STEPHEN P. SCHMIDT

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EDUCATION

Johns Hopkins University Expected 2027-2028
Ph.D. Astronomy and Astrophysics
Doctoral Advisors: Kevin Schlaufman & David Sing

Johns Hopkins University May 2024
M.A. Physics

University of North Carolina at Chapel Hill August 2018 - May 2022
B.S. With Honors in Physics and Mathematics; 3.954 GPA

PUBLICATIONS

First Author

- **Schmidt, S. P.**, Thorngren, D. P., & Schlaufman, K. C. Hot Jupiters are Inflated Primarily by Shallow Heating
  https://doi.org/10.3847/1538-4357/ae4c5e
- **Schmidt, S. P.** & Schlaufman, K. C. Most Hot Jupiters Were Cool Giant Planets for More Than 1 Gyr
  https://doi.org/10.3847/1538-3881/ae3c11
- **Schmidt, S. P.**, MacDonald, R. J., Tsai, S.-M. et al. A Comprehensive Reanalysis of K2-18 b's JWST NIRISS+NIRSpec Transmission Spectrum
  https://doi.org/10.3847/1538-3881/ae019a
- **Schmidt, S. P.**, Schlaufman, K. C., & Hamer, J. H. Resonant and Ultra-short-period Planet Systems are at Opposite Ends of the Exoplanet Age Distribution
  https://doi.org/10.3847/1538-3881/ad5d76
- **Schmidt, S. P.**, Schlaufman, K. C., Ding, K., et al. Verification of Gaia Data Release 3 Single-lined Spectroscopic Binary Solutions with Three Transiting Low-mass Secondaries
  https://doi.org/10.3847/1538-3881/ad0135
- **Schmidt, S. P.**, May, E. M., Lothringer, J. D., et al. Mitigating Charge Migration in JWST NIRISS Reveals That KELT-7 b is a Metal-enriched Ultra-hot Jupiter Orbiting a Young Metal-rich Star
  To be submitted imminently

Second Author

- Ashtari, R., **Schmidt, S. P.**, Fu, G., et al. A Clearer View of HAT-P-1 b: JWST NIRSpec G395H Reveals a Cloud-free Atmosphere of Water, Carbon Dioxide, and Possibly Hydrogen Sulfide
  To be submitted imminently

Major Contributions

- Mukherjee, S., Sing, D. K., Fu, G., et al. including **Schmidt, S. P.** Cloudy mornings and clear evenings on a gas giant exoplanet
  https://doi.org/10.1126/science.adx5903
- Wang, G., Balmer, W. O., Pueyo, L., et al. including **Schmidt, S. P.** A Revised Density Estimate for the Largest Planet, HAT-P-67 b
  https://doi.org/10.3847/1538-3881/adcec9
- Mann, A. W., Wood, M. L., **Schmidt, S. P.**, et al. TESS Hunt for Young and Maturing Exoplanets (THYME) VI: an 11 Myr giant planet transiting a very low-mass star in Lower Centaurus Crux
  https://doi.org/10.3847/1538-3881/ac511d

Contributing Author

- Fu, G., Mukherjee, S., Stevenson, K. B., et al. including **Schmidt, S. P.** Overcast mornings and clear evenings in hot Jupiter exoplanet atmospheres
  https://doi.org/10.3847/2041-8213/adf20f
- Crumpler, N. R., Chandra, V., Zakamska, N. L., et al. including **Schmidt, S. P.** A Large Catalog of DA White Dwarf Characteristics using SDSS and Gaia Observations
  https://doi.org/10.3847/1538-4357/ade9a9
- Crumpler, N. R., Chandra, V., Zakamska, N. L., et al. including **Schmidt, S. P.** Detection of the Temperature Dependence of the White Dwarf Mass-Radius Relation with Gravitational Redshifts
  https://doi.org/10.3847/1538-4357/ad8ddc
- Wood, M. L., Mann, A. W., Barber, M. G., et al. including **Schmidt, S. P.** A Lithium Depletion Age for the Carina Association
  https://doi.org/10.3847/1538-3881/ad03f3
- Wood, M. L., Mann, A. W., Barber, M. G., et al. including **Schmidt, S. P.** TESS Hunt for Young and Maturing Exoplanets (THYME) IX: a 27 Myr extended population of Lower-Centaurus Crux with a transiting two-planet system
  https://doi.org/10.3847/1538-3881/aca8fc
- Rustamkulov, Z., Schlaufman, K. C., Sing, D. K., et al. including **Schmidt, S. P.** The Transit Age: Precise Exoplanet System Ages in the Era of *Gaia* and *JWST*
  Under review at AJ

PRESENTATIONS

Colloquia, Seminars, & Invited Talks

- Princeton University Extrasolar Planets Discussion Group, April 6, 2026. *Exoplanet System Age as a New Dimension of Giant Planet Formation, Structure, and Evolution*
- Johns Hopkins University CAS Wine & Cheese Seminar, February 9, 2026. *Hot Jupiters are Inflated Primarily by Shallow Heating*
- Pennsylvania State University CEHW Seminar, February 2, 2026. *Exoplanet System Age as a New Dimension of Giant Planet Formation, Structure, and Evolution*
- STScI HotSci, July 30, 2025. *K2-18 b is (Probably) Not a Hycean Biosphere*

Contributed Conference Talks

- **UPCOMING:** Exoplanets VI, Porto, Portugal, June 29, 2026. *A Clear View of Star-planet Interactions in Three Ultra-hot Jupiter Systems Using JWST*
- JHU-STScI ExoJamboree #2, Baltimore, Maryland, November 21, 2025. *Most hot jupiters were cool giant planets for more than 1 Gyr*
- OHP 2025–51 Pegasi b: Cool Giant Planets And Their Systems, L'Observatoire de Haute-Provence, France, October 6-10, 2025. *Most Hot Jupiters Were Cool Giant Planets for* > 1 *Gyr*
- The Solar System in Context, Tucson, Arizona, September 29-October 2, 2025. *Most Hot Jupiters Were Cool Giant Planets for Over a Gyr*
- Know Thy Star, Know Thy Planet II, Pasadena, California, February 2-7 2025. *Time-resolving Hot Jupiter System Evolution with Population-level Stellar Age Inferences*
- Exoplanets V, Leiden, The Netherlands, June 16-21 2024. *The Dynamical Evolution of Exoplanet Systems over Billions of Years*
- Chesapeake Bay Area Exoplanet Meeting #11, Baltimore, Maryland, USA, May 17 2024. *Resonant and Ultra-short-period Planets are at Opposite Ends of the Exoplanet Age Distribution*
- Extreme Solar Systems V, Christchurch, New Zealand, March 16-21 2024. *The Extremes of the Exoplanet Age Distribution*

Conference Posters

- **UPCOMING:** Exoplanets VI, Porto, Portugal, June 29-July 3, 2026. *Hot Jupiters are Inflated Primarily by Shallow Heating*
- ExoClimes VII, Montreal, Canada, July 7-11 2025. *A Comprehensive Reanalysis of K2-18 b's JWST NIRISS + NIRSpec Transmission Spectrum*
- Know Thy Star, Know Thy Planet II, Pasadena, California, February 2-7 2025. *Delayed Cooling in the Hot Jupiter Population Points to Shallow Interior Heating*
- Exoplanets V, Leiden, The Netherlands, June 16-21 2024. *Improving M Dwarf Exoplanet Hosts' Masses and Radii Through the Combination of Gaia and TESS*
- AAS 243, New Orleans, Louisiana, January 7-11 2024. *Resonant and Ultra-short-period Planet Systems are at Opposite Extremes of the Exoplanet Age Distribution*
- NC Space Symposium, virtual, April 8 2022. *Estimating M Dwarf Metallicities with Wide Binaries and Gaia EDR3 Data*
- AAS 236, virtual, June 1-3 2020. *Improved Methods for Ground-Based Follow-Up of Young Stars and Planets from the ZEIT Survey*

Other Presentations

- JHU AstroCoffee, March 12, 2026. *"Hot Jupiters are Inflated Primarily By Shallow Heating"*
- JHU AstroCoffee, February 16 2026. *"Most Hot Jupiters Were Cool Giant Planets For More Than 1 Gyr"*
- Planetary Science Institute, Short Period Planet Group Meeting, January 28, 2026.
- STScI ESPF Science Hour, March 4, 2025. *"A Comprehensive Reanalysis of K2-18 b's JWST NIRISS + NIRSpec Transmission Spectrum"*
- JHU AstroCoffee, February 17 2025. *"A Comprehensive Reanalysis of K2-18 b's JWST NIRISS + NIRSpec Transmission Spectrum"*
- Planetary Science Institute, Short Period Planet Group Meeting, October 2, 2024.
- JHU AstroCoffee, September 9, 2024. *"Resonant and Ultra-short-period Planets are at Opposite Ends of the Exoplanet Age Distribution"*
- JHU AstroCoffee, December 11 2023. *"Verification of Gaia DR3 Single-lined Spectroscopic Binary Solutions With Three Transiting Low-mass Secondaries"*

Public Talks

- Astronomy on Tap Baltimore, October 28 2025, *Your Favorite Exoplanet Doesn't Have Aliens*
- Astronomy on Tap in the Triangle, April 5 2022, *The Recipe for Another Earth*

HONORS, AWARDS AND FELLOWSHIPS

National Science Foundation Graduate Research Fellowship, 2024-2027

MD Space Grant Consortium Observatory Fellowship, 2023-2024

NC Space Grant Undergraduate Research Scholarship, 2021-2022
Project Title: Using Wide Binaries and Gaia Data to Generate a Fit for M Dwarf Parameters

AAS International Travel Award, 2026

JHU Physics & Astronomy EJ Rhee Travel Award, 2026

Sigma Xi, inducted spring 2026

UNC-Chapel Hill Department of Physics and Astronomy Undergraduate Excellence Award, 2022

Phi Beta Kappa, inducted spring 2021

Eagle Scout Rank, Boy Scouts of America

MEDIA COVERAGE AND PUBLICITY

Quoted in The New York Times: Astronomers Detect a Possible Signature of Life on a Distant Planet

Quoted in Nature Magazine: Signs of life on a distant planet? Not so fast, say these astronomers

Quoted in Scientific American: Why Astronomers Are Not Sold on New Alien Life Claims

Quoted in PTI (Press Trust of India): New hope of extraterrestrial life? Scientists cautious about celebrating early

Paper mentioned in Ars Technica: Skepticism greets claims of a possible biosignature on a distant world

SUCCESSFUL PROPOSALS

Co-I

- **JWST Cycle 5**. "Parting the Clouds: An optimized limb-limb exoplanet survey to reveal diurnal cloud cycling and the mass-metalicity relation" (PI: D. K. Sing)
- **JWST Cycle 5**. "Mistaken Identity? Resolving Ultra-hot Jupiter NUV Absorption to Measure Refractory-to-Volatile Ratios" (PI: J. Lothringer)
- **JWST Cycle 5**. "Comparative Planetology in Kepler-89: Mass-Loss, Disk Gaps, and Super-Puffs" (PI: J. Lothringer)
- **NOIRLab/WIYN 2026A**. "A Measurement of Primordial Stellar Obliquity in a Solar System-analog Coplanar, Wide-separation Multiple Giant Planet System" (PI: K. C. Schlaufman)
- **NASA/Keck 2025A**. "A Measurement of Primordial Stellar Obliquity in a Wide-separation Giant Planet System" (PI: K. C. Schlaufman)
- **NOIRLab/WIYN 2025A**. "A Measurement of Primordial Stellar Obliquity in a Wide-separation Giant Planet System" (PI: K. C. Schlaufman)

TEACHING EXPERIENCE

Teaching Assistant Fall 2022
AS.171.103: General Physics I for Biological Science Majors

- Taught one weekly problem-solving session, held one weekly hour-long office hour, proctored exams, and graded homework for over 250 students. Topics included kinematics, forces and motion, conservation laws, circular motion, and gravitation, and fluids.

Teaching Assistant Fall 2022
AS.173.111: General Physics Laboratory I

- Taught one weekly section of a 3-hour introductory physics lab, facilitating and grading students' lab work, and attending a weekly preparatory meeting. Topics included data analysis with Excel, measurement and uncertainty, and general physics principles such as linear momentum, moment of inertia, and the small angle approximation.

Learning Assistant 2019-2022
One section of PHYS 118, Introductory Calculus-based Mechanics and Relativity; two sections of PHYS 114, General Physics I: For Students of the Life Sciences; two sections of PHYS 115, General Physics II: For Students of the Life Sciences; and one section of MATH 383: First Course in Differential Equations

- Physics: Assisted Teaching Assistant during class, facilitated students' lab work, held weekly office hours, and attended a weekly preparatory meeting;
- Mathematics: Assisted Professor during class, facilitated problem-solving portions of class, and held weekly office hours.
- Topics taught: kinematics, forces and motion, conservation laws, circular motion, gravitation, special relativity, waves, fluids, algebra-based electromagnetism, geometric optics, nuclear physics, biological applications of physics, laboratory practices, error analysis, first order ODEs, second order ODEs, and systems of differential equations.

SERVICE AND LEADERSHIP

Review and Referee Service

- The Astrophysical Journal Letters — 2026-Present
- The Planetary Science Journal — 2025-Present

Positions of Responsibility

- **Steward**, TRU-UE Local 197 — 2024-Present
- **Institutional Representative**, Astro Grad Congress — 2024-Present
- **Senate Member**, Gender Minorities & Women in Physics JHU — 2023-Present
- **Co-chair**, TRU-UE Local 197 Media and Communications Committee — 2024-2026
  Helped secure over $30 million total in raises for >3,000 graduate workers at JHU
- **President**, JHU Physics and Astronomy Graduate Students — 2024-2026
- **Observatory Fellow**, Maryland Space Grant Consortium — 2023-2024
- **Social Coordinator**, JHU Physics and Astronomy Graduate Students — 2023-2024
- **Room Manager**, UNC Society of Physics Students — 2021-2022
- **Treasurer**, UNC Visibility in Physics — 2021-2022

Events Organized, Co-organized, or Contributed

- **Co-organizer**, JHU Physics and Astronomy Physics Fair — 04/2026
- **Local Organizing Committee**, GWiP@JHU Fall Summit #3 — 09/2025
- **Organizer**, JHU Physics and Astronomy Physics Fair — 04/2025
- **Photographer**, GWiP@JHU × Morgan State University Spring Brunch — 04/2025
- **Co-organizer**, Astronomy on Tap Baltimore (Totaling 11 events thus far) — 11/2022-Present
- **Organizer**, JHU Physics and Astronomy 2025 Department Open House — 03/2025
- **Scientific Organizing Committee**, JHU-STScI ExoJamboree — 11/2024
- **Local Organizing Committee**, GWiP@JHU Fall Summit #2 — 09/2024
- **Co-organizer**, JHU Physics and Astronomy PhD Program Orientation — 08/2024
- **Photographer**, Chesapeake Bay Area Exoplanet Meeting #11 — 05/2024
- **Co-organizer**, JHU Physics and Astronomy 2024 Department Open House — 03/2024

COLLABORATION MEMBERSHIPS

JWST Grand Tour/Parting the Clouds Collaboration — 2024-Present

STARGATE Collaboration — 2025-Present

TECHNICAL SKILLS & EXPERIENCE

Programming	Python, Wolfram Mathematica, MATLAB, Cython
Databases	Microsoft SQL, Gaia ADQL
Observatories/Instruments	JWST NIRISS, JWST NIRSpec, HST WFC3, Gaia, TESS, Kepler, Keck KPF (1 night), SOAR (13 nights)
Tools	LaTeX, Microsoft Office, SAO DS9, IRAF, Unix, Git, MESA
Python Libraries	`numpy`, `scipy`, `astropy`, `pandas`, `matplotlib`, `lightkurve`, `astroquery`, `juliet`, `PICASO`, `POSEIDON`, `pyia`, `gala`, `jwst` pipeline
Languages	English (Native)

TRAININGS

UNC Safe Zone Training

UNC HAVEN (Helping Advocates for Ending Violence Now) Training

JHU Safe Zone Training