

# Caleb K. Harada

Department of Astronomy, University of California, Berkeley

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**Research Interests:** Exoplanet detection & characterization • Dynamics of exoplanet atmospheres

## EDUCATION

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2025 (expected)	<b>Ph.D. in Astrophysics</b> University of California, Berkeley - Advisor: Prof. Courtney Dressing
2022	<b>M.A. in Astrophysics</b> University of California, Berkeley
2020	<b>B.S. in Astronomy with High Honors</b> ( <i>Magna Cum Laude</i> ) University of Maryland, College Park - Advisor: Prof. Eliza M.-R. Kempton - Thesis: “Signatures of Clouds in Hot Jupiter Atmospheres: Modeled High-Resolution Emission Spectra from 3D General Circulation Models”
2020	<b>B.S. in Physics</b> ( <i>Magna Cum Laude</i> ) University of Maryland, College Park

## RESEARCH APPOINTMENTS

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2020 – present	<b>NSF Graduate Research Fellow</b> , UC Berkeley, Department of Astronomy
2017 – 2020	<b>Undergraduate Researcher</b> , UMD College Park, Department of Astronomy
2019	<b>NSF REU Fellow</b> , Center for Astrophysics   Harvard & Smithsonian
2018	<b>Summer Research Assistant</b> , University of Michigan, Department of Astronomy
2017	<b>Summer Research Assistant</b> , UChicago, Department of Astronomy and Astrophysics

## AWARDS & FELLOWSHIPS

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2020 – present	NSF Graduate Research Fellowship
2022	Outstanding Graduate Student Instructor Award (UC Berkeley)
2019 – 2020	Maryland Space Grant Scholarship
2018 – 2020	Angelo Bardasis Memorial Scholarship (University of Maryland)
2016 – 2020	President’s Scholarship (University of Maryland)
2019	NSF Research Experience for Undergraduates (CfA   Harvard & Smithsonian)
2019	University Honors Certificate (University of Maryland)
2018 – 2019	Monroe Martin Undergraduate Research Award (University of Maryland)

## REFEREED PUBLICATIONS

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1. Turtelboom, E. V., et al. (78 co-authors, including **Harada, C. K.**), “The TESS-Keck Survey. XI. Mass Measurements for Four Transiting Sub-Neptunes Orbiting K-dwarf TOI 1246,” 2022, AJ, *in press*

2. 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 [DOI]
3. 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 [DOI]
4. **Harada, C. K.**, M.-R. Kempton, E., Rauscher, E., Roman, M., Malsky, I., Brinjikji, M., & diTomasso, V., “Signatures of Clouds in Hot Jupiter Atmospheres: Modeled High-Resolution Emission Spectra from 3D General Circulation Models,” 2021, ApJ, 909, 85 [DOI]
5. 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 [DOI]
6. 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 [DOI]
7. Collins, K., et al. (110 co-authors, including **Harada, C. K.**), “The KELT Follow-Up Network and Transit False Positive Catalog: Pre-vetted False Positives for TESS,” 2018, AJ, 156, 234 [DOI]

## PROPOSALS & GRANTS

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2021 Co-I: *JWST* Cycle 1 GO Program: **22.8 hours** (PI: Andy Mayo), “Transmission Spectroscopy of the Super-Neptune WASP-166b”

## OBSERVING EXPERIENCE

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2020 Co-I: 3.0-m Shane Telescope (ShARCS), Lick Observatory: **1 night**

2017 Independent Study: 6-in & 7-in Refractors, UMD Campus Observatory: **9 nights**

## TALKS & POSTERS

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03/2021 *Contributed talk*: “Cloudy Hot Jupiters: Predictions of High-resolution Thermal Emission Spectra,” Bay Area Exoplanet Meeting 36 (virtual)

05/2020 *Thesis talk*: “Signatures of Clouds in Hot Jupiter Atmospheres: Modeled High-Resolution Emission Spectra from 3D General Circulation Models,” UMD College Park, Department of Astronomy (virtual)

01/2020 *Poster*: “New Insights into the Escaping Atmospheres of HAT-P-11b and WASP-69b: Simulated 10830 Å Helium Line Transmission Spectra,” AAS 235<sup>th</sup> Meeting (Honolulu, HI) [ADS]

10/2019 *Invited talk*: “Atmospheric Escape in Exoplanets: Simulated 10830 Å Helium Line Absorption,” UMD Exoplanet Group Meeting (College Park, MD)

08/2019 *Contributed talk*: “Atmospheric Escape in Exoplanets: Simulated 10830 Å Helium Line Absorption,” SAO REU Symposium, Center for Astrophysics | Harvard & Smithsonian (Cambridge, MA)

02/2019 *Poster*: “Simulated Emission Spectra of Hot Jupiters with Active Clouds from 3D GCMs,” Chesapeake Bay Area Exoplanet Meeting (College Park, MD)

01/2019 *Poster*: “Simulated Emission Spectra of Hot Jupiters with Active Clouds from 3D GCMs,” AAS 233<sup>rd</sup> Meeting (Seattle, WA) [ADS]

01/2019	<i>Poster:</i> “K2 and Spitzer Joint Analysis of 4 Transiting Exoplanets,” AAS 233 <sup>rd</sup> Meeting (Seattle, WA) <a href="#">[ADS]</a>
09/2018	<i>Contributed talk:</i> “Simulated Emission Spectra of Hot Jupiters with Cloudy Atmospheres,” UMD College Park, Astronomy Summer Research Talks (College Park, MD)
04/2018	<i>Poster:</i> “KELT-FUN: Hunting for Hot Exoplanets at the UMD Observatory,” UMD College Park, Undergraduate Research Day (College Park, MD)
12/2017	<i>Invited talk:</i> “Exploring the Cepheid Period-Apparent-Magnitude Relation in M31 with iPTF,” UMD College Park, Observatory Public Open House (College Park, MD)
08/2017	<i>Contributed talk:</i> “Photometry of M-Dwarf Binaries in Young Moving Groups,” UChicago Astronomy Summer Research Talks (Chicago, IL)

## TEACHING EXPERIENCE

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2021	<i>Graduate Student Instructor (GSI):</i> Astronomy 7A: Introduction to Astrophysics (UC Berkeley)
2020	<i>Lab Teaching Assistant (TA):</i> Astronomy 121: Introductory Astrophysics II (UMD, College Park)
2018 – 2019	<i>Lab TA:</i> Astronomy 310: Observational Astronomy (UMD, College Park)
2018	<i>Tutor:</i> Astronomy 121: Introductory Astrophysics II (UMD, College Park)

## ACADEMIC SERVICE

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2022 – present	<i>Mentor:</i> Society of Women in the Physical Sciences (SWPS; UC Berkeley)
2021 – present	<i>Grad Student Representative:</i> Astronomy Climate Advisors Committee (UC Berkeley Astronomy)
03/2022	<i>Facilitator:</i> Queer Grads in Astronomy Breakout Session (prospective grad visit; UC Berkeley)
03/2021	<i>Committee Member:</i> Prospective Grad Visit Planning Committee (UC Berkeley Astronomy)
03/2021	<i>Panel Chair:</i> Prospective Grad Visit Q&A Panel (UC Berkeley Astronomy)
2018 – 2020	<i>Peer Mentor:</i> Astronomy Peer Mentoring Program (APM; UMD Astronomy)

## COMMUNITY OUTREACH

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2017 – 2020	<i>Outreach Staff:</i> University of Maryland Campus Observatory (College Park, MD)
2016 – 2017	<i>Outreach Volunteer:</i> University of Maryland Campus Observatory (College Park, MD)
2017 – 2019	<i>Volunteer Presenter:</i> “Maryland Day,” University of Maryland (College Park, MD)
2016	<i>Volunteer Presenter:</i> “Physics is Phun,” University of Maryland (College Park, MD)

## PROFESSIONAL DEVELOPMENT

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11/2021	<i>Workshop:</i> TRAIL: SVSH Prevention & Response Training (PATH to Care Center, Berkeley, CA)
08/2021	<i>Workshop:</i> UCO/Lick Burbidge Observational Astronomy Workshop, Pt. 2 (Mount Hamilton, CA)
08/2021	<i>Conference:</i> CloudNineCon (virtual)
08/2021	<i>Conference:</i> TESS Science Conference II (virtual)
06/2021	<i>Conference:</i> Bay Area Exoplanet Meeting #37 (virtual)
03/2021	<i>Conference:</i> Bay Area Exoplanet Meeting #36 (virtual)
12/2020	<i>Conference:</i> Bay Area Exoplanet Meeting #35 (virtual)

10/2020	<i>Workshop:</i> UCO/Lick Burbidge Observational Astronomy Workshop, Pt. 1 (virtual)
09/2020	<i>Conference:</i> Bay Area Exoplanet Meeting #34 (virtual)
01/2020	<i>Conference:</i> American Astronomical Society 235 <sup>th</sup> Meeting (Honolulu, HI)
07/2019	<i>Conference:</i> TESS Science Conference (Cambridge, MA)
02/2019	<i>Conference:</i> Chesapeake Bay Area Exoplanet Meeting (College Park, MD)
01/2019	<i>Conference:</i> American Astronomical Society 233 <sup>rd</sup> Meeting (Seattle, WA)