Samuel Yee

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Research Interests

Hot Jupiters – formation and evolution
Exoplanet discovery and statistics
Architectures and dynamics of planetary systems

Appointments

Center for Astrophysics | Harvard & Smithsonian — Cambridge, MA
51 Pegasi b Postdoctoral Fellow — 09/2023 – present
Supervisor: Dave Charbonneau

Education

Princeton University — Princeton, NJ
Ph.D., Astrophysics; M.Sc., Astrophysics (2020) — 09/2018 – 08/2023
Thesis: *The TESS Grand Unified Hot Jupiter Survey*
Advisor: Joshua Winn

California Institute of Technology — Pasadena, CA
B.S., Physics, with Minor in Geological and Planetary Sciences — 09/2014 - 06/2018

Awards

Heising-Simons 51 Pegasi b Fellowship	2023 – 2026
Princeton University Centennial Fellowship	2018 – 2023
George W. Housner Prize for Academic Excellence and Original Research	2018
Best Poster, Know Thy Star Conference	2017

Publications [ADS]

First Author

11. **Yee, S. W.**, Winn, J., Hartman, J., et al. *The TESS Grand Unified Hot Jupiter Survey III. Thirty New Planets.* in prep (2024).
10. **Yee, S. W.**, Stefansson, G., et al. *The Super-Puff WASP-193 b is on a Well-Aligned Orbit.* in prep (2024).
9. **Yee, S. W.**, Petigura, E., Isaacson, H., et al. *Additional Doppler Monitoring Corroborates HAT-P-11c as a Planet.* RNAAS, 8, 187 (2024).
8. **Yee, S. W.** & Winn, J. *The Period Distribution of Hot Jupiters is Not Dependent on Host Star Metallicity.* ApJL, 949, L21 (2023).
7. **Yee, S. W.**, Winn, J., Hartman, J., et al. *The TESS Grand Unified Hot Jupiter Survey II. Twenty New Giant Planets.* ApJS, 265, 1 (2023).
6. **Yee, S. W.**, Winn, J., Hartman, J., et al. *The TESS Grand Unified Hot Jupiter Survey I. Ten TESS Planets.* AJ, 164, 70 (2022).
5. **Yee, S. W.**, Winn, J. & Hartman, J. *How Complete Are Surveys for Nearby Transiting Hot Jupiters?* AJ, 162, 240 (2021).
4. **Yee, S. W.**, Tamayo, D., Hadden, S. & Winn, J. *How Close are Compact Multi-Planet Systems to the Stability Limit?* AJ, 162, 55 (2021).
3. **Yee, S. W.**, Winn, J., Knutson, H., et al. *The Orbit of WASP-12b is Decaying.* ApJL, 888, L5 (2020).
2. **Yee, S. W.**, Petigura, E., Fulton, B., et al. *HAT-P-11: Discovery of a Second Planet and a Clue to Understanding Exoplanet Obliquities.* AJ, 155, 255 (2018).

1. **Yee, S. W.**, Petigura, E. & von Braun, K. *Precision Stellar Characterization of FGKM Stars using an Empirical Spectral Library.* ApJ, 836, 77 (2017).

Contributing Author

23. Essack, Z., et al. incl. **Yee, S. W.** *Giant Outer Transiting Exoplanet Mass (GOT 'EM) Survey. VI: Confirmation of a Long-Period Giant Planet Discovered with a Single TESS Transit.* in prep (2024).
22. Quinn, S., et al. incl. **Yee, S. W.** *TOI-2494 b and TOI-5143 b: a pair of hot giant planets flanked by inner small planets.* in prep (2024).
21. McKee, B., Montet, B., **Yee, S. W.** et al. *A Planet Candidate Orbiting near the Hot Jupiter TOI-2818 b Inferred through Transit Timing.* submitted (2024).
20. Ehrhardt, J., et al. incl. **Yee, S. W.** *Confirmation of four Hot Jupiters detected by TESS using follow-up spectroscopy from MaHPS at Wendelstein together with NEID and TRES.* submitted (2024).
19. Isaacson, H., et al. incl. **Yee, S. W.** *The California Legacy Survey. V. Cataloging Chromospheric Activity Cycles of Planet Search Stars.* submitted (2024). [arXiv:2406.17332]
18. Radzom, B., et al. incl. **Yee, S. W.** *Evidence for Primordial Alignment: Insights from Stellar Obliquity Measurements for Compact Sub-Saturn Systems.* AJ, 168, 116 (2024).
17. Alqasim, A., et al. incl. **Yee, S. W.** *TOI-757 b: an eccentric transiting mini-Neptune on a 17.5-d orbit.* MNRAS, 533, 1 (2024).
16. Dai, F., et al. incl **Yee, S. W.** *An Earth-sized Planet on the Verge of Tidal Disruption.* AJ, 168, 101 (2024).
15. Hacker, A., et al. incl. **Yee, S. W.** *TOI-2374 b and TOI-3071 b: two metal-rich sub-Saturns well within the Neptunian desert.* MNRAS, 532, 1612 (2024).
14. Schulte, J., et al. incl. **Yee, S. W.** *Migration and Evolution of giant ExoPlanets (MEEP) I: Nine Newly Confirmed Hot Jupiters from the TESS Mission.* AJ, 168, 101 (2024).
13. Polanski, A., et al. incl. **Yee, S. W.** *The TESS-Keck Survey XX: 15 New TESS Planets and a Uniform RV Analysis of all Survey Targets.* ApJS, 272, 32 (2024).
12. Louden, E., et al. incl **Yee, S. W.** *A Larger Sample Confirms Small Planets Around Hot Stars Are Misaligned.* ApJL, 968, L2 (2024).
11. Battley, M., et al. incl. **Yee, S. W.** *NGTS-30 b/TOI-4862 b: An ~1 Gyr old 98-day transiting warm Jupiter.* A&A, 686, 230.
10. Hu, Q., et al. incl. **Yee, S. W.** *The PFS view of TOI-677 b: A spin-orbit aligned warm Jupiter in a dynamically hot system.* AJ, 167, 175 (2024).
9. Rubenzahl, R., et al. incl. **Yee, S. W.** *The TESS-Keck Survey. XII. A Dense 1.8 $R_\oplus$ Ultra-Short-Period Planet Possibly Clinging to a High-Mean-Molecular-Weight Atmosphere After the First Gyr.* AJ, 167, 53 (2024).
8. Delamer, M., et al. incl. **Yee, S. W.** *TOI-4201: An Early M-dwarf Hosting a Massive Transiting Jupiter Stretching Theories of Core Accretion.* ApJL, 962, L22 (2024).
7. Schmidt, S., et al. incl. **Yee, S. W.** *Verification of Gaia DR3 Single-lined Spectroscopic Binary Solutions With Three Transiting Low-mass Secondaries.* AJ, 166, 225 (2023).
6. Psaridi, A., et al. incl. **Yee, S. W.** *Three Saturn-mass planets transiting F-type stars revealed with TESS and HARPS.* A&A, 675, A39 (2023).
5. MacDougall, M. G. et al., incl. **Yee, S. W.** *The TESS-Keck Survey. XV. Precise Properties of 108 TESS Planets and Their Host Stars.* AJ, 166, 33 (2023).
4. Zink, J. K. et al., incl. **Yee, S. W.** *Scaling K2. VI. Reduced Small Planet Occurrence in High Galactic Amplitude Stars.* AJ, 165, 262 (2023).
3. Fraizer, R. C. et al., incl. **Yee, S. W.** *NEID Reveals that The Young Warm Neptune TOI 2076b Has a Low Obliquity.* ApJL, 944, L41 (2023).

2. Essack, Z. E. et al., incl. **Yee, S. W.** *TOI-1075 b: A Dense, Massive, Ultra-Short Period Hot Super-Earth Straddling the Radius Gap.* AJ, 165, 47 (2023).
1. Petigura, E. et al., incl **Yee, S. W.** *Planet Candidates from K2 Campaigns 5-8 and Follow-up Optical Spectroscopy.* AJ, 155, 21 (2018).

Observing Programs

Characterizing the Hot Jupiter System with the Largest TTVs (PI) 2024B
Gemini-N/MAROON-X – 7.8 hrs (NOIRLab)

Characterizing the Hot Jupiter System with the Largest TTVs (PI) 2024B
WIYN/NEID – 1.2 nights (NOIRLab)

Which Stars Host the Most Hot Jupiters? (PI) 2024B
WIYN/NEID – 1.9 nights (NOIRLab); CTIO1.5m/CHIRON – 5 nights (NOIRLab)
Magellan/PFS – 2 nights (CfA); FLWO/TRES – 5 nights (CfA)

Orbital Architecture of a Puffy Sub-Saturn on the Edge of the Hot Neptune Desert (PI) 2024A
Magellan/PFS – 1 night (CfA)

Obliquity of a Puffy Sub-Saturn on the Edge of the Hot Neptune Desert (PI) 2024A
Gemini-N/MAROON-X – 6 hours (NOIRLab)

What are the Eccentricities of the Shortest Period Giant Planets? (PI) 2024A
WIYN/NEID – 1.5 nights (NOIRLab)

Completing the TESS Grand Unified Hot Jupiter Survey (co-I) 2024A
Magellan/PFS – 1 night (Princeton); WIYN/NEID – 1 night (Princeton)

Obliquities on the Edge of the Hot Neptune Desert (PI) 2023B
Keck I/KPF – 1 night (NASA)

The TESS Grand Unified Hot Jupiter Survey (PI) 2023B
Keck I/KPF – 0.5 nights (NASA); Magellan/PFS – 2 nights (Princeton);
WIYN/NEID – 2.5 nights (NOIRLab); CTIO1.5m/CHIRON – 5.4 nights (NOIRLab)

The TESS Grand Unified Hot Jupiter Survey (PI) 2023A
Keck I/HIRES – 1 night (NASA); Magellan/PFS – 1.5 nights (Princeton);
WIYN/NEID – 2.7 nights (NOIRLab); CTIO1.5m/CHIRON – 5.2 nights (NOIRLab)

Small Friends to Hot Jupiters (PI) 2023A
WIYN/NEID – 1.9 nights (NOIRLab)

The TESS Grand Unified Hot Jupiter Survey (PI) 2022B
Keck I/HIRES – 1.5 nights (NASA); Magellan/PFS – 2 nights (Princeton);
WIYN/NEID – 2.8 nights (NOIRLab); CTIO1.5m/CHIRON – 6.3 nights (NOIRLab);
MINERVA-Australis – 1.5 nights (NOIRLab)

The TESS Grand Unified Hot Jupiter Survey (PI) 2022A
Keck I/HIRES – 1.5 nights (NOIRLab); Magellan/PFS – 2 nights (Princeton);
WIYN/NEID – 2.3 nights (NOIRLab); CTIO1.5m/CHIRON – 5.9 nights (NOIRLab);
MINERVA-Australis – 1.5 nights (NOIRLab)

The TESS Grand Unified Hot Jupiter Survey (PI) 2021B
Keck I/HIRES – 0.5 nights (NOIRLab); Magellan/PFS – 2 nights (Princeton);
CTIO1.5m/CHIRON – 5 nights (NOIRLab); WIYN/NEID – 2 nights (NOIRLab)

Grants

Heising-Simons 51 Pegasi b Fellowship $415k

	NASA Keck PI Data Awards (Science PI, 2022B-2023B)	$45k
	NASA WIYN PI Data Awards (Science PI, 2021B-2023B)	$39k

Observing Experience

Magellan/PFS – 33 nights
Keck/HIRES – 22 nights
Keck/KPF – 4 nights

Presentations

51 Pegasi b Fellows Symposium, San Francisco, CA *(contributed talk)*	Aug 2024
Exoplanets V, Leiden *(contributed plenary session talk)*	Jun 2024
Extreme Solar Systems V, Christchurch *(contributed talk)*	Mar 2024
Open Problems in the Astrophysics of Gas Giants, Puerto Natales *(contributed talk)*	Dec 2023
Harvard CfA Exoplanet Pizza Lunch *(invited seminar)*	Oct 2023
51 Pegasi b Fellows Symposium, San Francisco, CA *(contributed talk)*	Aug 2023
2023 Sagan Workshop, Pasadena, CA *(poster)*	Jul 2023
AAS General Meeting 241, Seattle *(contributed talk)*	Jan 2023
TESS Science Team Meeting #29, Cambridge, MA *(contributed talk)*	Oct 2022
Harvard CfA Seminar, Cambridge, MA *(invited seminar)*	Oct 2022
MIT TESS Science Talk, Cambridge, MA *(invited seminar)*	Oct 2022
ERES VII, State College *(contributed talk)*	Aug 2022
Exoplanets IV, Las Vegas *(contributed plenary session talk)*	May 2022
Yale Exoplanets and Stars Seminar *(invited seminar)*	Apr 2022
AAS Division of Dynamical Astronomy Meeting 52, online *(contributed talk)*	May 2021
AAS General Meeting 235, Honolulu *(poster)*	Jan 2020
Exoplanets & Planet Formation, Shanghai *(poster)*	Dec 2017
Know thy Star, Pasadena *(poster)*	Sep 2017

Teaching

Assistant in Instruction	Princeton
AST 205, Planets in the Universe	Sep 2019 – Jan 2020
Teaching Assistant	Caltech
Ph 12c, Statistical Mechanics	Mar 2018 – Jun 2018
Ph 12b, Quantum Mechanics	Jan 2018 – Mar 2018
Peer Tutor	Caltech, 2016 – 2018

Professional Activities

Referee, *AAS Journals*, *MNRAS*, *A&A*	2020 – present
Member of NOIRLab Time Allocation Committee	2024 – present
Expert Reviewer, HST Time Allocation Committee	2024
Virtual Organizing Committee, *Emerging Researchers in Exoplanet Science (ERES) V*	2021

Code

Bhatti, W., Bouma, L., & **Yee, S. W.** `cdips-pipeline`: *difference-imaging photometry pipeline*
Yee, S. W., Petigura, E., von Braun, K. `SpecMatch-Emp`: *stellar characterization using an empirical spectral library*

Outreach & Service

Princeton Public Observing: Organize and host members of the public at observing events using the Princeton department telescope.

Intro2Astro: Gave lectures for Intro2Astro, an online summer course introducing students to astronomy research.

Astro Department Graduate Student Mentorship Program, Princeton University

Graduate Student Buddy Program, Princeton University