

Quinn M. Konopacky

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RESEARCH INTERESTS Planet formation and evolution; high-contrast imaging; star formation; stellar and substellar evolution; orbital dynamics; high angular resolution imaging and spectroscopy; adaptive optics; adaptive optics instrumentation; astrometry; speckle interferometry; optical and infrared astronomy

EDUCATION **University of California, Los Angeles**, Los Angeles, California USA
Ph.D., Astrophysics, 09/2003 - 09/2009
• Advisor: Prof. Andrea Ghez
• Thesis: “Dynamics and Multiplicity of Brown Dwarfs and Young, Low Mass Stars”
M.S., Astrophysics, 09/2003 - 06/2005
• Advisor: Prof. Andrea Ghez
• Thesis: “Measuring the Mass of a Pre-Main Sequence Binary Star Through the Orbit of TWA 5A”
University of California, Los Angeles, Los Angeles, California USA
B.S., Astrophysics with Highest Honors, *summa cum laude*, 06/2003
• Advisor: Dr. Bruce Macintosh, LLNL
• Thesis: “Lick Adaptive Optics Survey Searching for Low-Mass Companions to Young, Nearby Stars”

RESEARCH APPOINTMENTS *Professor*, University of California, San Diego (Department of Astronomy & Astrophysics) **07/2025- present**
Associate Professor, University of California, San Diego (Department of Astronomy & Astrophysics) **07/2023 - 06/2025**
Associate Professor, University of California, San Diego (Department of Physics) **07/2021 - 06/2023**
Assistant Professor, University of California, San Diego (Department of Physics) **01/2015 - 06/2021**
Postdoctoral Fellow, University of Toronto (Dunlap Fellow) **01/2012 - 01/2014**
Postdoctoral Researcher, Lawrence Livermore National Laboratory (Supervisor Bruce Macintosh) **09/2009 - 12/2011**
Graduate Student Researcher, UCLA **09/2003 - 08/2009**
Undergraduate Researcher, Lawrence Livermore National Laboratory **06/2001 - 09/2003**

HONORS AND AWARDS 2021: CAREER Award, National Science Foundation
2019: Scialog Fellow, Research Corporation for Science Advancement
2017: UC San Diego Hellman Fellowship Award
2016: UC San Diego Equal Opportunity/Affirmative Action and Diversity Award
2012-2014: Dunlap Postdoctoral Fellowship, University of Toronto
2011: Outstanding Research and Presentation, 2011 LLNL Postdoc Symposium
2008-2009: UCLA Dissertation Year Fellowship
2005-2008: NASA Graduate Student Research Fellowship (through JPL)

2004: Department of Physics & Astronomy Outstanding Teaching Award
2003: Phi Beta Kappa Honors Society

ADMINISTRATIVE
SERVICE AND
PROFESSIONAL
MEMBERSHIPS

- Vice-Chair for Undergraduate Education, Department of Astronomy & Astrophysics, UC San Diego
- UC Observatories Advisory Committee Member
- UC Representative to the Thirty Meter Telescope Science Advisory Committee
- Co-PI and Project Scientist, Gemini Planet Imager 2.0
- Project Scientist, HISPEC for Keck and MODHIS for TMT
- HST/JWST Strategic Exoplanet Initiatives Working Group
- Convener for Exoplanet Group, US ELT Key Science Program Development
- SOC and LOC Co-Lead, Cool Stars 22, Hosted at UC San Diego in June 2024
- External Advisory Panel Committee Member, Keck Foundation GC Orbits Project
- Scientific Organizing Committee, Gemini Telescope Science Meeting
- JWST Time Allocation Committee
- NASA Grant Panel Member
- Sagan Postdoctoral Fellowship Committee Member
- NSF Astronomy and Astrophysics Grant Panel Member
- UC Time Allocation Committee, Keck Observatory
- National Academy of Sciences Committee on Astronomy & Astrophysics Temporary Appointment, Nancy Grace Roman Space Telescope Working Group
- UCSD Chapter Liaison for the Institute of Science and Engineering Educators (ISEE, UC Santa Cruz)
- Keck Strategic Planning Task Group Member - Keck and Adaptive Optics Subpanel
- GPI Exoplanet Survey Executive Committee
- GPI Exoplanet Survey Team Leader: Astrometry and Dynamics
- GPI Exoplanet Survey Steering Committee
- GPI Committee on Harrassment Prevention (Chair)
- GPI Integration and Testing and Verification and Commissioning Team
- TMT International Science Development Team on Star & Planet Formation
- Raven (Subaru) Science Team
- TMT Astrometry Advisory Group
- Journal Article Reviewer: ApJ, AJ, A&A, MNRAS, Nature, PNAS
- Dunlap Institute Instrumentation Summer School SOC
- NASA Postdoctoral Program Reviewer
- External Reviewer, ITP Canary Islands Telescope Proposal
- International Astronomical Union
- American Astronomical Society
- American Association for the Advancement of Science
- American Physical Society
- Center for Adaptive Optics

SELECT
PUBLICATIONS

A full publication list can be found at this [link](#)

Baburaj, A.; **Konopacky, Q.M.**; Theissen, C.A.; Gerasimov, R.; Hoch, K.K.W., *A High-resolution Spectroscopic Survey of Directly Imaged Companion Hosts. II. Diversity in C/O Ratios among Host Stars*, 2026, ([AJ](#), 171, 21)

Do Ó, C.R.; Bae, J.; **Konopacky, Q.M.**; Nguyen, J.S.; Diamond, P.; Goździewski, K.; Jankowski, D., *On the Orbital Evolution of Multiple Wide Super-Jupiters: How Disk Migration and Dispersal Shape the Stability of the PDS 70 System*, ([ApJ](#), 995, 190)

Wei, L.; Boyle, P.C.; Lu, J.R.; Hosek, M.W., Jr.; **Konopacky, Q.M.**; et al., *Structure and*

Dynamics of the Young Massive Star Cluster Westerlund 1, 2025, ([ApJ](#), 992, 213)

Nguyen, J.S.; **Konopacky, Q.M.**; Thompson, W.; Popenoe, N.; Macintosh, B., *Ground-based Mid-IR Direct Imaging: The Origin of the Thermal Background on the Keck II Telescope and Correcting Instrumental Systematics*, 2025, ([PASP](#), 137, 095002)

Sapcey, B.; **Konopacky, Q.M.**; et al., *HD 206893 B at High Spectral Resolution with the Keck Planet Imager and Characterizer*, 2025, ([AJ](#), 169, 175)

Baburaj, A.; **Konopacky, Q.M.**; et al., *A High-resolution Spectroscopic Survey of Directly Imaged Companion Hosts. I. Determination of Diagnostic Stellar Abundances for Planet Formation and Composition*, 2025, ([AJ](#), 169, 55)

Do Ó, C.R.; Perera, S.; Maire, J.; Nguyen, J.S.; Chambouleyron, V.; **Konopacky, Q.M.**; et al., *GPI 2.0: exploring the impact of different readout modes on the wavefront sensor's EMCCD*, 2024, ([SPIE](#), 13097, 1309742)

Perera, S.; Maire, J.; Do Ó, C.R.; Nguyen, J.S.; Chambouleyron, V.; **Konopacky, Q.M.**; et al., *GPI 2.0: pre-integrated pyramid wavefront sensor results*, 2024, ([SPIE](#), 13097, 130971S)

Chilcote, J.; **Konopacky, Q.**; et al., *GPI 2.0: upgrade status of the Gemini Planet Imager*, 2024, ([SPIE](#), 13096, 1309699)

Sapcey, B.; **Konopacky, Q.**; et al., *Calibration unit design for Keck/High-Resolution Infrared Spectrograph for Exoplanet Characterization (HISPEC)*, 2024, ([SPIE](#), 13096, 130966K)

Mawet, D.; Fitzgerald, M.; **Konopacky, Q.**; et al., *Fiber-fed high-resolution infrared spectroscopy at the diffraction limit with Keck-HISPEC and TMT-MODHIS: status update*, 2024, ([SPIE](#), 13096, 130960W)

Do Ó, C.R.; Sapcey, B.; **Konopacky, Q.M.**; et al., *Orbital and Atmospheric Characterization of the 1RXS J034231.8+121622 System using High-resolution Spectroscopy Confirms that the Companion is a Low-mass Star*, 2024, ([AJ](#), 167, 278)

Wei, L.; Theissen, C.A.; **Konopacky, Q.M.**; Lu, J.R.; Hsu, C.-C.; Kim, D., *The 3D Kinematics of the Orion Nebula Cluster. II. Mass-dependent Kinematics of the Inner Cluster*, 2024, ([ApJ](#), 962, 174)

Konopacky, Q.M.; et al., *The development of HISPEC for Keck and MODHIS for TMT: science cases and predicted sensitivities*, 2023, ([SPIE](#), 12680, 1268007)

Hoch, K.K.W., **Konopacky, Q.M.**; et al., *Assessing the C/O Ratio Formation Diagnostic: A Potential Trend with Companion Mass*, 2023, ([AJ](#), 166, 85)

Do Ó, C.R.; O'Neil, K.K.; **Konopacky, Q.M.**; Do, T.; Martinez, G.D.; Ruffio, J.-B.; Ghez, A.M., *The Orbital Eccentricities of Directly Imaged Companions Using Observable-based Priors: Implications for Population-level Distributions*, 2023, ([AJ](#), 166, 48)

Agrawal, S.; Ruffio, J.-B.; **Konopacky, Q.M.**; et al., *Detecting Exoplanets Closer to Stars with Moderate Spectral Resolution Integral-field Spectroscopy*, 2023, ([AJ](#), 166, 15)

Zhang, S.Y.; Duchêne, G.; De Rosa, R.J.; Andsell, M.; **Konopacky, Q.**; et al., *Testing the Interaction between a Substellar Companion and a Debris Disk in the HR 2562 System*, 2023, ([AJ](#), 165, 219)

- Thompson, W.; Marois, C.; Do Ó, C.R.; **Konopacky, Q.**; et al., *Deep Orbital Search for Additional Planets in the HR 8799 System*, 2023, ([AJ](#), 165, 29)
- Hoch, K.K.W.; **Konopacky, Q.M.**; et al., *Moderate-resolution K-band Spectroscopy of the Substellar Companion VHS 1256 b*, 2022, ([AJ](#), 164, 155)
- Gibbs, A.; Fitzgerald, M.; Mawet, D.; **Konopacky, Q.**; et al., *Echelle simulation for the High-resolution Infrared Spectrograph for Exoplanet Characterization (HISPEC) at Keck*, 2022, ([SPIE](#), 12184, 1218450)
- Theissen, C.A.; **Konopacky, Q.M.**; Lu, J.R.; Kim, D.; Zhang, S.Y.; Hsu, C.-C.; Chu, L.; Wei, L., *The 3D Kinematics of the Orion Nebula Cluster: NIRSPEC-AO Radial Velocities of the Core Population*, 2022, ([ApJ](#), 926, 141)
- Ruffio, J.-B.; **Konopacky, Q.M.**; et al., *Deep Exploration of the Planets HR 8799 b, c, and d with Moderate-resolution Spectroscopy*, 2021, ([AJ](#), 162, 290)
- Brock, L.; Barman, T.S.; **Konopacky, Q.M.**; Stone, J.M., *Cloud Properties of Brown Dwarf Binaries across the L/T Transition*, 2021, ([ApJ](#), 914, 124)
- Wilcomb, K.K.; **Konopacky, Q.M.**; Barman, T.S.; Theissen, C.; Ruffio, J.-B.; Brock, L.; Macintosh, B.; Marois, C.; *Moderate-Resolution Spectroscopy of Substellar Companion κ Andromedae B*, 2020, *Astron. J.*, ([AJ](#), 160, 207)
- Ruffio, J.-B.; Macintosh, B.; **Konopacky, Q.M.**; Barman, T.; De Rosa, R.J.; Wang, J.J.; Wilcomb, K.K.; Czekala, I.; Marois, C.; *Radial Velocity Measurements of HR 8799 b and c with Medium Resolution Spectroscopy*, 2019, [AJ](#), 158, 200
- Nielsen, E.L.; et al.; *The Gemini Planet Imager Exoplanet Survey: Giant Planet and Brown Dwarf Demographics from 10 to 100 au*, 2019, [AJ](#), 158, 13
- Kosmo O’Neil, K.; Martinez, G.D.; Hees, A.; Ghez, A.M.; Do, T.; Witzel, G.; **Konopacky, Q.**; et al. *Improving Orbit Estimates for Incomplete Orbits with a New Approach to Priors - with Applications from Black Holes to Planets*, 2019, [AJ](#), 158, 4
- Kim, D.; Lu, J.R.; **Konopacky, Q.**; Chu, L.; Toller, E.; Anderson, J.; Theissen, C.A.; Morris, M.R.; *Stellar Proper Motions in the Orion Nebula Cluster*, 2019, [AJ](#), 157, 109
- Do, T.; Kerzendorf, W.; **Konopacky, Q.**; Marcinik, J.M.; Ghez, A.; Lu, J.R.; Morris, M.R.; *Super-solar Metallicity Stars in the Galactic Center Nuclear Star Cluster: Unusual Sc, V, and Y Abundances*, 2018, [ApJ](#), 855, 5
- Konopacky, Q.M** & Barman, T.S.; *HR 8799: Imaging a System of Exoplanets*, 2018, in *Handbook of Exoplanets*, ed. H.J. Deeg & J.A. Belmonte (Springer International Publishing), p. 2645-2667
- Blunt, S.; Nielsen, E.L.; De Rosa, R.J.; **Konopacky, Q.M.**; et al.; *Orbits for the Impatient: A Bayesian Rejection-sampling Method for Quickly Fitting the Orbits of Long-period Exoplanets*, 2017, [AJ](#), 153, 229
- Galicher, R.; Marois, C.; Macintosh, B.; Zuckerman, B.; Barman, T.; **Konopacky, Q.**; Song, I.; Patience, J.; Lafreniere, D.; Doyon, R.; Nielsen, E.L.; *The International Deep Planet Survey II: The frequency of directly imaged giant exoplanets with stellar mass*, 2016, [A&A](#), 594, 63

- Konopacky, Q.M.**; et al.; *Discovery of a Substellar Companion to the Nearby Debris Disk Host HR 2562*, 2016, [ApJL](#), 829, 4
- Konopacky, Q.M.**; Marois, C.; Macintosh, B.A.; Galicher, R.; Barman, T.S.; Metchev, S.A.; Zuckerman, B.; *Astrometric Monitoring of the HR 8799 Planets: Orbit Constraints from Self-Consistent Measurements*, 2016, [AJ](#), 152, 28
- Macintosh, B.; Graham, J.R.; Barman, T.; De Rosa, R.J.; **Konopacky, Q.**, et al.; *Discovery and spectroscopy of the young Jovian planet 51 Eri b with the Gemini Planet Imager*, 2015, [Science](#), 350, 64
- Rajan, A.; Barman, T.; Soummer, R.; Hagan, J.B.; Patience, J.; Pueyo, L.; Choquet, E.; **Konopacky, Q.**; Macintosh, B.; Marois, C.; *Characterizing the Atmospheres of the HR8799 Planets with HST/WFC3*, 2015, [ApJ](#), 809, 33
- Barman, T.S.; **Konopacky, Q.M.**; Macintosh, B.; Marois, C.; *Simultaneous Detection of Water, Methane, and Carbon Monoxide in the Atmosphere of Exoplanet HR8799b*, 2015, [ApJ](#), 804, 61
- Macintosh, B.; Graham, J.R.; Ingraham, P.; **Konopacky, Q.** et al.; *The Gemini Planet Imager: First Light*, 2014, [PNAS](#), 111, 12661
- Konopacky, Q.M.** et al.; *Gemini planet imager observational calibrations V: astrometry and distortion*, 2014, [SPIE](#), 9147, 914784
- Konopacky, Q. M.**; Barman, T. S.; Macintosh, B. A.; Marois, C.; *Carbon and Oxygen in the Spectrum of HR 8799c*, 2014, [IAU Symposium](#), 299, 297
- Konopacky, Q.M.**; *The Fundamental Importance of Brown Dwarf Binaries*, 2013, [MmSAI](#), 84, 1005
- Duchêne, G.; Bouvier, J.; Moraux, E.; Bouy, H.; **Konopacky, Q.**; Ghez, A.M.; *Substellar multiplicity in the Hyades cluster*; 2013, [A&A](#), 555, 137
- Harding, L.K.; Hallinan, G.; **Konopacky, Q.M.**; Kratter, K.M.; Boyle, R.P.; Butler, R.F.; Golden, A; *Spin-orbit alignment in the very low mass binary regime: The L dwarf tight binary 2MASSW J0746425+200032AB*; 2013, [A&A](#), 554, 113
- Konopacky, Q.M.**; Barman, T.S.; Macintosh, B.A.; Marois, C.; *Detection of Carbon Monoxide and Water Absorption Lines in an Exoplanet Atmosphere*; 2013, [Science](#), 339, 1398
- Morzinski, K.M.; Macintosh, B.A.; Close, L.M.; Marois, C.; **Konopacky, Q.**; Patience, J.; *High-contrast imaging in the Hyades with snapshot LOCI*, 2012, [SPIE](#), 8447, 00
- Konopacky, Q.M.** et al.; *Rotational Velocities of Individual Components in Very Low Mass Binaries*, 2012, [ApJ](#), 750, 79
- Galicher, R.; Marois, C.; Macintosh, B.; Barman, T.; **Konopacky, Q.**; *M-band Imaging of the HR 8799 Planetary System Using an Innovative LOCI-based Background Subtraction Technique*, 2011, [ApJ](#), 739, 41
- Barman, T.S.; Macintosh, B.A.; **Konopacky, Q.M.**; Marois, C.; *The Young Planet-Mass Object 2M1207b: A Cool, Cloudy, and Methane-Poor Atmosphere*, 2011, [ApJ](#), 735, 39

Barman, T.S.; Macintosh, B.A.; **Konopacky, Q.M.**; Marois, C.; *Clouds and Chemistry in the Atmosphere of Extrasolar Planet HR 8799b*, 2011, [ApJ](#), **733**, 65

Marois, C.; Zuckerman, B.; **Konopacky, Q.M.**; Macintosh, B.; Barman, T.; *Images of a Fourth Planet Orbiting HR 8799*, 2010, [Nature](#), **468**, 1080

Konopacky, Q.M.; Ghez, A.M.; Barman, T.S.; Rice, E.L.; Bailey, J.I.; White, R.J.; McLean, I.S.; Duchêne, G.; *High Precision Dynamical Masses of Very Low Mass Binaries*, 2010, [ApJ](#), **711**, 1087

Konopacky, Q. M.; Ghez, A. M.; Rice, E.L.; Duchêne, G.; *New Very Low Mass Binaries in the Taurus Star-forming Region*, 2007, [ApJ](#), **663**, 394

Konopacky, Q. M.; Ghez, A. M.; Duchêne, G.; McCabe, C.; Macintosh, B. A.; *Measuring the Mass of a Pre-Main Sequence Binary Star through the Orbit of TWA 5A*, 2007, [AJ](#), **133**, 2008

RECENT TALKS

Invited Talk: *Constraining Planet Formation with Directly Imaged Exoplanets*, Northwestern CIERA Astrophysics Seminar, Evanston, IL, 01/2024

Contributed Talk: *The Development of HISPEC for Keck and MODHIS for TMT: science cases and predicted sensitivities*, Techniques and Instrumentation for Detection of Exoplanets XI, SPIE Optical Engineering and Applications, San Diego, CA, 08/2023

Invited Talk: *Planet Formation at High Resolution*, UC Santa Cruz Astronomy Department Colloquium, Santa Cruz, CA, 11/2022

Contributed Talk: *The Development of HISPEC for Keck and MODHIS for TMT*, In the Spirit of Lyot 2022, Leiden, The Netherlands, 06/2022

Invited Talk: *GPI 2.0*, Gemini Science Meeting, (given via Zoom), 08/2021

Invited Talk: *Constraining Planet Formation with Directly Imaged Exoplanets*, Cornell University Astronomy Department Colloquium, Ithaca, NY, (given via Zoom), 04/2021

Invited Talk: *Constraining Planet Formation with Directly Imaged Exoplanets*, California State University, Los Angeles Physics Department Colloquium, Los Angeles, CA, (given via Zoom), 03/2021

Invited Talk: *Astrometry and Orbits of Directly Imaged Planets*, Exoplanet Orbits and Dynamics Workshop, (given via Zoom), 01/2021