

# Michael Greklek-McKeon

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[ADS](#) | [ORCID](#)

## EDUCATION

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<b>Ph.D. in Planetary Sciences, California Institute of Technology</b>	<i>June 2025, Expected</i>
Advisor: Prof. Heather Knutson	
<b>M.Sc. in Planetary Sciences, California Institute of Technology</b>	<i>June 2021</i>
Advisors: Prof. Heather Knutson & Prof. Gregg Hallinan. GPA 3.90	
<b>B.S. in Physics, University of Maryland, College Park</b>	<i>May 2019</i>
Banneker/Key Scholar, Departmental High Honors, GPA 3.89	
<b>B.S. in Astronomy, University of Maryland, College Park</b>	<i>May 2019</i>
Maryland Space Grant Scholar, Departmental High Honors, GPA 3.91	
Thesis: New Science with K2 Legacy Data (Advisor Prof. Drake Deming)	

## RESEARCH & EMPLOYMENT HISTORY

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California Institute of Technology — Research Associate	<i>2019-2024</i>
NASA Goddard Space Flight Center — Professional Space Weather Forecaster	<i>2016-2021</i>
Institute for Astronomy, University of Hawai'i — Summer Research Associate	<i>2018</i>
Princeton Plasma Physics Laboratory — Summer Research Associate	<i>2017</i>

## TELESCOPE TIME

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<b>200" Hale Telescope, Palomar Observatory (Wide-field InfraRed Camera)</b>	<i>2021B-2024B</i>
14 programs as PI or science PI, 50 PI nights, > 100 nights total observing	
<b>XMM-Newton Space Telescope</b>	<i>2022,2023</i>
2 programs as PI, 45 ks total	
<b>Las Cumbres Observatory Global Telescope Network (Sinistro Imagers)</b>	<i>2022B,2023B</i>
2 programs as science PI, 45 hours total	
<b>Keck I, W. M. Keck Observatory (Keck Planet Finder)</b>	<i>2023B</i>
1 program as science PI, 2 Nights	

## PUBLICATIONS

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**24 Total, 20 Published/Accepted + 4 Submitted/In-Prep**

### ***First Author Publications:***

- [\*] **M. Greklek-McKeon** et al. 2024, "Updated Eccentricity and Tidal Heat Constraints for Earth-sized Planet LP 791-18 d" (to be submitted to the *Astronomical Journal*).
- [\*] **M. Greklek-McKeon** et al. 2024, "Tidally Heated Sub-Neptunes, Refined Planetary Compositions and Confirmation of a Third Planet in the 'Resonance Sandwich' TOI-1266 System" (to be submitted to the *Astronomical Journal*).
- [2] **M. Greklek-McKeon** et al. 2023, "Constraining the Densities of the Three Kepler-289 Planets with Transit Timing Variations." *The Astronomical Journal*, 165, 48.
- [1] **M. Greklek-McKeon** & D. Deming 2019, "Killing Planet Candidates with EVEREST." *The Astronomical Journal*, 157, 2.

### ***Significant Contribution Publications (^ = student mentee):***

- [7] J. Pérez-González^ & **M. Greklek-McKeon** et al. 2024, "Detection of an Atmospheric Outflow from the Young Hot Saturn TOI-1268b." *The Astronomical Journal*, 167, 214.

- [6] S. Vissapragada & **M. Greklek-McKeon** et al. 2022, "Helium in the Extended Atmosphere of the Warm Superpuff TOI-1420b." *The Astronomical Journal*, 167, 199.
- [5] R. Cloutier & **M. Greklek-McKeon** et al. 2024, "Masses, Revised Radii, and a Third Planet Candidate in the 'Inverted' Planetary System Around TOI-1266." *MNRAS*, 527, 5464.
- [4] S. Vissapragada, A. Chontos, & **M. Greklek-McKeon** et al. 2022, "The Possible Tidal Demise of Kepler's First Planetary System." *The Astrophysical Journal Letters*, 941, L31.
- [3] S. Vissapragada, H. Knutson, & **M. Greklek-McKeon** et al. 2022, "The Upper Edge of the Neptune Desert Is Stable Against Photoevaporation." *The Astronomical Journal*, 164, 234.
- [2] S. Vissapragada, G. Stefansson, & **M. Greklek-McKeon** et al. 2021, "A Search for Planetary Metastable Helium Absorption in the V1298 Tau System." *The Astronomical Journal*, 162, 222.
- [1] A. Powis, P. Porazik, & **M. Greklek-McKeon** et al. 2019, "Evolution of a Relativistic Electron Beam for Tracing Magnetospheric Field Lines." *Frontiers in Astronomy and Space Sciences*, 6, 69.

**Other Refereed Publications:**

- [\*] M.Saidel, et al. (incl **M. Greklek-McKeon**) 2024, "Atmospheric Mass Loss from TOI-1259 A b, a Gas Giant Planet With a White Dwarf Companion." *The Astronomical Journal*, submitted.
- [\*] D. Huber, et al. (incl **M. Greklek-McKeon**) 2024, "Stellar Models are Reliable at Low Metallicity: An Asteroseismic Age for the Ancient Very Metal-Poor Star KIC 8144907." *The Astronomical Journal*, submitted.
- [11] F. Dai, et al. (incl **M. Greklek-McKeon**) 2024, "An Earth-sized Planet on the Verge of Tidal Disruption." *The Astronomical Journal*, 168, 101.
- [10] J. Korth, et al. (incl **M. Greklek-McKeon**) 2024, "TOI-1408: Discovery and Photodynamical Modeling of a Small Inner Companion to a Hot Jupiter Revealed by Transit Timing Variations." *The Astrophysical Journal*, 971, 28.
- [9] G. W. Levine, et al. (incl **M. Greklek-McKeon**) 2024, "Exoplanet Aeronomy: A Case Study of WASP-69 b's Variable Thermosphere." *The Astronomical Journal*, 168, 65.
- [8] B. Hord, et al. (incl **M. Greklek-McKeon**) 2024, "Identification of the Top TESS Objects of Interest for Atmospheric Characterization of Transiting Exoplanets with JWST." *The Astronomical Journal*, 167, 233.
- [7] F. Dai, et al. (incl **M. Greklek-McKeon**) 2023, "TOI-1136 is a Young, Coplanar, Aligned Planetary System in a Pristine Resonant Chain." *The Astronomical Journal*, 165, 33.
- [6] I. Wong et al. (incl **M. Greklek-McKeon**) 2022, "TESS Revisits WASP-12: Updated Orbital Decay Rate and Constraints on Atmospheric Variability." *The Astronomical Journal*, 163, 175.
- [5] L. Kaye et al. (incl **M. Greklek-McKeon**) 2022, "Transit timings variations in the three-planet system: TOI-270." *Monthly Notices of the Royal Astronomical Society*, 510, 4.
- [4] I. Wong et al. (incl **M. Greklek-McKeon**) 2022, "TOI-2109: An Ultrahot Gas Giant on a 16 hr Orbit." *The Astronomical Journal*, 162, 256.
- [3] K. Paragas et al. (incl **M. Greklek-McKeon**) 2021, "Metastable Helium Reveals an Extended Atmosphere for the Gas Giant HAT-P-18b." *The Astrophysical Journal Letters*, 909, L10.

- [2] B.J.S. Pope et al. (incl. **M. Greklek-McKeon**) 2019, "The K2 Bright Star Survey I: Methodology and Data Release." *The Astrophysical Journal Supplement Series*, 245, 1.
- [1] Sanchez, E. et al. (incl. **M. Greklek-McKeon**) 2019, "Relativistic Particle Beams as a Resource to Solve Outstanding Problems in Space Physics." *Frontiers in Astronomy and Space Sciences*, 6, 71.

## TEACHING EXPERIENCE

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California Institute of Technology	2020-2023
Teaching Assistant, Bayesian Statistics and Data Analysis (3 terms)	
Teaching Assistant, Cosmochemistry (1 term)	
University of Maryland, College Park	2017-2019
Lab instructor and Teaching Assistant, Observational Astronomy (2 terms)	
Lab instructor and Teaching Assistant, Introductory Astrophysics (2 terms)	

## MENTORSHIP EXPERIENCE

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Haedam Im (Caltech SURF program, MIT undergraduate)	2024-Present
Kendra Nguyen (Caltech WAVE program, Pomona College Undergraduate)	2023-Present
Current: Yale Graduate Student	
Jorge Pérez-González (Caltech SURF program, UCL Undergraduate)	2022-2023
Current: MPIA Heidelberg Graduate Student	
Winnie Jeng (Caltech WAVE program, Georgia Inst. of Tech. Undergraduate)	2021
Current: Texas Instruments Software Engineer	

## OUTREACH AND SERVICE

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Board of Directors, <u>Caltech Graduate Student Council</u>	2024-Present
Service on the social committee, advocacy committee, budget & finance committee	
Caltech <u>GPS Outreach Outdoors</u>	2021-Present
Developer of NGSS-compliant interactive space-based <u>lesson plans</u> for public school students, > 1000 students served by GO-Outdoors	
Bargaining Team Member, Caltech Graduate Student Union	2024-Present
Advocacy for health and safety, discrimination & harassment protections, accessibility issues	
<u>Caltech WAVE Program</u> Mentor	2021-Present
Mentor for summer students in 2021, 2023, secondary mentor in 2024	
Caltech Planetary Science Outreach	2021-Present
Skype a Scientist (5x), Palomar Observatory Greenway lecture (2021, 2024), Sierra Madre Middle School Astronomy Night Host (2021)	
Math Tutor, <u>Caltech RISE Program</u>	2020-2022
Free weekly tutoring for public high school students	
GPS division Liaison	2021-2022
At-large ombudsperson for division affairs, 1 year term, nominated role	
Caltech Graduate Student Orientation Volunteer	2020-2023
Social program planning, facilitating, hosting during orientation events, 3 years	
Caltech DIX Planetary Science Seminar Organizer/Host	2021-2022
En Camino Tutor	2019
Free homework help for elementary school students in Langley Park, Maryland	
University of Maryland <u>Physics is Fun</u> Outreach Volunteer	2016-2019

## **SELECTED TALKS**

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American Museum of Natural History Astronomy Seminar (invited)	2024
Carnegie Earth & Planets Laboratory Astronomy Seminar (invited)	2024
JPL Virtual Exoplanet Seminar (invited)	2024
Yale Exoplanet & Stars Seminar (invited)	2023
Jonathan Tan's group meeting, University of Virginia (invited)	2023
Chalmers University Astrophysics Colloquium (invited)	2023
Palomar Observatory Greenway Lecture (invited)	2022
Caltech DIX Planetary Science Seminar	2020-2024
University of Maryland Undergraduate Physics Research Showcase (Best Talk Award)	2019
University of Hawaii Institute for Astronomy Summer Research Symposium	2018
University of Maryland Observatory Open House Guest Lecture (invited)	2016

## **SELECTED POSTERS**

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TESS Science Conference 3, MIT	2024
Cool Stars 22, San Diego	2024
Extreme Solar Systems, Christchurch	2024
Palomar Science Meeting, Pasadena	2023
Towards Other Earths 3, Porto	2023
Exoplanets IV, Las Vegas	2022
Exoplanets in Southern California	2020,2023
Kepler & K2 Science Conference V, Glendale	2019
American Physical Society Division of Plasma Physics Fall Meeting, Milwaukee	2017
NASA GSFC Summer Research Symposium (Best Poster, Orbit Award for Science)	2016