Nicholas Saunders

NSF Graduate Research Fellow

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EDUCATION

University of Hawai'i at Mānoa

PhD Astronomy — advisors: Daniel Huber, Jennifer van Saders — expected 2025

MSc Astronomy — June 2021

University of Washington

BS Physics & Astronomy (with Honors) — advisors: Rodrigo Luger, Rory Barnes — June 2018

BA Comparative Literature (emphasis: Cinema Studies) — June 2018

APPOINTMENTS

NSF Graduate Research Fellow — Sept 2019 – present
Institute for Astronomy, University of Hawai'i at Mānoa, Honolulu, HI

Visiting Scientist — Aug 2021 – Aug 2024
Department of Astrophysics, American Museum of Natural History, New York, NY

Kepler & K2 Training Materials Developer — Apr 2020 – Sept 2020
NumFocus, STScI, The Astropy Project, Remote from Honolulu, HI

Research Support Scientist, Kepler/K2 Guest Observer Office — Aug 2018 – Aug 2019
NASA Ames Research Center, Mountain View, CA

GRANTS, AWARDS, & TELESCOPE TIME

"Testing Spin-Orbit Realignment…" Keck/KPF (UH)	**PI, 1.5n**	2024
"Hot Jupiter Companions in Evolved Systems," Keck/HIRES (UH)	**PI, 1n**	2024
"The Fate of Planets Transiting Evolved Stars," Keck/KPF (UH)	**PI, 3n**	2023 – 2024
"The Fate of Planets Transiting Evolved Stars," Keck/HIRES (UH)	**PI, 9n**	2022 – 2024
"Planetary Archaeology…" Keck/HIRES (NASA)	**Co-I, 5n, $55,662**	2021 – present
Achievement Rewards for College Scientists (ARCS)	**$6,000**	May 2024
ARCS Scholar of the Year	**$1,000**	May 2024
Travel Award, Aspen Center for Physics Winter Workshop	**$1,903.30**	2023
"Planetary Archaeology…" TESS Space Telescope (TESS GI)	**Co-I, $70,000**	2021
National Science Foundation Graduate Research Fellowship	**$141,000**	2021
Honorable Mention, National Science Foundation Graduate Research Fellowship		2019
Departmental Honors in Astronomy, University of Washington		2018
1st Place: Best Online Photo Essay, Washington Newspaper Publishers Association		2016
Washington NASA Space Grant, University of Washington		2013

PUBLICATIONS

NASA ADS | **33** total publications (5 first author, 7 second author) | **3,600+** total citations | h-index = **13**

First-author

5. **Saunders, N.**, Grunblatt, S., Huber, D. et al. (submitted) TESS Giants Transiting Giants. VII. A Hot Saturn Orbiting an Oscillating Red Giant Star. arXiv:2410.11037
4. **Saunders, N.**, Grunblatt, S., Chontos, A. et al. (2024) TESS Giants Transiting Giants. VI. Newly Discovered Hot Jupiters Provide Evidence for Efficient Obliquity Damping After the Main Sequence. AJ, 168, 81
3. **Saunders, N.**, van Saders, J., Lyttle, A. et al. (2024) Stellar Cruise Control: Weakened Magnetic Braking Leads to Sustained Rapid Rotation of Old Stars. ApJ, 962, 2
2. **Saunders, N.**, Grunblatt, S., Huber, D., et al. (2022) TESS Giants Transiting Giants I. A Non-inflated Hot Jupiter Orbiting a Massive Subgiant. AJ, 163, 2
1. **Saunders, N.**, Luger, R., Barnes, R. (2019) The Pointing Limits of Transiting Exoplanet Light Curve Characterization with Pixel Level De-correlation. AJ, 157, 197

Co-author

28. Metcalfe, T., van Saders, J., Huber, D. et al including **Saunders, N.** (2024) TESS Asteroseismology of β Hydri: A Subgiant with a Born-again Dynamo. ApJ, 974, 1
27. Brinkman, C., Weiss, L., Huber, D. et al. including **Saunders, N.** (2024, submitted) The Compositions of Rocky Planets in Close-in Orbits Tend to be Earth-Like. arXiv:2410.00213
26. Dai, F., Howard, A., Halverson, S. et al. including **Saunders, N.** (2024) An Earth-sized Planet on the Verge of Tidal Disruption. AJ, 168, 3
25. Zhang, J., Weiss, L., Huber. D. et al. including **Saunders, N.** (2024, submitted) Discovery of a Jupiter Analog Misaligned to the Inner Planetary System in HD 73344. arXiv:2408.09614
24. Zhang, J., Huber, D., Weiss, L. et al. including **Saunders, N.** (2024, submitted) A Testbed for Tidal Migration: the 3D Architecture of an Eccentric Hot Jupiter HD 118203 b Accompanied by a Possibly Aligned Outer Giant Planet. arXiv:2407.21377
23. Yee, S., Petigura, E., Isaacson, H. et al. including **Saunders, N.** (2024) Additional Doppler Monitoring Corroborates HAT-P-11 c as a Planet. arXiv:2407.11109
22. Isaacson, H., Howard, A., Fulton, B. et al. including **Saunders, N.** (2024) The California Legacy Survey V. Chromospheric Activity Cycles in Main Sequence Stars. ApJS, 274, 2
21. Grunblatt, S., **Saunders, N.**, Huber D. et al. (2024) An Unlikely Survivor: A Low-density Hot Neptune Orbiting a Red Giant Star. AJ, 168, 1
20. Eisner, N., Grunblatt, S., Barragán, O. et al. including **Saunders, N.** (2024) Planet Hunters TESS V: A Planetary System Around a Binary Star, Including a Mini-Neptune in the Habitable Zone. AJ, 167, 5
19. Chontos, A., Huber, D., Grunblatt, S., **Saunders, N.** et al (2024, submitted) The TESS-Keck Survey XXI: 13 New Planets and Homogeneous Properties for 21 Subgiant Systems. arXiv:2402.07893
18. Pereira, F., Grunblatt, S., Psaridi, A. et al. including **Saunders, N.** (2024) TESS Giants Transiting Giants V. Two hot Jupiters orbiting red-giant hosts. MNRAS, 527, 3
17. Hey, D., Huber, D., Shappee, J. et al. including **Saunders, N.** (2023) The Far Side of the Galactic Bar/Bulge Revealed Through Semi-Regular Variables. AJ, 166, 6
16. Grunblatt, S., **Saunders, N.**, Chontos, A. et al. (2023) TESS Giants Transiting Giants III. An Eccentric Warm Jupiter Supports a Period-Eccentricity Relation for Giant Planets Transiting Evolved Stars. AJ, 165, 2
15. Vissapragada, S., Chontos, A., Greklek-McKeon, M. et al. including **Saunders, N.** (2022) The Possible Tidal Demise of Kepler's First Planetary System. ApJL, 941, 2
14. The Astropy Collaboration, Price-Whelan, A. M., Lian Lim, P. et al. including **Saunders, N.** (2022) The Astropy Project: Sustaining and Growing a Community-oriented Open-source Project and the Latest Major Release (v5.0) of the Core Package. ApJ, 935, 2
13. Grunblatt, S., **Saunders, N.**, Sun, M. et al. (2022) TESS Giants Transiting Giants II. The Hottest Jupiters Orbiting Evolved Stars. AJ, 163, 3
12. Stello, D., **Saunders, N.**, Grunblatt, S., et al. (2022) TESS asteroseismology of the Kepler red giants. MNRAAS, 512, 2
11. Hedges, C., **Saunders, N.**, Martínez-Palomera, J. (2021) Contaminante: A Tool for Automatically Finding a Close-to-optimal Aperture for Transiting Signals in Kepler, K2, and TESS Data. RNAAS, 5, 260
10. Grunblatt, S., Zinn, J., Price-Whelan, A., Angus, R., **Saunders, N.** et al. (2021) Age-Dating Red Giant Stars Associated with Galactic Disk and Halo Substructures. ApJ, 916, 88
9. Hedges, C., Angus, R., Barentsen, G., **Saunders, N.**, Montet, B.T., Gully-Santiago, M. (2020) Systematics-insensitive Periodogram for Finding Periods in TESS Observations of Long-period Rotators. RNAAS, 4, 220
8. Hedges, C., **Saunders, N.**, Barentsen, G., Coughlin, J., Vinícius de Miranda Cardoso, J., Kostov, V., Dotson, J., Cody, A.M. (2019) Four Small Planets Buried in *K2* Systems: What Can We Learn for TESS? ApJL, 880, 1
7. Feinstein, A.D., Montet, B.T., Bean, J.L. et al. including **Saunders, N.** (2019) eleanor: A tool for extracting light curves from the TESS Full-Frame Images. PASP, 131, 1003
6. David, T., Cody, A.M., Hedges C. et al. including **Saunders, N.** (2019) A warm Jupiter-sized planet transiting the pre-main sequence star V1298 Tau. AJ, 158, 2
5. Mahabal, A., Rebbapragada, U., Walters, R. et al. including **Saunders, N.** (2019) Machine Learning for the Zwicky Transient Facility. PASP, 131, 997

4. Hedges, C., **Saunders, N.**, Barensen, G. et al. (2019) A Hot Jupiter Exoplanet Candidate towards the Galactic Center Identified in Kepler/K2 Campaign 9 Microlensing Survey. RNAAS, 3, 1
3. Barentsen, G., Hedges, C., **Saunders, N.** et al. (2018) Kepler's Discoveries Will Continue: 21 Important Scientific Opportunities with Kepler & K2 Archive Data. arXiv:1810.12554
2. Cody, A.M., Barentsen, G., Hedges, G., Gully-Santiago, M., Dotson, J., Barclay, T., Bryson, S., **Saunders, N.** (2018) A catalog of 29 open clusters and associations observed by the Kepler and K2 Missions. RNAAS, 2, 4
1. Luger, R., Kruse, E., Foreman-Mackey, D., Agol, E., **Saunders, N.** (2018) An Update to the EVEREST K2 Pipeline: Short Cadence, Saturated Stars, and Kepler-like Photometry down to Kp = 15. AJ, 156, 99

ADVISING

Undergraduate

Advisor, Alicia Chun, Research Experience for Undergraduates, University of Chicago	May 2023 – July 2023
Co-advisor, Erica Sawczynec, Undergraduate Honors Thesis, UH Mānoa	June 2019 – June 2021

High School Students & Teachers

Advisor, Anica Ancheta, Dominic Rice, Holden Suzuki, HI STAR Research, HI High Schools	June 2023
Co-advisor, Alison English, Research Experience for Teachers, Honoka'a High School	June 2022
Advisor, Wilson Chau, Pono Fortune, Gabe Mckillip, HI STAR Research, HI High Schools	July 2020

TEACHING & OUTREACH

"Dying stars swallowing nearby planets," Interview, Hawai'i Public Radio	Jan 2022
Science Pen Pal, Letters to a Pre-Scientist	Sept 2020 – June 2021
Graduate Teaching Assistant, University of Hawai'i	Aug 2019 – Jan 2020
Planetarium Organizer, University of Washington	Jan 2018 – Aug 2018
Teaching Assistant, University of Washington	Jan 2017 – June 2018
Astrobiology Mobile Planetarium Presenter, University of Washington	Mar 2018
Volunteer, NASA Total Solar Eclipse Outreach Event	Aug 2017
Planetarium Presenter, University of Washington	Nov 2015 – Aug 2018

TALKS

7 Invited Talks

Exoplanet Seminar, Princeton University	Aug 2024
Special Seminar, MIT	July 2024
Exoplanets & Stars Seminar, Yale University	July 2024
APS Seminar, CU Boulder (remote)	Feb 2024
ESPF Seminar, STScI, Johns Hopkins University	Jan 2023
CIPS Seminar, University of California, Berkeley	Apr 2019
Kepler/K2 Guest Observer Office, NASA Ames	Oct 2017

15 Contributed Talks

TESS Science Conference III, MIT	Aug 2024
Connecticut Exoplanet Picnic, Wesleyan University	July 2024
TASC7 / KASC14, University of Hawai'i	July 2023
AAS 241 (first talk), Seattle, WA	Jan 2023
AAS 241 (second talk), Seattle, WA	Jan 2023
Dissertation Proposal, University of Hawai'i	Dec 2021
699-2 Research Presentation, University of Hawai'i	June 2021
TESS Science Team Meeting #25, Virtual	Mar 2021
699-1 Research Presentation, University of Hawai'i	Sept 2020
AAS 235, Honolulu, HI	Jan 2020
AAS 233, Seattle, WA	Jan 2019
Kepler/K2 Science Office, NASA Ames	May 2018
Undergraduate Research Symposium, University of Washington	May 2018
AAS 231, Washington DC	Jan 2018
Undergraduate Research Symposium, University of Washington	May 2017

4 Outreach Talks

"Exploring Strange New Worlds," HI STAR, UH Maui College, Kahului, HI	June 2023
"Putting the Science in Science Fiction," Astronomy on Tap, San Jose, CA	May 2019
"Putting the Science in Science Fiction," Astronomy on Tap, Seattle, WA	Apr 2018
"The Search for Habitable Worlds," Astrobiology Mini Talks, Museum of Flight, Seattle, WA	Apr 2018

POSTERS

"Stellar Cruise Control: Weakened Magnetic Braking…" TASC7 / KASC14, Honolulu, HI	July 2023
"Spin-Orbit (Re?) Alignment of Giant Planets," Late-Stage and Post-MS Systems Workshop, Aspen, CO	Mar 2023
"Giants Transiting Giants," Late-Stage and Post-MS Systems Workshop, Aspen, CO	Mar 2023
"Evidence for Weakened Magnetic Braking in Old Stars," TASC6 / KASC13, Leuven, Belgium	July 2022
"Evidence for Weakened Magnetic Braking in Old Stars," Cool Stars 21, Toulouse, France	July 2022
"No Planet Left Behind…" Exoplanets IV, Las Vegas, NV	May 2022
"Quantifying Biases with Simulated Kepler/K2 Light Curves," Kepler SciCon V, Glendale, CA	Mar 2019
"Exoplanet Science with the Lightkurve Python Package," AAS 233, Seattle, WA	Jan 2019