# Joseph Alexander GUIDRY

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🔗 website   |   ⬡ github   |   ⓘ ORCiD

## SUMMARY

I am a Ph.D. candidate and NSF Graduate Resarch Fellow at the Institute for Astrophysical Research in the Department of Astronomy at Boston University (Aug. 2021 – present). I work in the BU White Dwarf Group under the supervision of Prof. JJ Hermes.

## RESEARCH INTERESTS

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| **WHITE DWARF STARS** | remnant planetary systems  | pulsating white dwarfs  | magnetic white dwarfs |
| **VARIABLE STARS** | time-domain surveys  | time-series astronomy  | transiting systems |
| **SOFTWARE DEVELOPMENT** | open source software  | data reduction and processing  | time-series analysis |

## EDUCATION

**BOSTON UNIVERSITY**                                                                   *August 2021 – present*
PhD Student, Department of Astronomy
PhD Candidacy, M.A. Astronomy earned April 2024

**UNIVERSITY OF TEXAS AT AUSTIN**                                                      *August 2017 – May 2021*
B.S. Astronomy (with Honors)
B.S. Physics
Cumulative GPA: 3.76/4.00

## PUBLICATIONS

An ADS query of my publications can be accessed here.

### FIRST-AUTHORED REFEREED PUBLICATIONS

1. **Guidry, J. A.**, Hermes, J. J., De, K., et al. 2024, *ApJ*, 972, 126.
   *Using 3.4-$\mu$m Variability towards White Dwarfs as a Signpost of Remnant Planetary Systems.*

2. **Guidry, J. A.**, Vanderbosch, Z. P., Hermes, J. J., et al. 2021, *ApJ*, 912, 125.
   *I Spy Transits and Pulsations: Empirical Variability in White Dwarfs Using Gaia and the Zwicky Transient Facility.*

### REFEREED PUBLICATIONS AS CONTRIBUTING AUTHOR

1. Steen, M., Hermes, J. J., **Guidry, J. A.**, et al. 2024, *ApJ*, 967, 166.
   *Measuring White Dwarf Variability from Sparsely Sampled Gaia DR3 Multi-epoch Photometry.*

2. Farihi, J., Hermes, J. J., Marsh, T. R., ..., **Guidry, J. A.** (author 6/14), et al. 2022, *MNRAS*, 511, 1647.
   *Relentless and complex transits from a planetesimal debris disc.*

3. Vanderbosch, Z. P., Rappaport, S., **Guidry, J. A.**, et al. 2021, *ApJ*, 917, 41.
   *Recurring Planetary Debris Transits and Circumstellar Gas around White Dwarf ZTF J0328-1219.*

4. Kupfer, T., Prince, T. A., van Roestel, J., ..., **Guidry, J. A.** (author 18/21), et al. 2021, *MNRAS*, 505, 1254.
   *Year 1 of the ZTF high-cadence Galactic plane survey: strategy, goals, and early results on new single-mode hot subdwarf B-star pulsators.*

### CONFERENCE ABSTRACTS

1. Extreme Solar Systems V: **Guidry, J.**, Hermes, J. J., Vanderbosch, Z. P. 2024, Poster 612.01. *Transiting Planetary Debris around White Dwarfs: New Discoveries and Emerging Dichotomies*

2. 237th American Astronomical Society Meeting: **Guidry, J. A.**, Vanderbosch, Z. P., Hermes, J. J., et al. 2021, AAS. *I Spy Variability and Transits: Detecting Variable White Dwarfs Using Gaia and Zwicky Transient Facility Photometry Variability Metrics*

## OUTREACH PUBLICATIONS

1. Astrobites Guest Submission: *UR: I Spy Transits and Pulsations – Empirical Variability in White Dwarfs Using Gaia and the Zwicky Transient Facility*.

## WORK EXPERIENCE

### RESEARCH FELLOW
*May 2022 – present | Boston University*
- Began tenure of NSF Graduate Research Fellowship August 202.

### TEACHING FELLOW
*August 2021 – May 2022 | Boston University*
- Taught lab portions AS 102, The Astronomical Universe for non-majors, spring 2022 course at Boston University (instructor Prof. Jane Luu).
- Taught lab portions AS 202, Principles of Astronomy I for majors, fall 2021 course at Boston University (instructor Prof. Paul Withers).

### FRESHMAN RESEARCH INITIATIVE PEER MENTOR
*January 2019 – August 2021 | UT Austin*

Peer Mentor in the FRI White Dwarf Stars stream (PIs: Dr. Mike Montgomery, Prof. Don Winget)
- Served as a mentor to the students of the white dwarf FRI stream by assisting them with their weekly labs and advising them on their research projects. I was trained to employed Socratic methods so that the students led their inquiries.

### UNDERGRADUATE RESEARCH FELLOW
*May 2018 - August 2018; May 2020 – August 2020 | UT Austin*

- Summer 2020: worked full-time on Summer Undergraduate Research Fellowship awarded by the Department of Astronomy, UT Austin. Advised by Dr. Zach Vanderbosch (then graduate student) and Dr. Mike Montgomery.
- Summer 2018: worked part-time on TIDES/FRI Summer Fellowship awarded by the TIDES office at UT Austin. Advised by Dr. Mike Montgomery of the FRI White Dwarf Stars stream.

## AWARDS AND FELLOWSHIPS

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|---|---|---|
| 2022 | NSF Graduate Research Fellowship Program | National Science Foundation |
| 2021 | George H. Mitchell Award (STEM Category) | College of Natural Sciences, UT Austin |
| 2021 | Graduate with Distinction in Research | College of Natural Sciences, UT Austin |
| 2021 | Graduate with Distinction in Diversity, Equity, & Inclusion | College of Natural Sciences, UT Austin |
| 2020 | Outstanding Senior Award | Department of Astronomy, UT Austin |
| 2020 | Abel Family Scholarship in Physics | Department of Physics, UT Austin |
| 2020 | NSC Endowed Service Scholarship | Natural Sciences Council, UT Austin |
| 2020 | Summer Undergraduate Research Fellowship | J. W. Cox Endowment for the Advanced Studies in Astronomy, UT Austin |
| 2019 | Melvin J. Rieger Scholarship Fund in Physics | Department of Physics, UT Austin |
| 2019 | C. M. & J. C. Thompson Scholarship in Physics | Department of Physics, UT Austin |
| 2019 | CNS Second Year Excellence Award | College of Natural Sciences, UT Austin |
| 2018 | Dr. H. Franklyn Alexander Endowed Scholarship | College of Natural Sciences, UT Austin |
| 2018 | TIDES FRI Summer Research Fellowship | Texas Institute for Discovery Education in Science, UT Austin |

## CONFERENCE AND WORKSHOP PARTICIPATION

### CONTRIBUTED TALKS

1. **ZTF 5ᵗʰ Science Meeting**, The Nascent Class of White Dwarfs Showing Transits from Exoplanetary Debris, Caltech, October 2023

2. **KITP Conference: White Dwarfs from Physics to Astrophysics**, Characterizing the Orbital Periods of Transiting Planetary Debris around White Dwarfs, KITP-University of California, Santa Barbara, November 2022

3. **EUROWD22: 22nd European Workshop on White Dwarfs**, Characterizing the Orbital Periods of Transiting Planetary Debris around White Dwarfs, University of Tübingen, August 2022

## Research Posters Presented

1. **Frank N. Bash Symposium**, Searching for Color Changes During Outburst, October 2019, Austin, TX
2. **TASC5/KASC12**, Searching for Color Changes During Outburst, July 2019, Cambridge, MA

## Workshops Attended

- ZTF Summer School, August 2021
- Code/Astro 2021, June 2021

## Other Presentations

### Invited Talks

- Institute for Theory and Computation Luncheon, *Ancient Planetesimals Colliding around White Dwarfs*, Center for Astrophysics, Harvard University, April 2023
- Exoplanet Pizza Lunch, *Characterizing the Orbital Periods of Transiting Planetary Debris around White Dwarfs*, Center for Astrophysics, Harvard University, September 2022

### Outreach Talks

1. **North Shore Amateur Astronomy Club**, *Can the oldest stars in the Galaxy reveal the fate of the Solar System?*, September 2023, Boxford, MA
2. **BU Astronomical Society**, *Probing the Orbital Dynamics of Remnant Planetary Systems Using Autocorrelation*, February 2022, Boston University

## Observing Experience

### Hubble Space Telescope
- Awarded 5 orbits as Principal Investigator of HST Cycle 32 Program GO #17789.

### Perkins Telescope Observatory
- Observed 33 nights as PI at Boston University's Perkins Telescope Observatory, Flagstaff, AZ over November 2021–present.

### Lowell Discovery Telescope
- Observed 2 nights as PI on the Lowell Discovery Telescope, Happy Jack, AZ over January 2024–present.

### McDonald Observatory
- Observed 8 nights as PI at McDonald Observatory's Otto Struve Telescope, Fort Davis, TX over June 2023–present.

## Other Service

### Boston University Graduate Workers Union (BUGWU)

1. **Bargaining Team Member**, June 2023–October 2024
2. **Union Representative** for the Astronomy Department, August 2022–present

## Skills

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| **Programming Languages** | *Experienced:* Python │ *Familiar:* IRAF │ *Learning:* Julia |
| **Software Development** | Git │ PyPI |
| **Frameworks & Libraries** | Jupyter │ Matplotlib │ Numpy │ Pandas │ Astropy │ Photutils |
| **Languages** | *Native:* English  *Beginner:* French, Spanish |

## References

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|---|---|
| Prof. JJ Hermes | Boston University (jjhermes@bu.edu) |
| Dr. Zachary Vanderbosch | California Institute of Technology (zvanderb@caltech.edu) |
| Dr. Mike Montgomery | The University of Texas at Austin (mikemon@astro.as.utexas.edu) |