

Joseph Alexander GUIDRY

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SUMMARY

I am a Ph.D. student worker 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 with Prof. JJ Hermes.

RESEARCH INTERESTS

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

PhD Student, Department of Astronomy

August 2021 – present

UNIVERSITY OF TEXAS AT AUSTIN

B.S. Astronomy (with Honors)

B.S. Physics

Cumulative GPA: 3.76/4.00

August 2017 – May 2021

PUBLICATIONS

FIRST-AUTHORED REFEREED PUBLICATIONS

1. **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. 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.
2. 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.
3. 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. 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

TEACHING FELLOW

August 2021 – present | 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 employ 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

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. **Undergraduate Research Forum**, I Spy Transits and Pulsations: Empirical Variability in White Dwarfs Using *Gaia* and the Zwicky Transient Facility, Oral Presentation 167, UT Austin, April 2021
2. **Gulf Coast Undergraduate Research Symposium (GURS)**, Trick or Transits! Detecting Variable White Dwarfs Using *Gaia* and Zwicky Transient Facility Photometry Variability Metrics, Rice University, October 2020
3. **Undergraduate Research Symposium**, I Spy Variability: A New System of Variability Metrics from *Gaia* and Zwicky Transient Facility Photometry to Discover Variable White Dwarfs, Department of Astronomy, UT Austin, August 2020

RESEARCH POSTERS PRESENTED

1. **Undergraduate Research Forum**, Searching for Color Changes During Outburst, April 2020, Austin, TX
2. **Frank N. Bash Symposium**, Searching for Color Changes During Outburst, October 2019, Austin, TX
3. **TASC5/KASC12**, Searching for Color Changes During Outburst, July 2019, Cambridge, MA

WORKSHOPS ATTENDED

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

OUTREACH TALKS

1. **BU Astronomical Society**, Probing the Orbital Dynamics of Remnant Planetary Systems Using Autocorrelation, February 2022, Boston University
2. **Astronomy Students Association**, Trick or Transits! - Detecting Variable White Dwarfs Using *Gaia* and Zwicky Transient Facility Photometry Variability Metrics, October 2020, Austin, TX
3. **Rapid-Fire Talk at Astronomy on Tap ATX #62**, What is the life cycle of a star?, November 2019, Austin, TX
4. **Astronomy Students Association**, Searching for Color Changes During Outburst, October 2019, Austin, TX

SKILLS

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

REFERENCES

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)
Prof. Volker Bromm	The University of Texas at Austin (chair@astro.as.utexas.edu)
Prof. Elena Caceres	The University of Texas at Austin (elenac@utexas.edu)