Confirmation of the Nearby, Wide-separation L Dwarf Pair CWISE J061741.79+194512.8AB,” *Research Notes of the American Astronomical Society*, 7, 184, Jul 2023.
- C11 Dage, K. C., et al. (incl. [Theissen, C. A.](#)), “Extragalactic Star Cluster Science with the Nancy Grace Roman Space Telescope’s High Latitude Wide Area Survey and the Vera C. Rubin Observatory,” *White Paper for the Roman Core Community Survey, submitted to BAAS*, Jun 2023.
- C10 [Han, J. J.](#), et al. (incl. [Theissen, C. A.](#)), “NANCY: Next-generation All-sky Near-infrared Community survey,” *White Paper for the Roman Core Community Survey, submitted to BAAS*, Jun 2023.

- C9 Zhou, T., et al. (incl. **Theissen, C. A.**), “Resolved Binaries with Late-M and L Dwarf Companions Identified in Gaia eDR3,” *Research Notes of the American Astronomical Society*, 7, 50, Mar 2023.
- C8 Desai, M., et al. (incl. Draxl Giannoni, J. D., Aganze, C., **Theissen, C. A.**), “Identifying Ultracool Binary Systems using Machine Learning Methods,” *Research Notes of the American Astronomical Society*, 6, 151, Jan 2023.
- C7 **Theissen, C. A.**, et al. (incl. Hsu, C.), “Keck NIRES Spectral Standards for L, T, & Y Dwarfs,” *Research Notes of the American Astronomical Society*, 6, 151, Jul 2022.
- C6 Low, R., et al. (incl. Gerasimov, R., Hsu, C., **Theissen, C. A.**), “Spectroscopic Confirmation of an M6 Dwarf Companion to the Nearby Star BD-08 2582,” *Research Notes of the American Astronomical Society*, 5, 26, Feb 2021.
- C5 **Theissen, C. A.**, et al., “WISE J135501.90-825838.9 is a Nearby, Young, Extremely Low-mass Substellar Binary,” *Research Notes of the American Astronomical Society*, 4, 67, May 2020.
- C4 Muirhead, P. S., et al. (incl. **Theissen, C. A.**), “Searching for Exosatellites Orbiting L and T Dwarfs: Connecting Planet Formation to Moon Formation and Finding New Temperate Worlds,” *Bulletin of the American Astronomical Society*, Astro2020 White Paper, 2019.
- C3 Dupuy, T. J., et al. (incl. **Theissen, C. A.**), “Establishing an Empirical Substellar Sequence to Planetary Masses,” *Bulletin of the American Astronomical Society*, Astro2020 White Paper, 2019.
- C2 Kirkpatrick, J. D., et al. (incl. **Theissen, C. A.**), “The Need for Infrared Astrometry of Brown Dwarfs in the Post-Gaia Era,” *Bulletin of the American Astronomical Society*, Astro2020 White Paper, 2019.
- C1 Burgasser, A. J., **Theissen, C. A.**, et al., “Identification of WISE J000100.45+065259.6 as an M8.5+T5 Spectral Binary Candidate,” *Research Notes of the American Astronomical Society*, 1, 47, Dec 2017.

CONFERENCE
PROCEEDINGS

- D8 Hoch, K., et al. (incl. **Theissen, C. A.**), “Direct Imaging Spectroscopy of Substellar Companions with JWST,” *Extreme Solar Systems V, Bulletin of the American Astronomical Society*, 2024.
- D7 McCarthy, A., et al. (incl. **Theissen, C. A.**), “Multiple Patchy Cloud Layers in the Planetary Mass Object SIMP0136+0933,” *Extreme Solar Systems V, Bulletin of the American Astronomical Society*, 2024.
- D6 Baburaj, A., et al. (incl. **Theissen, C. A.**), “Constraining Formation of Directly Imaged Planets through High-Resolution Spectroscopy of Host Stars,” *Extreme Solar Systems V, Bulletin of the American Astronomical Society*, 2024.
- D5 Franson, K., et al. (incl. **Theissen, C. A.**), “Astrometric Accelerations as Dynamical Beacons: Efficiently Imaging Planets Around Young Accelerating Stars,” *Extreme Solar Systems V, Bulletin of the American Astronomical Society*, 2024.
- D4 Wilcomb, K. K., et al. (incl. **Theissen, C. A.**), “Moderate Resolution Spectroscopy of Directly Imaged Planets,” *Extreme Solar Systems IV, Bulletin of the American Astronomical Society*, 2019.
- D3 Burgasser, A. J. & **SPLAT Development Team**, “The SpeX Prism Library Analysis Toolkit (SPLAT): A Data Curation Model,” *3rd International Workshop on Spectral Stellar Libraries*, 14, 7-22, Oct 2017.
- D2 Chakrabarti, S., et al. (incl. **Theissen, C. A.**), “Laboratory and Field tests of a High Throughput and Multi-slit Imaging Spectrograph (HiT&MIS),” *39th COSPAR Scientific Assembly*, 293, Feb 2016.
- D1 Sfiligoi, I., Würthwein, F., & **Theissen, C. A.**, “Using Condor Glideins for Distributed Testing of Network Facing Services,” *Third International Joint Conference on Computational Science and Optimization*, 327-331, May 2010.

**PRESENTATIONS
& POSTERS**

- “Using the Smallest Stars to Explore Large-scale Habitability within the Milky Way Galaxy,”
Notre Dame Astrophysics Seminar [**Invited Talk**], Nov 2022.
Carnegie EPL Seminar [**Invited Talk**], Feb 2022.
UCSD Scripps IGPP Seminar [**Invited Talk**], Feb 2022.
UCSD Physics Colloquium [**Invited Talk**], Jan 2021.
- “The Three Dimensional Kinematics of the Low-mass Population within the ONC Core,”
NASA Hubble Symposium [Talk], Nov 2021.
- “Investigating Spectral Peculiarities in the Lowest-mass Planet Hosts,”
AAS 237 (Winter Meeting) [Talk], Jan 2021.
- “Spectral Peculiarities in Ultracool Dwarf Planet Hosts,”
NASA SOFIA Colloquium [**Invited Talk**], Nov 2020.
- “The Dos and Don’ts of Writing a Successful (Fellowship) Application,”
UCSD IDEA Center Postdoc Talk [**Invited Talk**], Oct 2020.
- “The Connection Between Ultracool Dwarf Planet Hosts and Surface Gravity,”
NASA Hubble Fellowship Program Symposium [Talk], Sep 2020.
- “3-D Kinematics in the ONC Core,”
Keck Science Meeting [Poster], Sep 2020.
- “Supporting BIPOC Scientists through NHFP-organized Mentorship and Outreach,”
NASA Hubble Fellowship Program Symposium [Talk], Sep 2020.
- “Multiplicity at the Bottom of the Main Sequence,”
San Diego State University Astronomy & Physics Colloquium [**Invited Talk**], Nov 2019.
- “Planetary Collisions around Low-mass Stars: Constraining the Timescale for Collisions and Testing the Origin of the *Kepler* Dichotomy,”
NASA Hubble Fellowship Program Symposium [Talk], Oct 2019.
- “Cooler than *Gaia*: Parallaxes of Ultracool Objects with *WISE*,”
UC San Diego Astrophysics Seminar [**Invited Talk**], May 2018.
- “Low-mass Stars with Extreme Mid-Infrared Excesses: Potential Signatures of Planetary Collisions,”
AAS 231 (Winter Meeting) [Talk], 2018.
- “Exoplanets and the Search for Life around Low-mass Stars,”
Mesa College STEM Lecture Series [**Invited Talk**], 2017.
- “Cool Stars with Extreme Mid-Infrared Excesses: Potential Tracers of Planetary Collisions,”
AAS 228 (Summer Meeting) + *Cool Stars 19* [Poster], 2016.
- “The Motion Verified Red Stars (MoVeRS) Catalog and Low-Mass Field Stars with Warm Dust,”
AAS 227 (Winter Meeting) [Poster], 2016.
- “The Occurrence of Warm Dust around Cool Stars,”
UC San Diego CASS Journal Club [Talk], 2015.
- “*WISE* Infrared Excess Detections for SDSS M Dwarfs: Cool Field Stars with Evidence of Warm Circumstellar Material,”
AAS 224 (Summer Meeting) + *Cool Stars 18* [Poster], 2014.
- “SDSS M dwarfs with *WISE* Signatures of Infrared Excess: Evidence of Warm Circumstellar Material in Low-Mass Field Populations,”
AAS 223 (Winter Meeting) [Poster], 2014.
- “GlideTester - A framework for distributed testing of network-facing services using Condor glideins on Grid resources,”
TeraGrid Conference [Poster], 2010.

“PyTracker: Automated Spectroscopic Target Acquisition using Cross-Correlation with Existing Astrometric Positions,”

University of California San Diego Undergraduate Research Conference [Talk], 2010.

“Automated Cross-Correlative Spectroscopic Analysis of the Optical Transient Sky via Images Acquired using the Palomar Transient Factory,”

California Institute of Technology Summer Seminar [Poster], 2009.

**PRESS
COVERAGE**

Ultrashort Period Ultracool Binary

- “Ultracool Dwarf Binary Stars Break Records”
Keck Observatory, Feb 2023.
- “Record breakers! Super-close dwarf stars orbit each other in less than a day”
Space.com, Feb 2023.
- “Astronomers spot a tiny binary”
Sky & Telescope, Jan 2023.
- “Astronomers Discover Two Invisible Stars Spinning Around Each Other at Breakneck Speed”
Gizmodo, Jan 2023.
- “Binary Dwarf Stars Found Orbiting Each Other Every 20 Hrs. They Were Once Almost Touching”
Universe Today, Jan 2023.

Extremely Low-mass Binary

- “WISE J135501.90-825838.9 is a young, extremely low-mass substellar binary, study finds”
Phys.org, Mar 2020.

Planetary Collisions

- “Some planets ripe for life may be doomed by billions of years of violent collisions”
Astronomy Magazine, Jul 2016.

**RESEARCH
COLLABS**

Institutional Representative for UCSD on the LSST-DA Board
Member of the LSST Stars, Milky Way & Local Volume Science Collaboration
Member of the Wide-Field Spectroscopic Telescope Science Team
Member of the Perkins Infrared Exosatellite Survey (PINES)

**SERVICE &
OUTREACH**

| | |
|--|-------------------|
| Research Affairs Advisory Committee - Member, UC SAN DIEGO | Oct 2022–Present |
| Cool Stars 22 Meeting - SOC Chair and LOC Chair, UC SAN DIEGO | Jun 2022–Jun 2024 |
| NASA Hubble Fellowship Program Anti-Racism Initiative - Co-organizer, LEAD FOR THE MENTORING AND OUTREACH SUBGROUP | 2020–2022 |
| NHFP DEI Session - Presenter, NASA HUBBLE FELLOWSHIP PROGRAM SYMPOSIUM | Nov 2021 |
| 2021 Chancellor’s Award Review Committee - Reviewer, UC SAN DIEGO | Aug 2021 |
| Coalition NSF Advocacy Day - Advocate, REMOTE MEETINGS | Jun 2021 |
| UCSD Spring STEM Transfer Seminar 2021 - Panelist, “Traversing Postdocs and Industry Positions”, UC SAN DIEGO | May 2021 |
| UCSD Career Center - Panelist, “PhD Career Summit: Applying to Postdoc Positions”, UC SAN DIEGO | Mar 2021 |

| | |
|--|-------------------|
| UCSD IDEA Center - Postdoctoral Scholarly Talks, “Developing a Successful Ford Fellowship Application”, UC SAN DIEGO | Oct 2020 |
| Summer Training Academy for Research Success (STARS)/ California-Arizona Minority Partnership for Astronomy Research and Education (CAMPARE), UC SAN DIEGO | 2018, 2019, 2020 |
| High Tech High Internship, UC SAN DIEGO | Jan 2020 |
| Career Paths Session - Chair/Panelist, NASA HUBBLE FELLOWSHIP PROGRAM SYMPOSIUM | Oct 2019 |
| Institute for Scientist & Engineer Educators (ISEE) Professional Development Program (PDP), UC SANTA CRUZ/UC SAN DIEGO | 2018 |
| InterTribal Youth/Young Native Scholars Summer Program, UC SAN DIEGO | Jul 2016 |
| Cal-Bridge Workshop on Graduate School, UC SAN DIEGO | May 2016 |
| STEM Fest, VISTA HIGH SCHOOL | Mar 2016 |
| High School Science Olympiad Coach, UNIVERSITY HIGH SCHOOL | Oct 2015–Feb 2016 |
| Chambliss Award Judge, AMERICAN ASTRONOMICAL SOCIETY MEETING 227 | Jan 2016 |
| Program on Student Success in Engineering (POSSE), UNIVERSITY OF CALIFORNIA SAN DIEGO/GOMPERS PREPARATORY ACADEMY | Sep 2015–Jun 2016 |
| Upward Bound, BOSTON UNIVERSITY | 2013–2015 |
| Research in Science and Engineering (RISE), BOSTON UNIVERSITY | 2013–2015 |
| U-Design, BOSTON UNIVERSITY, DEPARTMENT OF ENGINEERING | Jul 2014 |
| Academy of the Pacific Rim Astronomy Day, BOSTON UNIVERSITY | Nov 2012 |
| Graduate Women in Science and Engineering (GWISE) - “How to Find a Fellowship” Panelist, BOSTON UNIVERSITY | Sep 2012 |
| <i>Other:</i> | |
| • OPTICON-Radionet Pilot TAC | 2023 |
| • Subject-matter expert reviewer in a NASA peer review | 2020, 2021, 2022 |
| • Panelist for a NASA review | 2023 |
| • Panelist for a NASA review | 2021 |
| Referee: The Astrophysical Journal (ApJ) | 2018–Present |
| The Astrophysical Journal Supplement Series (ApJS) | |
| Monthly Notices of the Royal Astronomical Society (MNRAS) | |

MENTORSHIP

PHD STUDENTS

| | |
|--|--------------|
| Preethi Karpoor, UCSD | 2022–Present |
| Aneesh Baburaj, UCSD | 2021–Present |
| Lingfeng Wei, UCSD | 2020–Present |
| Christian Aganze, UCSD (→ Science Fellow @ Stanford) | 2018–2023 |
| Kielan Wilcomb, UCSD (→ Giacconi Fellow @ STScI) | 2018–2022 |
| Chih-Chun Hsu, UCSD (→ Postdoc @ Northwestern) | 2018–2022 |

UNDERGRAD

| | |
|--|--------------|
| Jacob Craighead, UCSD | 2024–Present |
| Hanan Sayes, UCSD | 2024–Present |
| Ashleann Chen, UCSD | 2024–Present |
| Weston Chester, UCSD | 2024–Present |
| Jackie Scullin, UCSD | 2023–Present |
| So Hirota, UCSD | 2023–2024 |
| Tianxing Zhou, UCSD | 2022–Present |
| Lexu Zhao, UCSD (→ UFL grad) | 2022–2024 |
| Malina Desai, UCSD (→ Carnegie post-bac, MIT grad) | 2022–2023 |
| Chelsea Adelman, Cal Poly Pomona (Cal-Bridge Scholar → UCI grad) | 2020 |
| Roberto Tejada Arevalo, CSULA (→ Princeton grad) | 2018–2020 |
| Dennis H. Calderon, CSUEB (→ OSU grad) | 2018–2019 |
| Russell Van Linge, UCSD (→ Scripps Health) | 2018 |
| Jessica Birky, UCSD (→ NSF & Univ. of Washington grad) | 2016–2019 |
| Guillaume Shippee, UCB (→ Qualcomm) | 2016 |

HIGH SCHOOL

| | |
|---|------|
| Sven Andersen, Intern | 2022 |
| Angeli Solis, Intern (→ UCSD undergrad) | 2020 |
| Victor Zhang, BU RISE (Princeton → U. Chicago grad) | 2015 |
| Katie Melbourne, BU RISE (Yale → Ball Aerospace) | 2014 |
| Isabella Trierweiler, BU RISE (Yale → UCLA grad) | 2013 |

GRANTS & FUNDING

| | |
|---|-----------|
| Characterizing the Lowest-mass Planet Hosts and Investigating the Potential Link between Stellar Surface Gravity and Planet Occurrence PI, NASA XRP, \$618k | 2024–2026 |
| A Magnitude Limited Sample of M dwarfs to Study the Super-Earth Rate across the Fully Convective Boundary PI, TESS Cycle 5 Guest Investigator, \$70k | 2022–2023 |
| Recalibrating Fundamental Parameters for Low-Mass Stars for Current and Future Planet Hunting Surveys PI, XSEDE Research allocation PHY220048, 8,314,035 SUs (~\$100k) | 2022–2023 |
| Recalibrating the Ultracool Dwarfs in the Transiting Exoplanet Survey Satellite Input Catalog PI, XSEDE Startup allocation PHY200052, 100,000 SUs (~\$1k) | 2022–2023 |
| Infrared Gold: A Student-Centered Program to Extract, Analyze, and Disseminate 20 Years of IRTF/SpeX Point-Source Spectroscopy Co-I, NASA ADAP (PI: Adam Burgasser), \$666,511 | 2022–2025 |
| Simulating Ultracool Dwarf Populations in LSST DP0 and in the Main LSST Survey Co-I, LSST Kickstarter Grant (PI: Adam Burgasser), \$19k | 2022 |
| A Search for Distant Ultracool Dwarfs in Hubble Space Telescope Spectral Surveys PI, XSEDE Startup allocation PHY200052, 50,000 SUs (~\$1k) | 2020–2021 |
| Planetary Collisions around Low-Mass Stars: Constraining the Timescale for Collisions and Testing the Origin of the Kepler Dichotomy PI, NASA Sagan Postdoctoral Fellowship, \$347k | 2019–2022 |
| Spectroscopic Analysis of Ultracool Dwarfs Co-I, SDSS FAST (PI: Adam Burgasser), \$60K | 2016–2017 |

Low-mass Field Stars with Infrared Excesses: Possible Signatures of Planetary Collisions 2016–2017
 Co-I, NASA ADAP (PI: Andrew West; Admin PI: Phil Muirhead), \$125K

| | |
|-------------------------------|--|
| TELESCOPE TIME AWARDED | <p>Keck I & II 10-meters</p> <p>PI: “Abundances and Kinematics of Ultracool Dwarf Planet Host Twin Stars” 2022–2025 • 7 nights (NIRSPEC)</p> <p>PI: “Precise Abundances of Ultracool Dwarfs using FGK Wide Binaries” 2024 • 2 nights (NIRSPEC)</p> <p>Co-I: “Keck/NIRSPEC Cadence Program: NIRSPEC Observations of Ultrashort Period Ultracool Binaries” 2024 • 0.8 nights (NIRSPEC)</p> <p>Co-I: “Resolving Elemental Abundances of a Remarkable Hierarchical Exoplanet-host System Observed by a JWST ERS Program” 2024 • 1 night (NIRSPAO)</p> <p>Co-I: “Unresolved Binaries in the Core of the Orion Nebula Cluster” 2023 • 1 night (NIRSPAO)</p> <p>Co-I: “The Old and the Quick: A Search for Halo Brown Dwarfs with Backyard Worlds” 2022 • 1 night (NIREs)</p> <p>Co-I “Galactic Archaeology with Ultracool Dwarfs: Kinematic Structure Among L Dwarfs” 2021–2022 • 3.5 nights (NIRSPEC)</p> <p>PI: “Resolving Tertiary Components of Wide, Very Low-mass Binaries with AO” 2020–2021 • 3 nights (NIRC2)</p> <p>Co-I: “Searching for Our Coldest Young Neighbors with Backyard Worlds” 2018–2021 • 10 nights (NIREs)</p> <p>Co-I “Testing Pre-Main Sequence Evolutionary Models in the First 10 Myr” 2020–2021 • 2.5 nights (OSIRIS)</p> <p>Co-I “Completing the Kinematic Census of Local L and T Dwarfs” 2019–2020 • 5.5 nights (NIRSPEC)</p> <p>Co-I: “Secondary Radial Velocities in Short-Period Star/Brown Dwarf Spectral Binaries” 2019–2020 • 0.5 nights (NIRSPEC)</p> <p>Co-I: “Dynamics of the Orion Nebula Cluster: Mass-Dependent Kinematics” 2019–2020 • 6 nights (NIRSPAO)</p> <p>PI: “Characterizing Low-mass Binaries and Searching for Hierarchical Triples: NIR Spectra of Low-mass, Wide, Common Proper Motion Pairs” 2019 • 1 night (NIREs)</p> <p>CHARA Array</p> <p>PI: “Investigating Radius Inflation in the Lowest Mass Planet Hosts: CHARA Observations of Teegarden’s Star” 2020 • 4 nights (CLASSIC)</p> <p>Gemini North & South 8-meters</p> <p>PI: “High-resolution Near-infrared Observations of a Planetary-mass Binary” 2023–2024 • 8 hours (IGRINS)</p> <p>PI: “Abundances and Kinematics of Ultracool Dwarf Planet Host Twin Stars” 2022–2023 • 10.7 hours (IGRINS)</p> <p>Co-I: “The BASS-Ultracool Search for Isolated Giant Exoplanet Analogs” 2018 • 27 hours (GNIRS Spectrograph)</p> |
|-------------------------------|--|

| | |
|--|-----------|
| Co-I: “Confirming a new L/T transition planetary-mass object in AB Doradus” | 2018 |
| • Fast turnaround single object observation (GNIRS Spectrograph) | |
| James Webb Space Telescope 6.5-meter | |
| Co-I: Cycle 3: “How big can you make a planet? Spectroscopic characterization of HD 206893B” | 2024 |
| • 9.9 hours (NIRSpec) | |
| Co-I: Cycle 3: “Arcana of the Ancients: A Spectral Metallicity Survey of the Lowest-Mass Stars and Brown Dwarfs” | 2024 |
| • 83.2 hours (NIRSpec and MIRI) | |
| Co-I: Cycle 2: “Establishing the Formation of AF Lep b with NIRCам: The Lowest-Mass Imaged Exoplanet with a Dynamical Mass” | 2023 |
| • 6.5 hours (NIRCам) | |
| Co-I: Cycle 1: “Direct Imaging Spectroscopy of Two Jovian Exoplanets: Characterization of the TYC 8998-760-1 Multi-Planetary System” | 2021 |
| • 5.2 hours (NIRSpec and MIRI) | |
| LDT 4.3-meter | |
| PI: “Pre-main Sequence or Field Stars?: Searching for Traces of Youth in Low-mass Stars with Extreme Mid-infrared Excesses” | 2016 |
| • 2 nights (DeVeny Optical Spectrograph) | |
| CFHT 3.6-meter | |
| Co-I: “Precision NIR RVs for WISE J1624-3212: A Nearby, Potentially Unresolved Low-mass Binary” | 2021 |
| • 2.4 hours (SPIRou NIR Spectrograph) | |
| IRTF 3.2-meter | |
| PI: “Characterizing the Ultracool <i>TESS</i> Targets: Investigating the Role of Gravity in Planet Hosts” | 2020–2024 |
| • 350 hours (SpeX NIR Spectrograph) | |
| Co-I: “Characterizing Cool Hosts of Candidate Transiting Exoplanets with IRTF/SpeX” | 2024 |
| • 4 nights (SpeX NIR Spectrograph) | |
| Co-I: “Homogeneous stellar characterization for M dwarfs with confirmed giant planets” | 2023 |
| • 1 night (SpeX NIR Spectrograph) | |
| Co-I: “Radial Velocity Monitoring of an Exceptionally Short-Period Very Low Mass Binary” | 2022–2023 |
| • 6 nights (iSHELL Spectrograph) | |
| Co-I: “Searching for Hierarchical Triples in Wide, Common Proper Motion, Very Low-Mass Binaries” | 2018–2020 |
| • 4.5 nights (SpeX NIR Spectrograph) | |
| Co-I: “Training the Cannon: Calibrating APOGEE Observations of Ultracool Dwarfs” | 2018–2020 |
| • 6 nights (iSHELL Spectrograph) | |
| Co-I: “LaTE-MoVeRS: New Nearby Very Low-Mass Stars and Brown Dwarfs Verified by Proper Motion from SDSS+2MASS+ <i>WISE</i> ” | 2017–2019 |
| • 4.5 nights (SpeX NIR Spectrograph + MORIS) | |
| Shane 3-meter | |
| PI: “Optimizing Target Selection of Direct Imaging Planet Campaigns using Accelerating Stars” | 2022–2024 |
| • 9 nights (ShARCS AO NIR Imager) | |

PI: “AO Observations of Overluminous members of Wide, Low-mass Binaries: Searching for Hierarchical Triples” 2019–2021
 • 17 nights (ShARCS AO NIR Imager)

Co-I: “Optical Spectroscopy of LaTE-MoVeRS M and L Dwarfs” 2017–2021
 • 75 nights (Kast Optical Spectrograph)

SDSS 2.5-meter
 Co-I: “APOGEE-2 Survey of the Lowest-mass Stars and Brown Dwarfs: Composition, Chemistry and Companions” 2017–2018
 • ~500 APOGEE fibers awarded for ancillary science call

Hubble Space Telescope 2.4-meter
 Co-I: Cycle 30 - “Completing the stellar census of Westerlund 1” 2022
 • 7 orbits (WFC3)

APF 2.4-meter
 Co-I: “Abundances of Directly Imaged Planet Host Stars” 2021–2022
 • 1.5 nights (Levy Optical Spectrograph)

Co-I: “Calibrations of Chemical Abundances of Ultracool Dwarfs in Wide Binary Systems with Optical High-Resolution Spectroscopy of G-Type Primaries” 2022
 • 1 nights (Levy Optical Spectrograph)

Co-I: “Benchmarking Chemical Abundances of Ultracool Dwarfs in Binary Systems with Optical Spectroscopy of Bright AFGK Primaries” 2022
 • 2.5 nights (Levy Optical Spectrograph)

Co-I: “Radial Velocity Monitoring of WISE J1624-3212: A Potential Low-mass Binary Hiding at 18 pc” 2021
 • 1 nights (Levy Optical Spectrograph)

Transiting Exoplanet Survey Satellite 4×0.1-meter
 PI: “A Magnitude Limited Sample of M dwarfs to Study the Super-Earth Rate across the Fully Convective Boundary” 2022–2023
 • GO Cycle 5: 658 short cadence targets

ADDITIONAL OBSERVING EXPERIENCE

Keck I 10-meter
 3 nights on the optical spectrometer (LRIS). 2009–2010

Keck II 10-meter
 4 half-nights on the high-res NIR spectrometer (NIRSPEC) with AO (NIRSPAO). 2018

Palomar Hale 200-inch
 1 night on the optical spectrograph (DBSP). 2009

CTIO SMARTS 0.9-meter
 27 nights on the optical imager. 2014–2016

PROFESSIONAL AFFILIATIONS

American Astronomical Society 2009–Present
 American Physical Society 2008–Present
 National Society of Hispanic Physicists 2008–Present
 National Society of Black Physicists 2011–Present
 Society for the Advancement of Chicanos and Native Americans in Science 2016–Present

OTHER WORK EXPERIENCE

Booz Allen Hamilton (BAH), San Diego, California, USA 2019
 Strategic Innovation Group - Lead Data Scientist
 Co-organizer of the 2019 Kaggle Data Science Bowl

REFERENCES

Dr. Quinn Konopacky

Associate Professor of Astronomy & Astrophysics
University of California San Diego
9500 Gilman Drive #0424, La Jolla, California 92093-0424, USA
qkonopacky at ucsd.edu +1 (858) 246-0241

Dr. Adam Burgasser

Professor of Astronomy & Astrophysics
University of California San Diego
9500 Gilman Drive #0424, La Jolla, California 92093-0424, USA
aburgasser at ucsd.edu +1 (858) 822-6958

Dr. Philip Muirhead

Associate Professor of Astronomy
Boston University
725 Commonwealth Ave, Boston, Massachusetts 02215, USA
philipm at bu.edu +1 (617) 353-6553

[CV compiled on 2024-07-03]