

CALEB K. HARADA

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EDUCATION	Ph.D. in Astrophysics	Expected 2026
	University of California, Berkeley	
	<i>Thesis committee:</i>	
	Prof. Courtney Dressing (chair), Prof. Eugene Chiang, Prof. Jenny Bergner	
	M.A. in Astrophysics	2022
	University of California, Berkeley	
RESEARCH AP- POINTMENTS	B.S. in Astronomy with High Honors	2020
	University of Maryland, College Park	
	<i>Magna Cum Laude</i>	
	<i>Thesis advisor:</i> Prof. Eliza M.-R. Kempton	
	<i>Thesis:</i> “Signatures of Clouds in Hot Jupiter Atmospheres: Modeled High-Resolution Emission Spectra from 3D General Circulation Models”	
	B.S. in Physics	2020
	University of Maryland, College Park	
	<i>Magna Cum Laude</i>	
	National Science Foundation Graduate Research Fellow	2020–
	Astronomy Department, University of California, Berkeley	
	Graduate Student Researcher	2020–
	Astronomy Department, University of California, Berkeley	
AWARDS & FELLOWSHIPS	Undergraduate Student Researcher	2017–2020
	Astronomy Department, University of Maryland, College Park	
	National Science Foundation REU Fellow	Summer 2019
	Center for Astrophysics Harvard & Smithsonian, Cambridge, MA	
	Undergraduate Student Researcher	Summer 2018
	Astronomy Department, University of Michigan, Ann Arbor	
	Undergraduate Student Researcher	Summer 2017
	Department of Astronomy & Astrophysics, University of Chicago	
	National Science Foundation Graduate Research Fellowship	2020–2025
	Climatebase Fellowship, Cohort 4 (<i>declined</i>)	2023
	UC Berkeley Outstanding Graduate Student Instructor Award	2022
	University of Maryland President’s Scholarship	2016–2020
	UMD Physics Angelo Bardasis Memorial Scholarship	2018, 2019, 2020
	Maryland Space Grant Scholarship	2019, 2020
	UMD Physics Monroe Martin Undergraduate Research Award	2018, 2019
	National Science Foundation REU Program Fellowship	2019
	University of Maryland University Honors Certificate	2019

6. **Harada, C. K.**, Dressing, C. D., Kane, S. R., et al., “SPORES-HWO. II. Limits on Planetary Companions of Future High-contrast Imaging Targets from >20 Years of HIRES and HARPS Radial Velocities,” 2024, *Submitted to AAS Journals*
5. **Harada, C. K.**, Dressing, C. D., Kane, S. R., & Adami Ardestani, B., “Setting the Stage for the Search for Life with the Habitable Worlds Observatory: Properties of 164 Promising Planet Survey Targets,” 2024, *ApJS*, 272, 30
4. Desai, A., Turtelboom, E. V., **Harada, C. K.**, et al., “The TESS-Keck Survey. XVIII. A Sub-Neptune and Spurious Long-period Signal in the TOI-1751 System,” 2024, *AJ*, 167, 194
3. **Harada, C. K.**, Dressing, C. D., Alam, M. K., et al., “Stability and Detectability of Exomoons Orbiting HIP 41378 f, a Temperate Jovian Planet with an Anomalous Low Apparent Density,” 2023, *AJ*, 166, 208
2. Duck, A., **Harada, C. K.**, Harrell, J., Morris, R. A., Williams, E., Crossfield, I., Werner, M., & Deming, D., “K2, Spitzer, and TESS Transits of Four Sub-Neptune Exoplanets” 2021, *AJ*, 162, 136
1. **Harada, C. K.**, M.-R. Kempton, E., Rauscher, E., Roman, M., Malsky, I., Brinkji, M., & diTomasso, V., “Signatures of Clouds in Hot Jupiter Atmospheres: Modeled High-Resolution Emission Spectra from 3D General Circulation Models,” 2021, *ApJ*, 909, 85

Collaborator

8. Dressing, C. D., Savel, A. B., Giacalone, S., et al. (including **Harada, C. K.**), “Cleaning up the TOIs I: ShARCS Follow-up Adaptive Optics Imaging of 603 TESS Targets,” 2024, *Submitted to AAS Journals*
7. Turtelboom, E. V., Dietrich, J., Dressing, C. D., & **Harada, C. K.**, “Searching for Additional Planets in TESS Multi-Planet Systems: Testing Empirical Models Based on Kepler Data,” 2024, *Submitted to AAS Journals*
6. Kane, S. R., Li, Z., Turnbull, M. C., Dressing, C. D., & **Harada, C. K.**, “Dynamical Viability Assessment for Habitable Worlds Observatory Targets,” 2024, *AJ*, 168, 195
5. Turtelboom, E. V., Weiss, L. M., Dressing, C. D., et al. (including **Harada, C. K.**), “The TESS-Keck Survey. XI. Mass Measurements for Four Transiting Sub-Neptunes Orbiting K-dwarf TOI 1246,” 2022, *AJ*, 163, 293
4. Malsky, I., Rauscher, E., M.-R. Kempton, E., Roman, M., Long, D., & **Harada, C. K.**, “Modeling the High-Resolution Emission Spectra of Clear and Cloudy Nontransiting Hot Jupiters,” 2021, *ApJ*, 923, 62
3. Roman, M. T., M.-R. Kempton, E., Rauscher, E., **Harada, C. K.**, Bean, J. L., & Stevenson, K. B., “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, S., Knutson, H. A., Jovanovic, N., **Harada, C. K.**, Oklopčić, A., Eriksen, J., Mawet, D., Millar-Blanchaer, M. A., Tinyanont, S., & Vasisht, G., “Constraints on Metastable Helium in the Atmospheres of WASP-69b and WASP-52b with Ultra-Narrowband Photometry,” 2020, *AJ*, 159, 278

1. Collins, K. A., Collins, K. I., Pepper, J., et al. (including **Harada, C. K.**), “The KELT Follow-Up Network and Transit False Positive Catalog: Pre-vetted False Positives for TESS,” 2018, *AJ*, 156, 234

ACCEPTED PROPOSALS

Space Telescopes

James Webb Space Telescope

Co-I: Cycle 1 GO Program ID 2062 (NIRISS/NIRSpec, 22.8 hours) “Transmission Spectroscopy of the Super-Neptune WASP-166b” (PI: Mayo)

Ground-based Telescopes

10-m Keck I Telescope

Co-I: Program ID 2022B_U089 (HIRES, 18.0 hours), “The Obliquity of the HIP 41378 Planetary System” (PI: Dressing)

8.1-m Gemini-N Telescope

Co-I: Program ID GN-2024B-Q-123 (MAROON-X, 19.8 hours), “Characterizing TOI 2104, one of the highest-multiplicity TESS systems” (PI: Turtelboom)

3.5-m WIYN Telescope

Co-I: Program ID 2024B-662476 (NEID, 17.5 hours), “Characterizing TOI 2104, one of the highest-multiplicity TESS systems” (PI: Turtelboom)

3-m Shane Telescope, Lick Observatory

Co-I: Program ID 2022A_S014 (ShARCS, 5 nights), “A Closer Look at the Host Stars of Transiting Planets” (PI: Dressing)

Co-I: Program ID 2021B_S009 (ShARCS, 8 nights), “A Closer Look at the Host Stars of Transiting Planets” (PI: Dressing)

Co-I: Program ID 2021A_S020 (ShARCS, 12 nights), “A Closer Look at the Host Stars of Transiting Planets” (PI: Dressing)

1-m Nickel Telescope, Lick Observatory

Co-I: Program ID 2022B_N011 (Direct Imaging Camera, 5 nights), “Validating Netpune-size planets around A-type stars” (PI: Giacalone)

Co-I: Program 2022A_N005 (Direct Imaging Camera, 18 nights), “Validating Netpune-size planets around A-type stars” (PI: Giacalone)

Co-I: Program 2021B_N001 (Direct Imaging Camera, 20 nights), “Validating Netpune-size planets around A-type stars” (PI: Giacalone)

CONFERENCE TALKS & POSTERS

Invited Talks

“Pathways to Extrasolar Habitable Worlds,” UC Berkeley Astronomy PhD Qualifying Exam Talk, Berkeley, CA, May 16, 2024

“A Pathway to Planet Properties: Maximizing Precursor Knowledge of Potential HWO Targets,” AAS Meeting #243 HWO Current Status and Opportunities for Engagement splinter session, New Orleans, LA, January 10, 2024

“Two Tales from the Crypt: Signatures of Clouds in Hot Jupiter Ahhh!-tmospheres & Dynamical Stability of ExomoOoOons,” UC Santa Cruz Planetary Lunch Talk Seminar Series, Santa Cruz, CA, October 31, 2022

“Signatures of Clouds in Hot Jupiter Atmospheres: Modeled High-Resolution Emission Spectra from 3D General Circulation Models,” University of Maryland Astronomy Honors Thesis Talk, Remote/College Park, MD, April 17, 2020

Contributed Talks

“Stability of exomoons orbiting HIP 41378 f, a temperate super-puff in a multi-planet system,” AAS Meeting #243, New Orleans, LA, January 10, 2024

“LTEpy: an open source Python tool for simple LTE calculations,” Northwestern University CIERA Code/Astro Summer Workshop, Evanston, IL, July 14, 2023

“Stability of exomoons orbiting HIP 41378 f, a temperate super-puff in a multi-planet system,” UC Berkeley Astronomy Lunch Talks, Berkeley, CA, October 20, 2022

“Cloudy Hot Jupiters: Predictions of High-resolution Thermal Emission Spectra,” Bay Area Exoplanet Meeting #36, Remote/NASA Ames, March 5, 2021

“Atmospheric Escape in Exoplanets: Simulated 10830 Å Helium Line Absorption,” University of Maryland Exoplanets Meeting, College Park, MD, October 2, 2019

“Atmospheric Escape in Exoplanets: Simulated 10830 Å Helium Line Absorption,” SAO/CfA Summer REU Symposium, Cambridge, MA, August 8, 2019

“Simulated Emission Spectra of Hot Jupiters with Cloudy Atmospheres,” University of Maryland Astronomy Summer Research Talks, College Park, MD, September 14, 2018

“Photometry of M-Dwarf Binaries in Young Moving Groups,” University of Chicago Astronomy Summer Research Talks, Chicago, IL, August 18, 2017

Public Talks

“What’s in the Night Sky?” Remote/Sunset Park Elementary, Miami, FL, October 7, 2024

“Exploring the Cepheid Period-Apparent-Magnitude Relation in M31 with iPTF,” University of Maryland Observatory Open House, College Park, MD, December 5, 2017

Selected Posters

Harada, C. K., Dressing, C. D., & Kane, S. R., “SPORES-HWO II. Assessing Sensitivity Limits on Planetary Architectures with a Uniform Analysis of Radial Velocities,” ([digital poster](#)), NExScI Sagan Summer Workshop, Pasadena, CA, July 22–26, 2024

Harada, C. K., Dressing, C. D., & Kane, S. R., “SPORES-HWO II. Assessing Sensitivity Limits on Planetary Architectures with a Uniform Analysis of Radial Velocities,” Exoplanets 5, Leiden, the Netherlands, June 20, 2024

Harada, C. K., Dressing, C. D., & Kane, S. R., “Habitable Worlds Observatory SPORES: Stellar Properties & Observational Reconnaissance for Exoplanet Studies,” Extreme Solar Systems V, Ōtautahi/Christchurch, Aotearoa/New Zealand, March 17–21, 2024

Adami Ardestani B., **Harada, C. K.**, & Dressing, C. D., “Habitable Worlds Observatory: Synthesizing Knowledge of Target Stars to Prepare for the Search for Habitable Exoplanets” ([iPoster](#)), AAS Meeting #243, New Orleans, LA, January 11, 2024

Mayo, A., **Harada, C. K.**, & Dressing, C. D., “Enriching Our View of Multiplanet Systems with High-Cadence Observations of 914 TESS Targets” ([digital poster](#)), NExScI Sagan Summer Workshop, Remote/Pasadena, CA, July 25, 2023

Hellum Bye, C., Eiden, K., Gardiner, E., **Harada, C. K.**, Isaacson, H., & Sandford, N., “Organizing in Astronomy and Academia: Tales from UCB Astronomy” ([iPoster](#)), AAS Meeting #241, Seattle, WA, January 9, 2023

Harada, C. K., & Oklopčić, A., “New Insights into the Escaping Atmospheres of HAT-P-11b and WASP-69b: Simulated 10830 Å Helium Line Transmission Spectra” ([ADS abstract](#)), AAS Meeting #235, Honolulu, HI, January 6, 2020

Harada, C. K., M.-R. Kempton, E., Rauscher, E., & Roman, M., “Simulated Emission Spectra of Hot Jupiters with Active Clouds from 3D GCMs,” Chesapeake Bay Area Exoplanet Meeting, College Park, MD, February 15, 2019

Harada, C. K., M.-R. Kempton, E., Rauscher, E., & Roman, M., “Simulated Emission Spectra of Hot Jupiters with Active Clouds from 3D GCMs” ([ADS abstract](#)), AAS Meeting #233, Seattle, WA, January 8, 2019

Duck, A. E., **Harada, C. K.**, Harrell, J., Williams, E., Morris, R. A., Deming, D., Werner, M., & Crossfield, I., “K2 and Spitzer Joint Analysis of 4 Transiting Exoplanets” ([ADS abstract](#)), AAS Meeting #233, Seattle, WA, January 8, 2019

Harada, C. K., & Warner, E., “KELT-FUN: Hunting for Hot Exoplanets at the UMD Observatory,” University of Maryland Undergraduate Research Day, College Park, MD, April 25, 2018

Other Professional Engagement

NASA HWO START/TAG 3rd In-person Meeting, Baltimore, MD, June 3–5, 2024

ExoPAG Meeting 29, New Orleans, LA, January 6–7, 2024

NASA HWO START/TAG Kick-off Meeting, Remote/Washington, DC, Oct. 31–Nov. 2, 2023

Bay Area Exoplanet Meeting #41, Santa Cruz, CA, July 15, 2022

UC Santa Cruz OWL Summer Program, Santa Cruz, CA, July 12–13, 2022

UC Berkeley TRAIL (Teach, Respond, Act, Inspire, Lead) SVSH Prevention & Response Training Workshop, Berkeley, CA, November 16, 2021

UCO/Lick Observing Workshop, Mt. Hamilton, CA, August 26–28, 2021

CloudNineCon Exoplanet Conference, Remote, August 11, 2021

TESS Science Conference II, Remote, August 2–6, 2021

Bay Area Exoplanet Meeting #37, Remote, June 11, 2021

Bay Area Exoplanet Meeting #35, Remote, December 18, 2020

UCO/Lick Observational Astronomy Workshop, Remote, October 9–11, 2020

Bay Area Exoplanet Meeting #34, Remote, September 4, 2020

TESS Science Conference I, Cambridge, MA, July 29–August 2, 2019

PROFESSIONAL SERVICE

Liaison, NASA HWO/START Exoplanet Demographics Working Group, 2024–

Task Group Lead, NASA HWO/START Target Stars/Systems Working Group, 2024–

Queer Grads Coordinator, UC Berkeley Astronomy Department, 2023–

Panelist, Berkeley MPS Scholars NSF GRFP Workshop, October 8, 2024

Panelist, Berkeley MPS Scholars Grad Application Workshop, August 22, 2024

Judge, AAS Chambliss Poster Competition, AAS Meeting #243, January 2024
Grad Student Representative, UCB Astronomy DEI/Climate Committee, 2021–2022
Member, SRU/UAW-2865 Astronomy Organizing Committee, Fall 2022
Facilitator, UCB Queer Grads in Astronomy Info Session, March 17, 2022
Panel Chair, UCB Astronomy Prospective Grad Visit Q&A Panel, March 18, 2021
Member, UCB Astronomy Prospective Grad Visit Planning Committee, Spring 2021
Member, University of Michigan Astronomy DEI Committee, Summer 2018

OUTREACH

Pen Pal, Letters to a Pre-Scientist, 2024–
Volunteer Speaker, Scientist in Every Florida School, 2024
Mentor Coordinator, POWER Bay Area (UCB), 2022–2023
Open House Volunteer, University of Maryland Observatory, 2016–2020
Astronomy Outreach Volunteer, Maryland Day, University of Maryland, 2017–2019
Volunteer Speaker, *Physics is Fun!*, University of Maryland, 2016

TEACHING & MENTORING

Classroom Experience

Guest Lecturer, Astro-7A: Intro to Astrophysics (undergraduate course for majors), UC Berkeley, September 5, 2023
Head Graduate Student Instructor, Astro-C12: The Planets (undergraduate course for non-majors), UC Berkeley, Spring 2023
Guest Lecturer, Astro-7A: Intro to Astrophysics (undergraduate course for majors), UC Berkeley, October 18, 2022
Course Reader, EPS-C181: Atmospheric Physics and Dynamics (undergraduate course for majors), UC Berkeley, Fall 2022
Graduate Student Instructor, Astro-7A: Intro to Astrophysics (undergraduate course for majors), UC Berkeley, Fall 2021
Lab Teaching Assistant, Astro-121: Intro Astrophysics II (undergraduate course for majors), University of Maryland, Spring 2020
Lab Teaching Assistant, Astro-310: Observational Astronomy (undergraduate course for majors), University of Maryland, Fall 2018 & Fall 2019
Course Tutor, Astro-121: Intro Astrophysics II (undergraduate course for majors), University of Maryland, Spring 2018

Mentorship Programs

Mathematical & Physical Sciences (MPS) Scholars Program, UC Berkeley, 2024–
Cal-Bridge Tutoring Program, UC Berkeley, 2024–
POWER Bay Area Organizing Committee, UC Berkeley, 2022–2023
Society for Women in the Physical Sciences (SWPS), UC Berkeley, 2022
Astronomy Peer Mentoring (APM) Program, University of Maryland, 2018–2020

Co-advised Undergraduate Students

Bahareh Adami Ardestani (Sonoma State University undergraduate, began 2023)

Ryan Hwangbo (UC Berkeley undergraduate, began 2023)

Anmol Desai (UC Berkeley undergraduate, began 2022)