

# Sydney Petz

East Lansing, MI  
sydney@sydneypetz.com

PhD Student

Portfolio: [sydneypetz.com](https://sydneypetz.com)  
[linkedin.com/in/sydney-petz](https://linkedin.com/in/sydney-petz)

## EDUCATION

**Doctor of Philosophy in Astrophysics and Astronomy**, *Michigan State University* expected 2031  
**Bachelor of Science in Astronomy with Honors Research Distinction**, *The Ohio State University* May 2023  
**Minor in Forensic Sciences**, *The Ohio State University* May 2023

## RESEARCH EXPERIENCE

**Graduate Research Assistant** August 2025 — Present

*Advisor: Adina Feinstein*

- Utilize JWST transmission spectroscopy (NIRISS/NIRSpec) to investigate the compositions, formation mechanisms, and stellar properties of young sub-Neptunes around active host stars

**Research Senior Technician** May 2023 — July 2025

*ASAS-SN Data Analyst, Advisors: Chris Kochanek, Krzysztof Stanek*

*Columbus, Ohio*

- Performed daily quality control of data obtained by 20 ASAS-SN telescopes to visually inspect images
- Performed verification of supernova and other transient candidates by inspecting the images obtained from that position the sky; release of confirmed ASAS-SN discoveries to the public

*Post Baccalaureate Research, Advisor: Chris Kochanek*

- Searched for stars exhibiting long term variability using ASAS-SN's decade of optical data, finding 1206 slowly varying systems between  $13 < g < 15$  magnitudes

*Post Baccalaureate Research, Advisor: Marshall Johnson*

- Utilized high resolution spectroscopy to search for atomic and molecular species in the atmosphere of exoplanets TOI-1431b and TOI-1518b
- Performed population studies to explore the importance of temperature, surface gravity, and atomic and molecular opacities for the presence of temperature inversions

**Undergraduate Researcher** May 2021 — May 2023

*The Ohio State University SURP Program, Advisor: Marshall Johnson*

*Columbus, Ohio*

- Utilized high resolution spectroscopy from PEPsi on the LBT to search for atomic and molecular species in the atmosphere of exoplanet KELT-20b

*University of Florida SURF Program, Advisor: Adam Ginsburg*

*Gainesville, Florida*

- Fit a modular set of synthetic spectral energy distributions to the optical and infrared fluxes of young stellar objects of the infrared dark cloud G351.77
- Constrained several key properties of YSOs including stellar temperature, radius, luminosity, disk mass, and viewing geometry, identifying items of interest within the SPICY catalog for future projects

## PUBLICATIONS

### First-Authored Peer Reviewed Publications

- The Unhurried Universe: A Continued Search for Long Term Variability in ASAS-SN  
**S. Petz**, C. S. Kochanek, K. S. Stanek, et al. [The Open Journal of Astrophysics](#) November 2025
- Life in the Slow Lane: A Search for Long-Term Variability in ASAS-SN  
**S. Petz** and C. S. Kochanek [MNRAS](#) May 2025
- PEPSI Investigation, Retrieval, and Atlas of Numerous Giant Atmospheres (PIRANGA). I. The Ubiquity of Fe I Emission and Inversions in Ultra-Hot Jupiter Atmospheres  
**S. Petz**, M. C. Johnson, A. Pai Asnodkar, et al. [The Astronomical Journal](#) May 2025
- The PEPsi Exoplanet Transit Survey (PETS) IV: Assessing the Atmospheric Chemistry of KELT-20b  
**S. Petz**, M. C. Johnson, A. Pai Asnodkar, et al. [MNRAS](#) January 2024

### Peer-Reviewed Publications

- PEPSI Investigation, Retrieval, and Atlas of Numerous Giant Atmospheres (PIRANGA). IV. High-Resolution Phased-Resolved Spectroscopy of Ultra Hot Jupiter KELT-20 b  
V. Bonidie, M. C. Johnson, J. Wang, **S. Petz**, et al. [The Astronomical Journal](#) January 2026
- PEPSI Investigation, Retrieval, and Atlas of Numerous Giant Atmospheres (PIRANGA). II. Phase-Resolved Cross-Correlation Transmission Spectroscopy of KELT-20b  
C. Lenhart, M. C. Johnson, J. Wang, et al. (including **S. Petz**) [The Astronomical Journal](#) January 2026
- PEPSI Investigation, Retrieval, and Atlas of Numerous Giant Atmospheres (PIRANGA). III. Composition and winds in the atmosphere of TOI-1518 b  
C. Basinger, M. C. Johnson, J. Wang, et al. (including **S. Petz**) [MNRAS](#) September 2025

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## TNS Discovery Reports

- ASAS-SN Transient Discovery Report for 2025-06-29  
K.Z. Stanek, and **S. Petz** [TNS](#) June 2025
- ASAS-SN Transient Discovery Report for 2025-04-24  
K.Z. Stanek, J. Callahan, and **S. Petz** [TNS](#) April 2025
- ASAS-SN Transient Discovery Report for 2025-04-18  
K.Z. Stanek and **S. Petz** [TNS](#) April 2025
- ASAS-SN Transient Discovery Report for 2024-05-12  
K.Z. Stanek and **S. Petz** [TNS](#) May 2024
- ASAS-SN Transient Discovery Report for 2024-05-08  
K.Z. Stanek and **S. Petz** [TNS](#) May 2024
- ASAS-SN Transient Discovery Report for 2024-04-02  
K.Z. Stanek and **S. Petz** [TNS](#) April 2024
- ASAS-SN Transient Discovery Report for 2024-01-30  
K.Z. Stanek and **S. Petz** [TNS](#) January 2024
- ASAS-SN Transient Discovery Report for 2023-11-13  
K.Z. Stanek and **S. Petz** [TNS](#) November 2023
- ASAS-SN Transient Discovery Report for 2023-10-24  
K.Z. Stanek and **S. Petz** [TNS](#) October 2023
- ASAS-SN Transient Discovery Report for 2023-10-17  
K.Z. Stanek and **S. Petz** [TNS](#) October 2023
- ASAS-SN Transient Discovery Report for 2023-10-10  
K.Z. Stanek and **S. Petz** [TNS](#) October 2023
- ASAS-SN Transient Discovery Report for 2023-05-30  
K.Z. Stanek and **S. Petz** [TNS](#) May 2023

## Astronomer's Telegrams

- ASASSN-25db: A Deep Ongoing Dimming Event  
D. M. Rowan, K. Z. Stanek, C. S. Kochanek et al. (including **S. Petz**) [ATel](#) July 2025
- ASASSN-25cd: A Deep, Ongoing, Dipping Event  
B. JoHantgen, D. M. Rowan, K.Z. Stanek, et al. (including **S. Petz**) [ATel](#) May 2025
- ASASSN-25bv: Two Recent, Deep Dimming Events  
B. JoHantgen, D. M. Rowan, K.Z. Stanek, et al. (including **S. Petz**) [ATel](#) May 2025
- ASASSN-24fw: A Main Sequence Star with a Deep Dimming Event  
B. JoHantgen, D. M. Rowan, K.Z. Stanek, et al. (including **S. Petz**) [ATel](#) September 2024
- ASASSN-24fa: A Long-Lasting, Deep Dimming Event  
B. JoHantgen, D. M. Rowan, K.Z. Stanek, et al. (including **S. Petz**) [ATel](#) July 2024
- ASASSN-23ht: A Deep Eclipse Event  
A. M. Miller, K.Z. Stanek, D.M. Rowan, et al. (including **S. Petz**) [ATel](#) November 2023

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## Conference Proceedings

- Strike while the iron is hot: a deep dive into understanding the variability of KELT-9 b's atmospheric dynamics  
A. Pai Asnodkar, J Wang, M. C. Johnson, et al. (including **S. Petz**) *Extreme Solar Systems* April 2024
- Strike while the iron is hot: a deep dive into understanding the variability of KELT-9 b's atmospheric dynamics  
A. Pai Asnodkar, J Wang, M. C. Johnson, et al. (including **S. Petz**) *AAS* February 2024
- Analysis of KELT-20b's Atmospheric Dynamics Using PEPSI: Line Profiles During Transit and Velocity Offsets  
C. Lenhart, M. C. Johnson, **S. Petz**, et al. *AAS* February 2024
- Assessing the atmospheric chemistry of KELT-20b  
**S. Petz**, M. C. Johnson, J. Wang, et al. *AAS* January 2023
- APOD Data Release of Social Network Footprint for 2015  
R.J. Nemiroff, D. Russell, A. Allen, et al. (including **S. Petz**) January 2017

## AWARDS AND SCHOLARSHIPS

- 3rd Place in 'Earth and Beyond', Denman Undergraduate Research Forum Scholarship, The Ohio State University March 2023
- Outreach Award (*Astronomy Picture of the Day*), International Astronomical Union August 2022
- Academic Scholarship, The Ohio State University 2019 – 2023

## PRESENTATIONS

- Assessing the atmospheric chemistry of KELT-20b, *Honors undergraduate research thesis* April 2023
- What can we find in the atmosphere of exoplanet KELT-20b?, *Denman Undergraduate Research Forum* March 2023
- Assessing the atmospheric chemistry of KELT-20b, *AAS Winter Conference* January 2023
- Assessing the atmospheric chemistry of KELT-20b, *Great Lakes Exoplanet Area Meeting (GLEAM)* November 2022
- Detectability of Species in KELT-20b, *SURP Symposium* July 2022
- Measuring the YSO population of the IRDC G351.77, *SURF Symposium* August 2021

## OUTREACH AND SERVICE

- Stellar Mentorship Program 2025 – Present
- Polaris Mentorship Program 2019 – 2020, 2024 – 2025
- National Speakers Association Youth Conference Leadership Position 2019 – 2024
- Executive Board Member of the *A Kid Again Organization at the Ohio State University* 2019 – 2023
- Instagram Mirror Operator for Astronomy Picture of the Day 2013 – Present

## SKILLS

- Tools and Languages** Python,  $\text{\LaTeX}$ , ds9, mysql
- Social Media Outreach** Instagram (*Astronomy Picture of the Day*)

## ACTIVITIES

- Spartan Vision - B1G+ StudentU and Videoboard 2025 – Present
- Technical Director, Columbus Crew 2022 – 2025
- Videoboard Director, Columbus Fury 2024 – 2025
- Bassist in *Funky Ducklings* 2023 – 2025
- Student Video Assistant in Live Sports Production, Ohio State University 2021 – 2023
- Bassist in *Campus Park* 2021 – 2023
- National Speakers Association Youth Conference Leadership Position 2019 – 2024