

James W. Johnson

Graduate Research Assistant



The Ohio State University
Department of Astronomy
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Education

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

Metrics

4 lead author publications

7 contributing author publications

95+ citations, h-index: 6

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

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

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

The Ohio State University, Department of Astronomy: Python Bootcamp

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| May 2020, May 2021 | Sole designer and instructor ~20 hours of instruction, plus exercises Links: GitHub Repository YouTube Recordings Target Audience: Researchers with experience in functional programming |
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Honors & Awards

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

Broader Activities

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

List of Peer-Reviewed Publications

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. *Primordial Helium-3 Redux: The Helium Isotope Ratio of the Orion Nebula*
Ryan J. Cooke, Pasquier Noterdaeme, **James W. Johnson**, et al.
2022, submitted to ApJ, under peer review arxiv:2203.11256
2. *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
3. *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
4. *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
5. *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
6. *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

7. *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