

GAVIN WANG

+1 (412) 519-4756 ◊ 3301 N. Charles Street, Baltimore, MD 21218

gwang59@jhu.edu ◊ www.gavin-wang.com

EDUCATION

Johns Hopkins University, Baltimore, MD, USA

August 2022 – May 2026 (expected)

Bachelor of Science in Physics, GPA 4.00 / 4.00

RESEARCH EXPERIENCE

High-Resolution Ground-Based Spectroscopy, California Institute of Technology

June 2024 – present

Mentors: Jerry Xuan, Dr. Yapeng Zhang, Prof. Dimitri Mawet

- Analyzing high-resolution spectra from the Keck Planet Imager and Characterizer (KPIC) of a low mass L dwarf
- Using radiative transfer models to measure atmospheric abundances and isotopic ratios

JWST Instrumental Research, Space Telescope Science Institute

October 2023 – present

Mentor: Dr. Néstor Espinoza

- Investigating methods to reduce 1/f noise for JWST's Near-Infrared Spectrograph with Bayesian statistics

Research Intern, Johns Hopkins University

April 2023 – present

Mentors: William Balmer, Prof. David Sing

- Using WIYN/NEID radial velocity data to precisely measure the mass of an extremely low-density Saturn
- First-author publication in preparation, expected 2025

TESS Transit Depth Variability, Space Telescope Science Institute

January 2022 – December 2023

Mentor: Dr. Néstor Espinoza

- Searched for depth variability among a sample of 330 exoplanets using Transiting Exoplanet Survey Satellite (TESS) data
- [First-author paper](#) published in the *Astronomical Journal*

Independent Researcher

March 2021 – August 2021

- Developed data pipeline for identifying false positives among exoplanet candidates
- Analyzed 100k+ TESS full-frame images; reclassified 10 exoplanet candidates as eclipsing binaries

Junior Member, TESS Follow-up Observing Program

July 2020 – January 2022

Mentor: Dr. Karen Collins (Harvard-Smithsonian Center for Astrophysics)

- Helped identify 10 extrasolar planets from 100+ datasets collected by the Las Cumbres Observatory
- 15 co-author publications (2021 – 2022)

SELECT COURSEWORK

Physics: Special Relativity & Waves, Quantum Mechanics I/II, Statistical Physics/Thermodynamics

Math: Honors Algebra, Probability

Astronomy: Physical Cosmology, Observational Astronomy

HONORS & AWARDS

ΣΠΣ , JHU Chapter	May 2024
Summer Undergraduate Research Fellowship , Caltech <i>\$7,740 award for conducting a ten-week summer research project</i>	April 2024
Provost’s Undergraduate Research Award , JHU <i>\$3,000 award; 25 selected research proposals out of 137</i>	October 2022
S.-T. Yau High School Science Award Finalist <i>Physics division; top 5 among competitors from around the world</i>	December 2021

POSTERS/TALKS

TESS Science Conference III (<i>poster</i>)	August 2024 (upcoming)
JHU Undergraduate Research Showcase (<i>poster</i>) “A Blind Search for Transit Depth Variability with TESS”	April 2024
TESS Science Talks @ MIT (<i>invited talk</i>) “Searching for Transit Depth Variability with TESS”	March 2024
JHU DREAMS Conference (<i>poster</i>) “A Blind Search for Transit Depth Variability with TESS”	October 2023
54th Annual Meeting of the AAS Division for Planetary Sciences (<i>poster</i>) “Constraints on Transit Depth Variations of Known Exoplanets with TESS”	October 2022
53rd Annual Meeting of the AAS Division for Planetary Sciences (<i>poster</i>) “Developing a Tool to Automate the Search for NEBs Among TOIs”	October 2021
TESS Science Conference II (<i>poster</i>) “Analyzing FFIs to Identify False Positives within TESS Candidates”	August 2021
Society for Astronomical Sciences 2021 Symposium on Telescope Science (<i>poster</i>) “Eclipsing Binaries Identified Through the TESS Follow-up Observing Program”	June 2021

TEACHING

Learning Den Tutor , JHU	Fall 2023
<ul style="list-style-type: none">• Tutor for drop-in tutoring, help rooms, and personalized tutoring• Tutored students one-on-one for General Physics I on a weekly basis	
Undergraduate Learning Assistant , JHU	Spring 2023 – Fall 2023
<ul style="list-style-type: none">• Assisted for General Physics I (AS.171.101 and AS.171.107) weekly discussion sections• Held weekly 2-hour office hours	

SERVICE & OUTREACH

Hopkins Insider Author , JHU	May 2023
<ul style="list-style-type: none">• Wrote blog post on my exoplanet research for prospective undergraduates	
Las Cumbres Observatory Image Gallery Contributor	
<ul style="list-style-type: none">• Best publicly available image of NGC 3508	

REFEREED PUBLICATIONS

First-author publications:

1. **Wang**, Espinoza, *A Blind Search for Transit Depth Variability with TESS*, The Astronomical Journal (2024), 167, 1.

Co-authored publications: see [Google Scholar](#) for full list; citations: **295**; h-index: **11**

1. Peterson, Benneke, Collins et al. (including **Wang**), *A temperate Earth-sized planet with tidal heating transiting an M6 star*, Nature (2023), 617, 701.
2. Persson, Georgieva, Gandolfi et al. (including **Wang**), *TOI-2196 b: Rare planet in the hot Neptune desert transiting a G-type star*, Astronomy & Astrophysics (2022), 666, A184.
3. Sha, Vanderburg, Huang et al. (including **Wang**), *TESS spots a mini-Neptune interior to a hot Saturn in the TOI-2000 system*, preprint, arXiv:2209.14396.
4. Caciapuoti, Inno, Covone et al. (including **Wang**), *TESS discovery of a super-Earth and two sub-Neptunes orbiting the bright, nearby, Sun-like star HD 22946*, preprint, arXiv:2209.09597.
5. Chontos, Murphy, MacDougall et al. (including **Wang**), *The TESS-Keck Survey: Science Goals and Target Selection*, The Astronomical Journal (2022), 163, 297.
6. Christian, Vanderburg, Becker et al. (including **Wang**), *A Possible Alignment Between the Orbits of Planetary Systems and their Visual Binary Companions*, The Astronomical Journal (2022), 163, 207.
7. Winters, Cloutier, Medina et al. (including **Wang**), *A Second Planet Transiting LTT 1445A and a Determination of the Masses of Both Worlds*, The Astronomical Journal (2022), 163, 168.
8. Silverstein, Schlieder, Barclay et al. (including **Wang**), *The LHS 1678 System: Two Earth-sized Transiting Planets and an Astrometric Companion Orbiting an M Dwarf Near the Convective Boundary at 20 pc*, The Astronomical Journal (2022), 163, 151.
9. Kaye, Vissapragada, Günther et al. (including **Wang**), *Transit timings variations in the three-planet system: TOI-270*, Monthly Notices of the Royal Astronomical Society (2022), 510, 5464.
10. Grunblatt, Saunders, Sun et al. (including **Wang**), *TESS Giants Transiting Giants. II. The Hottest Jupiters Orbiting Evolved Stars*, The Astronomical Journal (2022), 163, 120.
11. Giacomini, Dressing, Hedges et al. (including **Wang**), *Validation of 13 Hot and Potentially Terrestrial TESS Planets*, The Astronomical Journal (2022), 163, 99.
12. Scarsdale, Murphy, Batalha et al. (including **Wang**), *TESS-Keck Survey. V. Twin Sub-Neptunes Transiting the Nearby G Star HD 63935*, The Astronomical Journal (2021), 162, 215.
13. Gan, Bedell, Wang et al. (including **Wang**), *HD 183579b: a warm sub-Neptune transiting a solar twin detected by TESS*, Monthly Notices of the Royal Astronomical Society (2021), 507, 2220.
14. Otegi, Bouchy, Helled et al. (including **Wang**), *TESS and HARPS reveal two sub-Neptunes around TOI 1062*, Astronomy & Astrophysics (2021), 653, A105.
15. Dong, Huang, Dawson et al. (including **Wang**), *Warm Jupiters in TESS Full-frame Images: A Catalog and Observed Eccentricity Distribution for Year 1*, The Astrophysical Journal Supplement Series (2021), 255, 6.
16. Rodriguez, Quinn, Zhou et al. (including **Wang**), *TESS Delivers Five New Hot Giant Planets Orbiting Bright Stars from the Full Frame Images*, The Astronomical Journal (2021), 161, 194.

SKILLS

- Languages: English (native), Chinese (native)
- Computing: Python (5+ years), Linux, HPC
- Software: AstroImageJ, Anaconda, Matplotlib, NumPy, SciPy, dynesty, corner, emcee, Ray, astropy
- Astronomy: 80 hours experience operating 0.5m Morris W. Offit Telescope