

# James W. Johnson

Graduate Research Assistant



The Ohio State University  
Department of Astronomy  
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<https://jamesjohnson.space>

## Education

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Aug 2017 – Present

**The Ohio State University**

Ph.D., Department of Astronomy

M.S., Department of Astronomy

Advisor: David H. Weinberg

GPA: 4.000 / 4.000

Columbus, Ohio

Expected Summer 2023

Nov 20, 2019

Aug 2013 – May 2017

**Vanderbilt University**

B.A., Major in Physics, Minor in Astronomy

Highest Honors in Astronomy

GPA: 3.797 / 4.000

Nashville, Tennessee

May 12, 2017

Thesis Advisor: Andreas A. Berlind

*cum laude*

## Research

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### Metrics

4 lead author publications

6 contributing author publications

85+ citations, h-index: 5

### ADS Libraries

[All my papers](#)

[My lead-author papers](#)

[My co-author papers](#)

*A full list of my publications in peer-reviewed astronomical journals is attached.*

## Conferences & Talks

Aug 11 – 12 & 16 – 17, 2021

[Sloan Digital Sky Survey Collaboration Meeting 2021](#)

Contributed Talk

Jun 22 – 24, 2021

[2021 GALAH Science Meeting](#)

Contributed Talk

Jun 22 – 26, 2020

[Sloan Digital Sky Survey Collaboration Meeting 2020](#)

Contributed Talk

Jun 1 – 3, 2020

[236th American Astronomical Society Meeting](#)

iPoster-Plus Presentation

May 28, 2019

**“Simulating the Chemical Responses to Starbursts”**

Inter[stellar+galactic] Medium Program of Studies Seminar

University of California at Santa Cruz

## Open-Source Software Development

VICE

**Versatile Integrator for Chemical Evolution (VICE)**

Python Package, Lead Developer (Spring 2018 – Present)

Documentation: [ReadTheDocs](#)

Source Code: [GitHub](#)

Install: [PyPI](#)

## Teaching

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### The Ohio State University, Department of Astronomy: Graduate Teaching Assistant

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|---------------------|---|
| Aug 2018 – Dec 2020 | <b>Astronomy 1101: From Planets to Cosmos</b><br>4 semesters (5 sections)     |
| Aug 2019 – Dec 2019 | <b>Astronomy 1142: Black Holes</b><br>1 semester (1 section)                  |
| Jan 2019 – May 2019 | <b>Astronomy 1221: Astronomy Data Analysis</b><br>1 semester (1 section)      |
| Aug 2018 – Dec 2018 | <b>Astronomy 1140: Planets and the Solar System</b><br>1 semester (1 section) |

### The Ohio State University, Department of Astronomy: Python Bootcamp

|                    |   |
|--------------------|---|
| May 2020, May 2021 | Sole designer and instructor<br>~20 hours of instruction, plus exercises<br>Links: <a href="#">GitHub Repository</a>   <a href="#">YouTube Recordings</a><br>Target Audience: Researchers with experience in functional programming |
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## Honors & Awards

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|----------------------|--|
| Beginning May 2022   | <b>Presidential Fellowship, The Ohio State University</b>  |
| Aug 2017 – Aug 2018  | <b>Graduate Fellowship, The Ohio State University</b>  |
| Spring 2017          | <b>Larry Ross Cathey Award</b><br>Vanderbilt University, Department of Physics & Astronomy<br>Outstanding graduating senior studying astronomy |
| Inducted Spring 2015 | <b>Sigma Pi Sigma Physics National Honor Society</b>   |
| 7 of 8 Semesters     | <b>Vanderbilt University Dean's List</b>   |
| Inducted Spring 2013 | <b>National Society of Collegiate Scholars</b>   |

## Broader Activities

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|-----------------------|---|
| Jan 2022 – Present    | <b>Polaris:</b> A graduate student led organization dedicated to improving retention of underrepresented students in Physics      |
| Sep 2021 – Present    | <b>"Galaxy Hour" Weekly Research Meeting Co-Organizer</b><br>The Ohio State University, Department of Astronomy                   |
| Summer 2018 – Present | <b>Friends of Ohio State Astronomy &amp; Astrophysics</b>   |
| Fall 2017 – Present   | <b>Diversity Journal Club Participant</b><br>The Ohio State University, Department of Astronomy                                   |
| Jun 15 – 21, 2020     | <b>Real Scientists Germany Online Outreach</b><br>Links: <a href="#">Blog</a> [in German]   <a href="#">Twitter</a> [in German]   |
| Spring 2019           | <b>Ohio Science Olympiad: Volunteer</b>   |
| Jan 2015 – Apr 2017   | <b>Undergraduate Tutor</b><br>Vanderbilt University, Department of Physics & Astronomy  |
| Summer 2015           | <b>Cosmic Ray Observatory Project</b><br>University of Nebraska-Lincoln, Department of Physics<br>Lab technician: instrumentation |

# List of Peer-Reviewed Publications

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## Lead-Author Publications (reverse chronological order)

1. *Empirical Constraints on the Nucleosynthesis of Nitrogen*, **James W. Johnson**, David H. Weinberg, Fiorenzo Vincenzo, Jonathan C. Bird, Emily J. Griffith  
2022, Submitted to MNRAS, under peer review
2. *Stellar Migration and Chemical Enrichment in the Milky Way Disc: A Hybrid Model*  
**James W. Johnson**, David H. Weinberg, Fiorenzo Vincenzo, Jonathan C. Bird, Sarah R. Loebman, Alyson M. Brooks, Thomas R. Quinn, Charlotte R. Christensen, Emily J. Griffith  
2021, Submitted to MNRAS, 508, 4484 arxiv:2103.09838
3. *The Impact of Starbursts on Element Abundance Ratios*  
**James W. Johnson**, David H. Weinberg  
2020, MNRAS, 498, 1364 arxiv:1911.02598
4. *The Secondary Spin Bias of Dark Matter Haloes*  
**James W. Johnson**, Ariyeh H. Maller, Andreas A. Berlind, M. Sinha, J.K. Holley-Bockelmann  
2019, MNRAS, 486, 1156 arxiv:1812.02206

## Contributing-Author Publications (reverse chronological order)

1. *Residual Abundances in GALAH DR3: Implications for Nucleosynthesis and Identification of Unique Stellar Populations*  
Emily J. Griffith, David H. Weinberg, Sven Buder, Jennifer A. Johnson, **James W. Johnson**, Fiorenzo Vincenzo  
2021, submitted to ApJ, under peer review arxiv:2110.06240
2. *Chemical Cartography with APOGEE: Mapping Disk Populations with a Two-Process Model and Residual Abundances*  
David H. Weinberg, et al., incl. **James W. Johnson**  
2021, Submitted to ApJ, under peer review arxiv:2108.08860
3. *CNO Dredge-Up in a Sample of APOGEE/Kepler Red Giants: Tests of Stellar Models and Galactic Evolutionary Trends of N/O and C/N*  
Fiorenzo Vincenzo, David H. Weinberg, Josefina Montalbán, Andrea Miglio, Saniya Khan, Emily J. Griffith, Sten Hasselquist, **James W. Johnson**, Jennifer A. Johnson, Christian Nitschelm, Marc H. Pinsonneault  
2021, Submitted to MNRAS, under peer review arxiv:2106.03912
4. *The Impact of Black Hole Formation on Population Averaged Supernova Yields*  
Emily J. Griffith, Tuguldur Sukhbold, David H. Weinberg, Jennifer A. Johnson, **James W. Johnson**, Fiorenzo Vincenzo  
2021, Submitted to ApJ, accepted for publication arxiv:2103.09837
5. *Nucleosynthesis Signatures of Neutrino-Driven Winds from Proto-Neutron Stars: A Perspective from Chemical Evolution Models*  
Fiorenzo Vincenzo, Todd A. Thompson, David H. Weinberg, Emily J. Griffith, **James W. Johnson**, Jennifer A. Johnson  
2021, Submitted to MNRAS, accepted for publication arxiv:2102.04920

6. *The Similarity of Abundance Ratio Trends and Nucleosynthetic Patterns in the Milky Way Disk and Bulge*

Emily J. Griffith, David H. Weinberg, Jennifer A. Johnson, Rachael Beaton, D.A. García-Hernández, Sten Hasselquist, Jon Holtzman, **James W. Johnson**, Henrik Jönsson, Richard R. Lane, David M. Nataf, Alexandre Roman-Lopes  
2021, ApJ, 909, 77

arxiv:2009.05063