

Curriculum Vitae

Caleb K. Harada

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RESEARCH INTERESTS *(UAT Keywords)*

Exoplanet detection (489), Habitable planets (695), Exoplanet systems (484), Planet hosting stars (1242), Exoplanet evolution and formation (491, 492), Exomoons (483), Exoplanet rings (494), Exoplanet atmospheres (487)

EDUCATION

- **Ph.D. in Astrophysics**, University of California, Berkeley Expected May 2026
Dissertation: “*The Astrophysical Environments of Habitable Worlds*”
Advisor: Prof. Courtney Dressing
- **M.A. in Astrophysics**, University of California, Berkeley May 2022
- **B.S. in Astronomy w. High Honors (*Magna Cum Laude*)**, University of Maryland May 2020
Honors Thesis: “*Signatures of Clouds in Hot Jupiter Atmospheres*”
Advisor: Prof. Eliza M.-R. Kempton
- **B.S. in Physics (*Magna Cum Laude*)**, University of Maryland May 2020

RESEARCH APPOINTMENTS

- **Graduate Student Researcher**, Dept. of Astronomy, UC Berkeley 2020–Present
- **NSF Graduate Research Fellow**, Dept. of Astronomy, UC Berkeley 2020–2025
- **Undergraduate Student Researcher**, Dept. of Astronomy, University of Maryland 2017–2020
- **NSF REU Intern**, Center for Astrophysics | Harvard & Smithsonian 2019
- **Summer Research Assistant**, Dept. of Astronomy, University of Michigan 2018
- **Summer Research Assistant**, Dept. of Astronomy & Astrophysics, University of Chicago 2017

AWARDS, SCHOLARSHIPS, & CERTIFICATES

- UC Berkeley Certificate in Teaching & Learning in Higher Education Expected 2026
- AAS Rodger Doxsey Travel Prize (\$400 award) 2025
- UC Berkeley Outstanding Graduate Student Instructor Award (\$1000 award) 2022
- NSF Graduate Research Fellowship (\$34k–\$37k annually for 3 years) 2020
- UMD University Honors Certificate 2019
- NSF Research Experience for Undergraduates (\$5000 award) 2019
- Maryland Space Grant Scholarship (\$2000 award) 2019
- UMD Monroe Martin Undergraduate Research Showcase Award (\$250 award) 2018, 2019
- UMD Angelo Bardasis Memorial Scholarship (\$2500 award) 2018, 2019
- UMD President’s Scholarship (\$5000 annually for 4 years) 2016

Major contributions

20. **Harada**, Dressing, Turtelboom, et al., “*SPORES-HWO. II. Companion Mass Limits and Updated Planet Properties for 120 Future Exoplanet Imaging Targets from 35 yr of Precise Doppler Monitoring*,” 2025, [AJ](#), **170**, 343
19. **Harada**, Dressing, Kane, & Ardestani, “*Setting the Stage for the Search for Life with the Habitable Worlds Observatory: Properties of 164 Promising Planet Survey Targets*,” 2024, [ApJS](#), **272**, 30
18. **Harada**, Dressing, Alam, et al., “*Stability and Detectability of Exomoons Orbiting HIP 41378 f, a Temperate Jovian Planet with an Anomalously Low Apparent Density*,” 2023, [AJ](#), **166**, 208
17. **Harada**, M.-R. Kempton, Rauscher, et al., “*Signatures of Clouds in Hot Jupiter Atmospheres: Modeled High-Resolution Emission Spectra from 3D General Circulation Models*,” 2021, [ApJ](#), **909**, 85
16. Tuchow, **Harada**, Mamajek, et al., “*HWO Target Stars and Systems: A Prioritized List of Potential Stellar Targets for the Habitable Worlds Observatory’s ExoEarth Survey*,” 2025, [PASP](#), **137**, 10
15. Desai, Turtelboom, **Harada**, et al., “*The TESS-Keck Survey. XVIII. A Sub-Neptune and Spurious Long-period Signal in the TOI-1751 System*,” 2024, [AJ](#), **167**, 194
14. Duck, **Harada**, Harrell, Morris, Williams, Crossfield, Werner, & Deming, “*K2, Spitzer, and TESS Transits of Four Sub-Neptune Exoplanets*,” 2021, [AJ](#), **162**, 136

Additional contributions

13. Li, Kane, Blunt, & **Harada**, “*Radial Velocity Strategies for the Orbital Refinement of Exoplanet Direct Imaging Targets*,” 2025, [PASP](#), **137**, 10
12. Turtelboom, Dietrich, Dressing, & **Harada**, “*Searching for Additional Planets in TESS Multiplanet Systems: Testing Empirical Models Based on Kepler Data*,” 2025, [AJ](#), **170**, 3
11. Mayo, Fortenbach, Louie, Dressing, Turtelboom, Giacalone, & **Harada**, “*Detection of H₂O and CO₂ in the Atmosphere of the Hot Super-Neptune WASP-166b with JWST*,” 2025, [AJ](#), **170**, 50
10. Wittenmyer, Errico, Holt, Horner, **Harada**, Kane, Li, & Fetherolf, “*Optimising Radial Velocity Detection Limits for Southern Habitable Worlds Observatory Targets*,” 2025, [MNRAS](#), **539**, 1
9. Grouffal, Santerne, Bourrier, et al. (inc. **Harada**), “*The Star HIP 41378 Potentially Misaligned With Its Cohort of Long-period Planets*,” 2025, [A&A](#), **701**, A173
8. Blunt, Nielsen, Newton, et al. (inc. **Harada**), “*A Statistical Method for Constraining the Capability of the Habitable Worlds Observatory to Understand Ozone Onset Time in Earth Analogs*,” 2025, [JATIS](#), **11**, 4
7. Sagynbayeva, Abbas, Kane, et al. (inc. **Harada**), “*Requirements for Joint Orbital Characterization of Cold Giants and Habitable Worlds with Habitable Worlds Observatory*,” 2025, [AJ](#), **170**, 208
6. Kane, Li, Turnbull, Dressing, & **Harada**, “*Dynamical Viability Assessment for Habitable Worlds Observatory Targets*,” 2024, [AJ](#), **168**, 195
5. Turtelboom, Weiss, Dressing, et al. (inc. **Harada**), “*The TESS-Keck Survey. XI. Mass Measurements for Four Transiting Sub-Neptunes Orbiting K-dwarf TOI 1246*,” 2022, [AJ](#), **163**, 293
4. Malsky, Rauscher, M.-R. Kempton, Roman, Long, & **Harada**, “*Modeling the High-Resolution Emission Spectra of Clear and Cloudy Nontransiting Hot Jupiters*,” 2021, [ApJ](#), **923**, 62
3. Roman, M.-R. Kempton, Rauscher, **Harada**, Bean, & Stevenson, “*Clouds in Three-Dimensional Models of Hot Jupiters Over a Wide Range of Temperatures I: Thermal Structures and Broadband Phase Curve Predictions*,” 2021, [ApJ](#), **908**, 101
2. Vissapragada, Knutson, Jovanovic, **Harada**, et al., “*Constraints on Metastable Helium in the Atmospheres of WASP-69b and WASP-52b with Ultra-Narrowband Photometry*,” 2020, [AJ](#), **159**, 278

1. Collins, Collins, Pepper, et al. (inc. **Harada**), “*The KELT Follow-Up Network and Transit False Positive Catalog: Pre-vetted False Positives for TESS*,” 2018, [AJ](#), **156**, 234

NON-REFEREED OR IN-PREP MANUSCRIPTS

5. **Harada**, Dressing, Kane, et al., “*Discovery of an Eccentric Giant in the Habitable Zone of Nearby F Dwarf HD 5015*,” in prep
4. Kane, Bott, Gordon, et al. (inc. **Harada**), “*Imaging Venus-like Worlds: Spectral, Polarimetric, and UV Diagnostics for the Habitable Worlds Observatory*,” Submitted to PASP
3. Dressing, Savel, Giacalone, et al. (inc. **Harada**), “*Cleaning up the TOIs I: ShARCS Follow-up Adaptive Optics Imaging of 603 TESS Targets*,” Submitted to AJ
2. Target Stars & Systems sub-Working group of the HWO WG Living Worlds (Mamajek, Hinkel, et al., inc. **Harada**), “*Providing Context for the ExoEarths Surveyed With Habitable Worlds Observatory: Precursor and Preparatory Science Needs for the HWO Target Star Systems (2025)*,” in prep
1. Abbas, Nielsen, Macintosh, et al. (inc. **Harada**), “*Beyond Yield: Orbit Recovery and Demographics with the Habitable Worlds Observatory*,” in prep

RESEARCH PRESENTATIONS

Contributed talk	AAS Meeting #247 , Phoenix, AZ	Jan. 5, 2026
Invited talk	UC Berkeley CIPS Seminar , Berkeley, CA	Dec. 3, 2025
Invited talk	UC Riverside Astrobiology Seminar , Riverside, CA	Nov. 14, 2025
Invited talk	Caltech/IPAC Lunch Seminar , Pasadena, CA	Nov. 12, 2025
Invited talk	Harvard/CfA Special Seminar , Cambridge, MA	Oct. 16, 2025
Invited talk	UC Santa Cruz PLUNCH Seminar , Santa Cruz, CA	Sep. 29, 2025
Contributed talk	HWO25 Conference , Washington, DC	Jul. 30, 2025
Poster	Sagan Summer Workshop 25 , Pasadena, CA	Jul. 21-25, 2025
Contributed talk	Bay Area Exoplanet Meeting #48 , Santa Cruz, CA	Jul. 18, 2025
Invited talk	HWO TSS-SWG Multiplicity Group Meeting , Remote	Jul. 16, 2025
Poster	EPRV6 Conference , Porto, Portugal	Jul. 1-3, 2025
Poster	Know Thy Star; Know Thy Planet 2 , Pasadena, CA	Feb. 3-7, 2025
Contributed talk	AAS Meeting #245 , National Harbor, MD	Jan. 15, 2025
Invited talk	Yale Exoplanets & Stars Seminar , New Haven, CT	Oct. 30, 2024
Invited talk	MIT Kavli Monday Afternoon Talk , Cambridge, MA	Oct. 28, 2024
Poster	Sagan Summer Workshop 24 , Pasadena, CA	Jul. 22-26, 2024
Poster	Exoplanets 5 Conference , Leiden, The Netherlands	Jun. 20, 2024
Poster	Extreme Solar Systems V , Ōtautahi, Aotearoa	Mar. 17-21, 2024
Contributed talk	AAS Meeting #243 , New Orleans, LA	Jan. 10, 2024
Invited talk	AAS #243 HWO Splinter Session , New Orleans, LA	Jan. 10, 2024
Invited talk	UC Santa Cruz PLUNCH Seminar , Santa Cruz, CA	Oct. 31, 2022
Contributed talk	UC Berkeley Astronomy Lunch Talk , Berkeley, CA	Oct. 20, 2022
Contributed talk	Bay Area Exoplanet Meeting #36 , Remote (COVID-19)	Mar. 5, 2021
Poster	AAS Meeting #235 , Honolulu, HI	Jan. 6, 2020
Contributed talk	CfA/SAO Summer REU Symposium , Cambridge, MA	Aug. 8, 2019
Poster	Chesapeake Bay Exoplanet Meeting #4 , College Park, MD	Feb. 15, 2019
Poster	AAS Meeting #233 , Seattle, WA	Jan. 8, 2019

APPROVED OBSERVING PROPOSALS (** = Science PI)

****2.4-m Automated Planet Finder (APF)**, Lick Observatory, “*Probing Planetary System Architectures Around Neglected Nearby Stars in Preparation for HWO*,” (Levy; 9 nights across 2025A/B, 2026A; PI: **Harada**)

****10-m Keck I Telescope**, Mauna Kea Observatory, “*Confirming an Eccentric Sub-Saturn Planet Around the Bright Nearby Star HD 219623*,” (KPF; 0.25 nights across 2025A; PI: **Harada**)

10-m Keck I Telescope, Mauna Kea Observatory, “*Piecing Together the Puzzling TOI-880 System*,” (KPF; 1.0 nights across 2025B; PI: Turtelboom)

2.4-m Automated Planet Finder (APF), Lick Observatory, “*The APF Survey of the Habitable Worlds Observatory’s Neglected Targets*,” (Levy; 8 nights across 2025A/B; PI: Holden)

3-m Shane Telescope, Lick Observatory, “*Looking for Close Stellar Companions to Potential Targets for Future Searches for Life with HWO*,” (ShARCS AO, 10 nights across 2025A/B; PI: Dressing)

8.1-m Gemini-N Telescope, Mauna Kea Observatory, “*Characterizing TOI 2104, one of the highest-multiplicity TESS systems*,” (MAROON-X, 40 hrs across 2024B, 2025B; PI: Turtelboom)

3.5-m WIYN Telescope, Kitt Peak National Observatory, “*Characterizing TOI 2104, one of the highest-multiplicity TESS systems*,” (NEID, 18 hrs across 2024B; PI: Turtelboom)

10-m Keck I Telescope, Mauna Kea Observatory, “*The Obliquity of the HIP 41378 Planetary System*,” (HIRES; 18 hrs in 2022B; PI: Dressing)

1-m Nickel Telescope, Lick Observatory, “*Validating Netptune-size planets around A-type stars*,” (Direct Imaging Camera; 43 nights across 2021B, 2022A/B; PI: Giacalone)

6.5-m James Webb Space Telescope (JWST), “*Transmission Spectroscopy of the Super-Neptune WASP-166b*,” (NIRISS & NIRSpec; 23 hrs Cycle 1 GO Program 2062; PI: Mayo)

3-m Shane Telescope, Lick Observatory, “*A Closer Look at the Host Stars of Transiting Planets*,” (ShARCS AO, 25 nights across 2021A/B, 2022A; PI: Dressing)

PROFESSIONAL SERVICE

- Scientific Reviewer , AAS Journals	2025–Present
- Chambliss Poster Competition Judge , AAS Winter Meetings	2024, 2025, 2026
- Catalogs & Databases Co-Lead , NASA HWO Target Stars & Systems Group	2024–2025
- Target Stars & Systems Liaison , NASA HWO Exoplanet Demographics Group	2024–2025

DEPARTMENTAL SERVICE

- Co-Organizer , UC Berkeley Astro-Q Coffee Hour	2023–Present
- Grad Representative , UC Berkeley Astrophysics Graduate Admissions Committee	2025, 2026
- Lead Organizer , UC Berkeley Astronomy RV Hunters Community Science Project	2025
- Grad Representative , UC Berkeley Astronomy DEI & Climate Committee	2021–2022
- Grad Representative , UC Berkeley Astro Grad Prospective Visit Planning Committee	2021

TEACHING EXPERIENCE

- **The Planets** / ASTRON-C12 (*UC Berkeley undergrad non-majors*)
Guest Lecturer Apr. 1, 2025
Head Graduate Student Instructor Spring 2023
- **Introduction to Astrophysics** / ASTRON-7A (*UC Berkeley undergrad majors*)
Guest Lecturer Nov. 14, 2024, Sep. 5, 2023, Oct. 18, 2022
Graduate Student Instructor Fall 2021
- **Atmospheric Physics and Dynamics** / EPS-C181 (*UC Berkeley undergrad majors*)
Course Reader Fall 2022
- **Introductory Astrophysics II** / Astro-121 (*University of Maryland undergrad majors*)
Lab Teaching Assistant (remote due to COVID-19) Spring 2020
Course Tutor Spring 2018
- **Observational Astronomy** / Astro-310 (*University of Maryland undergrad majors*)
Lab Teaching Assistant Fall 2018, 2019

MENTORING & OUTREACH PROGRAMS

- **Astro Grad Mentoring** (*for UC Berkeley 1st-year grads*)
Senior Graduate Student Mentor 2025–Present
- **Mathematical & Physical Sciences (MPS) Scholars** (*for UC Berkeley undergrads*)
Graduate Student Mentor 2024–Present
Workshop Panelist Dec. 3, 2024, Oct. 10, 2024, Aug. 8, 2024
- **Letters to a Pre-Scientist** (*K-12 outreach program for low-income students*)
Pen Pal (letter writer) 2024–Present
- **Cal-Bridge** (*California-wide bridge program for underrepresented undergrads*)
Graduate Student Tutor Fall 2024
- **Scientist in Every Florida School** (*K-12 outreach program for Florida public schools*)
Guest Speaker Oct. 7, 2024
- **POWER Bay Area** (*mentoring program for underrepresented community college students*)
Mentor Coordinator 2022–2023
- **Astronomy Peer Mentoring (APM)** (*for UMD undergrads*)
Undergraduate Student Mentor 2018–2020
- **University of Maryland Observatory** (*bimonthly public open house events and observing*)
Observatory Staff Member 2017–2020
Observatory Volunteer 2016–2017
- **Maryland Day** (*campus-wide UMD public outreach event*)
Astronomy Department Volunteer 2017–2019

References available upon request.

Last updated January 2026.