AIDA BEHMARD

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RESEARCH INTERESTS

Exoplanets, galactic archaeology, stellar astrophysics, statistics, ML/data-driven techniques

APPOINTMENTS

Flatiron Research Fellow 2024 – present
Center for Computational Astrophysics, Flatiron Institute, *New York, NY*

Kalbfleisch Postdoctoral Fellow 2023 – 2024
American Museum of Natural History, Dept. of Astrophysics, *New York, NY*

Graduate Research Fellow 2017 – 2023
California Institute of Technology, *Pasadena, CA*

Post-Baccalaureate Fellow 2015 – 2017
Princeton University, *Princeton, NJ*

EDUCATION

California Institute of Technology, Pasadena, CA Sept. 2017 – June 2023
Advisor: Prof. Heather Knutson

Ph.D. Planetary Science
M.S. Planetary Science

Yale University, New Haven, CT Aug. 2011 – May 2015
B.S. Physics

HONORS & AWARDS

Block Award, Aspen Center for Physics	2023
Caltech 3-Minute Thesis Competition – 1^{st} Place	2022
NASA ExoExplorers Cohort Member	2022
Keck Institute for Space Studies Affiliate	2019
NSF Graduate Research Fellowship	2018-2021
Origins of Life Initiative Grant, Harvard University	2015
Science, Technology, and Research Scholars (STARS II) Fellowship, Yale University	2014
George J. Schulz Fellowship for the Physical Sciences, Yale University	2013
Yale College Dean's Undergraduate Research Fellowship	2012

CONFERENCE TALKS & POSTERS

⋆ competitively selected

Rocky Worlds 4 (talk⋆), *Groningen, Netherlands*, (upcoming)	Jan. 2026
Know Thy Star, Know Thy Planet 2 (talk⋆), *Pasadena, CA*	Feb. 2025

Two HoRSEs (talk⋆), *Berlin, Germany*	July 2024
Cool Stars 22 (talk⋆), *San Diego, CA*	June 2024
Extreme Solar Systems V (poster), *Christchurch, New Zealand*	Mar. 2024
Gordon Research Conference (talk⋆), *South Hadley, MA*	June 2023
Late-Stage Exoplanet Systems, Aspen Center for Physics (talk⋆), *Aspen, CO*	Mar. 2023
Exoplanets in Our Backyard 2 (poster), *virtual*	Nov. 2022
Exoplanet Demographics (talk⋆), *virtual*	Nov. 2020
Extreme Precision in Radial Velocity IV (talk⋆), *Grindelwald, Switzerland*	Mar. 2019
Keck Science Meeting (talk⋆), *Pasadena, CA*	Sept. 2018
Exoplanets in Southern California IV (talk), *Pasadena, CA*	Sept. 2018
Astrochemistry: Past, Present, and Future (poster), *Pasadena, CA*	July 2018
Emerging Researchers in Exoplanet Science IV (poster), *Pasadena, CA*	June 2018
AAS Meeting #228 (poster), *San Diego, CA*	June 2016
AAS Meeting #223 (poster), *National Harbor, MD*	Jan. 2014
REU Symposium, Kitt Peak National Observatory (talk), *Tucson, AZ*	Aug. 2013

SEMINARS & COLLOQUIA

⋆ invited

Astrophysics Seminar, UPenn, *Philadelphia, PA*⋆	Oct. 2025
Exoplanets & Stars Seminar, Yale University, *New Haven, CT*⋆	April 2025
Astronomy Seminar, Universidad Diego Portales, *Santiago, Chile*⋆	April 2025
Astronomy Seminar, Vanderbilt University, *Nashville, TN*⋆	Nov. 2024
SDSS-V Galactic Genesis Working Group Meeting, *virtual*⋆	Oct. 2023
Exoplanet Seminar, NASA Goddard, *virtual*⋆	Jan. 2023
TESS Science Talk Series, MIT, *Cambridge, MA*⋆	Nov. 2022
APS Seminar, CU Boulder, *Boulder, CO*⋆	Oct. 2022
Planetary Science Seminar, UCLA, *Los Angeles, CA*⋆	Sept. 2022
Astrophysics Dept. Seminar, AMNH, *New York, NY*⋆	Sept. 2022
Astronomy Lunch Talk, Columbia University, *New York, NY*⋆	Sept. 2022
ESPF Seminar Series, STScI, *virtual*⋆	Aug. 2022
NASA ExoExplorers Science Series, *virtual*	June 2022
Exoplanet Journal Club, NASA JPL, *Pasadena, CA*⋆	April 2022
CEHW Seminar, Penn State, *virtual*⋆	Feb. 2022
EPL Astronomy Seminar, Carnegie Observatories, *Pasadena, CA*⋆	Feb. 2022
TESS Science Team Meeting #27, *virtual*	Jan. 2022
Exoplanet Meeting, Princeton University, *virtual*⋆	Nov. 2021
FLASH Seminar, UC Santa Cruz, *virtual*⋆	Dec. 2020
Tea Talk, Carnegie Observatories, *Pasadena, CA*⋆	Dec. 2018
Origins of Life Research Symposium, Harvard University, *Cambridge, MA*⋆	Aug. 2015

TEACHING & MENTORING

Teaching Assistant

Held office hours, wrote problem set solutions, graded homework and exams, and substituted for instructor on multiple occasions

– Ay/Ge 117: Bayesian Statistics and Data Analysis	Winter 2020, 2021, 2022
– Ay/Ge 133: Formation & Evolution of Planetary Systems	Spring 2019

Research Mentoring

- **Daija Ricks** Simons-NSBP Fellow, May 2025 - present
  (Co-mentored with Carrie Filion)
  Exploring the Milky Way with Data-Driven Stellar Abundances Current NC Central U undergrad

- **Chris Lam** CCA intern, April 2025 - present
  Data-Driven Asteroseismic Ages for Solar-like Stars Current U of Florida Ph.D. student

- **Cinta Vidante** AMNH Kade Fellow, May 2024 - July 2024
  (Co-mentored with Ruth Angus)
  Detecting Rotationally-Modulated Flares in Young Stars with ML Current U of Potsdam M.S. student

- **Cassie Sevilla** Caltech undergrad, June 2021 - Aug. 2022
  (Co-mentored with Jim Fuller)
  Lithium Abundance Signatures Following Planet Engulfment Current Cornell Ph.D. student
  Publication: C. Sevilla et al. (2022), *MNRAS*, 516, 3

AWARDED TELESCOPE TIME & GRANTS

NASA ROSES 2025: Contributions to Ariel Preparatory Science (Co-I)
Magellan/Clay: MIKE – 2 nights awarded, 2025B (Co-I)
Gemini North 8.1m Observatory: MAROON-X – 6.67 hours awarded, 2025 FT (**PI**)
WIYN 3.5m Observatory: NEID – 10 hours awarded, 2024B (**PI**)
Keck Observatory: HIRES – 1 night awarded, 2021A (**PI**†)
Keck Observatory: HIRES – 1 night awarded, 2020B (**PI**†)
Hubble Space Telescope – 2 nights awarded (Co-I), 2016

† Functionally PI, but not officially as Caltech grad students cannot PI Keck proposals

PROFESSIONAL SERVICE

† dates redacted for anonymity

NSF NOIRLab TAC†
NASA Review Panel (x2)†
ExoNYC Conference Organizer Jan. 2025
Committee On INclusiveness in SDSS (COINS) Member Oct. 2024 - present
Dix Caltech Planetary Science Seminar Co-Organizer Oct. 2020 - Jun. 2021
Caltech Stars and Planets Astro-ph Co-Organizer Oct. 2019 - Mar. 2020
Referee for *AAS Journals, MNRAS, Nature* Sept. 2019 - present

SELECTED OUTREACH

NASA ExoExplorers Alumni Mentor Mar. 2025 - present

• Mentoring/advising graduate students in the current NASA ExoExplorers cohort.

CUNY M.S. Program Outreach Talk Jan 2025

• Talk and discussion on professional networking at conferences for CUNY M.S. Astrophysics students.

Volunteer K-2nd Science Teacher Dec. 2017 - June 2023

• Caltech Center for Teaching, Learning, and Outreach (CTLO) Visiting Scientists program.

• Carried out science curriculum design and both in-person and virtual in-class teaching for grades K-2nd at underserved Pasadena Unified School District (PUSD) schools.

Caltech GPS Buddy Program Mentor Sept. 2021 - June 2022

• Mentoring/advising 1st-2nd year graduate students in the Caltech Geological and Planetary Sciences (GPS) Division.

Invited Speaker May 2022

• Public science talk at Caltech Seminar Day for Caltech faculty, alumni, and current students.

Invited Outreach Talk Oct. 2021

• Outreach talk and discussion on physics-related careers at Los Altos High School Physics Club meeting.

Caltech WAVE Program Mentor and Council Member June 2019 - Sept. 2021

• Mentored 13 undergraduates in the WAVE program dedicated to increasing participation of underrepresented students in STEM Ph.D. programs. • Served on the WAVE student council tasked with developing WAVE programming.

Caltech Graduate Student Council (GSC) Diversity Chair May 2018 - Sept. 2021

• Led GSC Diversity Committee in creating programming for McNair scholars, organizing graduate orientation events, analyzing/reporting on graduate admissions statistics, etc. • Created and maintain Caltech's first database of DEI resources. • Worked with students groups (BSEC, APIDA+, and Club Latino) and the Center for Inclusion and Diversity (CCID) to create programming that supports minority students.

Invited Speaker Sept. 2021

• Caltech FUTURE of Physics conference designed to support students whose gender identities are historically underrepresented in physics.

Invited Speaker Sept. 2021

• Women of Aeronautics and Astronautics India Chapter.

Invited Speaker April 2021

• NorCal/Nevada American Association of Physics Teachers Meeting.

Caltech Title IX Council Member May 2019 - Sept. 2020

• Served on graduate student advisory board for providing input on Caltech Title IX programming and education materials.

Skype a Scientist Instructor July 2020 - Aug. 2020

• Virtual in-class teaching for 1st grade classes in participating schools around the globe.

Women Mentoring Women (WMW) Program Mentor Nov. 2017 - June 2020

• Mentoring/advising 1st-2nd year graduate students through the Caltech WMW program.

PUBLICATIONS

1st / 2nd-author (⋆ directly supervised student, † co-first authors):

1. **A. Behmard** et. al (2025), "A Link Between Rocky Planet Densities and Host Star Elemental Abundances", *The Astronomical Journal, accepted*
2. **A. Behmard** et. al (2025), "A Data-Driven M Dwarf Model and Detailed Abundances for ∼17,000 M Dwarfs in SDSS-V", *The Astrophysical Journal*, 982, 13
3. S. Vissapragada, **A. Behmard**† (2025), "The Hottest Neptunes Orbit Metal-Rich Stars", *The Astronomical Journal*, 169, 2
4. **A. Behmard**, E. Cunningham, M. Bedell, M. Ness (2023), "Elemental Abundances of *Kepler* Objects of Interest in APOGEE DR17", *The Astronomical Journal*, 165, 178
5. **A. Behmard**, F. Dai, J. Brewer, T. Berger, A. Howard (2023), "Planet Engulfment Detections are Rare According to Observations and Stellar Modeling", *MNRAS*, 521, 2
6. **A. Behmard**, C. Sevilla, J. Fuller (2023), "Planet Engulfment Signatures in Twin Stars", *MNRAS*, 518, 4
7. C. Sevilla⋆, **A. Behmard**, J. Fuller (2022), "Long-Term Lithium Abundance Signatures Following Planetary Engulfment", *MNRAS*, 516, 3
8. **A. Behmard**, F. Dai, A. Howard (2022), "Stellar Companions To TESS Objects of Interest: A Test of Planet-Companion Alignment", *The Astronomical Journal*, 163, 160
9. **A. Behmard**, E. Petigura, A. Howard (2019), "Data-Driven Spectroscopy of Cool Stars at High Spectral Resolution", *The Astrophysical Journal*, 876, 68
10. **A. Behmard**, D. Graninger, E. Fayolle, J. Bergner, K. Öberg (2019), "Desorption Kinetics and Binding Energies of Small Hydrocarbons", *The Astrophysical Journal*, 875, 73

Nth-author:

1. A. Howard et al. [including **A. Behmard**] (2025),"Planet Masses, Radii, and Orbits from NASA's K2 Mission", *The Astrophysical Journal Supplement Series*, 278, 2
2. J. Van Zandt et al. [including **A. Behmard**] (2025),"The TESS–Keck Survey. XXIV. Outer Giants May Be More Prevalent in the Presence of Inner Small Planets ", *The Astronomical Journal*, 169, 235
3. M. Greklek-McKeon et al. [including **A. Behmard**] (2025),"Tidally Heated Sub-Neptunes, Refined Planetary Compositions, and Confirmation of a Third Planet in the TOI-1266 System", *The Astronomical Journal*, 169, 6
4. J. Galarza et al. [including **A. Behmard**] (2025),"HIP 8522: A Puzzling Young Solar Twin with the Lowest Detected Lithium Abundance", *The Astrophysical Journal*, 983, 1

5. Y. Lu et al. [including **A. Behmard**] (2025),"Evidence of Truly Young High-α Dwarf Stars", *The Astronomical Journal*, 169, 3

6. R. Rubenzahl et al. [including **A. Behmard**] (2024),"KPF Confirms a Polar Orbit for KELT-18 b", *The Astronomical Journal*, 168, 5

7. H. Isaacson et al. [including **A. Behmard**] (2024),"The California Legacy Survey. V. Chromospheric Activity Cycles in Main-sequence Stars", *The Astrophysical Journal Supplement Series*, 274, 2

8. D. Pidhorodetska et al. [including **A. Behmard**] (2024),"The TESS-Keck Survey. XXII. A Sub-Neptune Orbiting TOI-1437", *The Astronomical Journal*, 168, 3

9. A. Polanski et al. [including **A. Behmard**] (2024),"The TESS-Keck Survey. XX. 15 New TESS Planets and a Uniform RV Analysis of All Survey Targets", *The Astrophysical Journal Supplement Series*, 272, 2

10. S. Lange et al. [including **A. Behmard**] (2024),"The TESS-Keck Survey. VII. A Superdense Sub-Neptune Orbiting TOI-1824", *The Astronomical Journal*, 167, 6

11. B. Hord et al. [including **A. Behmard**] (2024),"Identification of the top TESS objects of interest for atmospheric characterization of transiting exoplanets with JWST", *The Astronomical Journal*, 167, 5

12. R. Rubenzahl et al. [including **A. Behmard**] (2024),"The TESS-Keck Survey. XII. A Dense 1.8 R Ultra-Short-Period Planet Possibly Clinging to a High-Mean-Molecular-Weight Atmosphere After the First Gyr", *The Astronomical Journal*, 167, 4

13. M. Hill et al. [including **A. Behmard**] (2024),"The TESS–Keck Survey. XIX. A Warm Transiting Sub-Saturn-mass Planet and a Nontransiting Saturn-mass Planet Orbiting a Solar Analog", *The Astronomical Journal*, 167, 4

14. C. Beard et al. [including **A. Behmard**] (2024),"The TESS-Keck Survey. XVII. Precise Mass Measurements in a Young, High-multiplicity Transiting Planet System Using Radial Velocities and Transit Timing Variations", *The Astronomical Journal*, 167, 2

15. J. Murphy et al. [including **A. Behmard**] (2023),"The TESS-Keck Survey. XVI. Mass Measurements for 12 Planets in Eight Systems", *The Astronomical Journal*, 166, 4

16. S. Blunt et al. [including **A. Behmard**] (2023),"Overfitting Affects the Reliability of Radial Velocity Mass Estimates of the V1298 Tau Planets", *The Astronomical Journal*, 166, 2

17. M. MacDougall et al. [including **A. Behmard**] (2023),"The TESS-Keck Survey. XV. Precise Properties of 108 TESS Planets and Their Host Stars", *The Astronomical Journal*, 166, 1

18. C. Brinkman et al. [including **A. Behmard**] (2023),"TOI-561 b: A Low-density Ultra-short-period "Rocky" Planet around a Metal-poor Star", *The Astronomical Journal*, 165, 88

19. J. Van Zandt et al. [including **A. Behmard**] (2023),"TESS-Keck Survey. XIV. Two Giant Exoplanets from the Distant Giants Survey", *The Astronomical Journal*, 165, 60

20. F. Dai et al. [including **A. Behmard**] (2023),"TOI-1136 is a Young, Coplanar, Aligned Planetary System in a Pristine Resonant Chain", *The Astronomical Journal*, 165, 33

21. M. El Mufti et al. [including **A. Behmard**] (2022),"TOI 560: Two Transiting Planets Orbiting a K Dwarf Validated with iSHELL, PFS, and HIRES RVs", *The Astronomical Journal*, 165, 1

22. M. MacDougall et al. [including **A. Behmard**] (2022),"The TESS-Keck Survey. XIII. An Eccentric Hot Neptune with a Similar-Mass Outer Companion around TOI-1272", *The Astronomical Journal*, 164, 97

23. A. Chontos et al. [including **A. Behmard**] (2022),"The TESS-Keck Survey: Science Goals and Target Selection", *The Astronomical Journal*, 163, 297

24. E. Petigura et al. [including **A. Behmard**] (2022),"The California-Kepler Survey. X. The Radius Gap as a Function of Stellar Mass, Metallicity, and Age", *The Astronomical Journal*, 163, 179

25. J. Winters et al. [including **A. Behmard**] (2022),"A Second Planet Transiting LTT 1445A and a Determination of the Masses of Both Worlds", *The Astronomical Journal*, 163, 61

26. P. Dalba et al. [including **A. Behmard**] (2022),"The TESS-Keck Survey. VIII. Confirmation of a Transiting Giant Planet on an Eccentric 261 Day Orbit with the Automated Planet Finder Telescope", *The Astronomical Journal*, 163, 61

27. N. Heidari et al. [including **A. Behmard**] (2022),"HD 207897 b: A dense sub-Neptune transiting a nearby and bright K-type star", *Astronomy & Astrophysics*, 658, A176

28. J. Murphy et al. [including **A. Behmard**] (2021),"Another Superdense Sub-Neptune in K2-182 b and Refined Mass Measurements for K2-199 b and c", *The Astronomical Journal*, 162, 294

29. M. MacDougall et al. [including **A. Behmard**] (2021),"The TESS-Keck Survey. VI. Two Eccentric Sub-Neptunes Orbiting HIP-97166", *The Astronomical Journal*, 162, 265

30. A. Polanski et al. [including **A. Behmard**] (2021),"Wolf 503 b: Characterization of a Sub-Neptune Orbiting a Metal-Poor K Dwarf", *The Astronomical Journal*, 162, 238

31. N. Scarsdale et al. [including **A. Behmard**] (2021),"TESS-Keck Survey. V. Twin Sub-Neptunes Transiting the Nearby G Star HD 63935", *The Astronomical Journal*, 162, 215

32. M. Rice et al. [including **A. Behmard**] (2021),"SOLES I: The Spin-Orbit Alignment of K2-140 b, *The Astronomical Journal*, 162, 182

33. F. Dai et al. [including **A. Behmard**] (2021),"TKS X: Confirmation of TOI-1444b and a Comparative Analysis of the Ultra-short-period Planets with Hot Neptunes", *The Astronomical Journal*, 162, 62

34. B. Fulton et al. [including **A. Behmard**] (2021), " California Legacy Survey. II. Occurrence of Giant Planets beyond the Ice Line ", *The Astrophysical Journal Supplement Series*, 255, 14

35. L. Rosenthal et al. [including **A. Behmard**] (2021), " The California Legacy Survey. I. A Catalog of 178 Planets from Precision Radial Velocity Monitoring of 719 Nearby Stars over Three Decades ", *The Astrophysical Journal Supplement Series*, 255, 8

36. L. Weiss et al. [including **A. Behmard**] (2021), "The TESS-Keck Survey II: Masses of Three Sub-Neptunes Transiting the Galactic Thick-Disk Star TOI-561", *The Astronomical Journal*, 161, 2

37. M. Kosiarek et al. [including **A. Behmard**] (2020),"Physical Parameters of the Multi-Planet Systems HD 106315 and GJ 9827", *The Astronomical Journal*, 161, 1

38. F. Dai et al. [including **A. Behmard**] (2020), "The TESS-Keck Survey III: An aligned orbit for TOI-1726 c", *The Astronomical Journal*, 160, 4

39. R. Cloutier et al. [including **A. Behmard**] (2020), "TOI-1235 b: a keystone super-Earth for testing radius valley emergence models around early M dwarfs", *The Astronomical Journal*, 160, 22

40. P. Dalba et al. [including **A. Behmard**] (2020), "The TESS-Keck Survey I: A Warm Sub-Saturn-mass Planet and a Caution about Stray Light in TESS Cameras", *The Astronomical Journal*, 159, 5

41. E. Gaidos et al. [including **A. Behmard**] (2019), "Planetesimals Around Stars with *TESS* (PAST): I. Transient Dimming of a Binary Solar Analog at the End of the Planet Accretion Era", *MNRAS*, 488, 4465

42. M.C.Y. Lau, R. Harris, Y. Oh, M. Joo Yi, **A. Behmard**, T.C. Onstott (2018), "Taxonomic and functional compositions impacted by the quality of metatranscriptomic assemblies", *FEMS Microbiology Ecology*, 9, 1235