

The Ohio State University  
Department of Astronomy  
140 W. 18<sup>th</sup> Ave.  
Columbus, OH 43210  
<https://jamesjohnson.space>

James W. Johnson  
Curriculum Vitae  
[johnson.7419@osu.edu](mailto:johnson.7419@osu.edu) | [giganano9@gmail.com](mailto:giganano9@gmail.com)

## Academic Appointments

[The Observatories of the Carnegie Institution for Science](#) Pasadena, California  
Beginning 2023 **Postdoctoral Fellow**, Carnegie Theoretical Astrophysics Center (CTAC)  
Supervisor: Ana Bonaca

## Education

[The Ohio State University](#) Columbus, Ohio  
July 2023 **Ph.D.**, Astrophysics, Dissertation Advisor: David H. Weinberg  
*From Dwarfs to Spirals: Chemical Evolution of Galaxies  
across Stellar Mass and the Implications for Nucleosynthesis*

[Vanderbilt University](#) Nashville, Tennessee  
May 2017 **B.A.**, Physics major, Astronomy minor, *cum laude*  
Highest Honors in Astronomy, Thesis Advisor: Andreas A. Berlind

## Honors & Awards

2022 **Ann S. Tuttle Paper Prize**, Ohio State, Dept. of Astronomy  
Annual award to the top graduate student-led publication of the previous year  
*J.W. Johnson, et al., 2021, MNRAS, 508, 4484, arxiv:2103.09838*

2022 - 2023 **Presidential Fellowship**, Ohio State, College of Arts & Sciences  
Financial support for final-year graduate students

2017 - 2018 **University Fellowship**, Ohio State, College of Arts & Sciences  
Financial support for first-year graduate students

2017 **Larry Ross Cathey Award**, Vanderbilt, Dept. of Physics & Astronomy  
Outstanding graduating senior studying astronomy

Inducted 2015 **Sigma Pi Sigma**, Vanderbilt Chapter

7 of 8 semesters **Dean's List**, Vanderbilt, College of Arts & Sciences

## Research

15	6	9	250+	9
Journal Publications	First Author	Contributing Author	Citations	H-Index

## NASA ADS Libraries (A full list of my journal publications is included.)

All Papers <https://ui.adsabs.harvard.edu/public-libraries/rIqfpNKmSdaOMIAhkk2VzQ>  
 First Author <https://ui.adsabs.harvard.edu/public-libraries/go1WSseGTMeft2SxdESAgw>  
 Co-Author [https://ui.adsabs.harvard.edu/public-libraries/sZkjSf\\_XRSKSRykqBe6B\\_w](https://ui.adsabs.harvard.edu/public-libraries/sZkjSf_XRSKSRykqBe6B_w)

## Seminars & Conference Presentations

January 2023	<b>241<sup>st</sup> AAS Conference</b>	Dissertation Talk
August 2021	<b>SDSS Collaboration Meeting</b>	Contributed Talk
June 2021	<b>GALAH Science Meeting</b>	Contributed Talk
June 2020	<b>SDSS Collaboration Meeting</b>	Contributed Talk
June 2020	<b>236<sup>th</sup> AAS Conference</b>	iPoster-Plus
May 2019	<b>University of California, Santa Cruz, Dept. of Astronomy</b>	Seminar

## Mentoring

2022 - Present **Daniel A. Boyea**, Ohio State, Dept. of Astronomy  
 Undergraduate Honors Program with Research Distinction  
 Summer Undergraduate Research Program

## Astronomical Software Development



### Versatile Integrator for Chemical Evolution (VICE)

Lead developer and license owner (Spring 2018 - Present)

Documentation: <https://vice-astro.readthedocs.io>

Source Code: <https://github.com/giganano/VICE.git>

Install: <https://pypi.org/project/vice>

## Teaching

---

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

**Program Creator**, six sessions, ~20 hours of instruction and exercises

2020 - 2023 Target audience: Summer Undergraduate Research Program

2022 Target audience: 1<sup>st</sup>- & 2<sup>nd</sup>-year graduate students

Website: <https://jamesjohnson.space/bootcamp>

Source material: <https://github.com/giganano/PythonBootcamp>

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

2018 - 2020 **Astronomy 1101: From Planets to Cosmos** 5 sections

2019 **Astronomy 1142: Black Holes** 1 section

2019 **Astronomy 1221: Astronomy Data Analysis** 1 section

2018 **Astronomy 1140: Planets and the Solar System** 1 section

## Broader Activities

---

2022 - Present **Manuscript Referee**: ApJ, MNRAS

2022 - 2023 **Polaris Leadership Committee**, Ohio State, Depts. of Physics & Astronomy

Website: <https://u.osu.edu/polaris>

Graduate student-led organization dedicated to fostering a more inclusive environment and improving retention of underrepresented minority groups

2022 - 2023 **Mentor**, Polaris Mentorship Course

August 2022	<b>Academic Facilitator</b> , Undergraduate Residential Summer Access Program A Polaris early-arrival program for first-year undergraduates
2021 - Present	<b>“Galaxy Hour” meeting organizer</b> , Ohio State, Dept. of Astronomy
2017 - Present	<b>Diversity Journal Club participant</b> , Ohio State, Dept. of Astronomy
June 2020	<b>Real Scientists Germany Online Outreach</b> Blog: <a href="https://tinyurl.com/jamesjohnsonrealscientistsDE">https://tinyurl.com/jamesjohnsonrealscientistsDE</a> Twitter: <a href="https://twitter.com/realsci_DE">https://twitter.com/realsci_DE</a>
2015 - 2017	<b>Undergraduate Tutor, Proctor, Grader</b> Vanderbilt University, Dept. of Physics & Astronomy
2015	<b>Cosmic Ray Observatory Project</b> University of Nebraska-Lincoln, Dept. of Physics

## Journal Publications

---

### First Author (reverse chronological order)

1. *Dwarf galaxy archaeology from chemical abundances and star formation histories*  
**J.W. Johnson**, et al.  
2022, submitted to MNRAS, under peer review arxiv:2210.01816
2. *Binaries drive high Type Ia supernova rates in dwarf galaxies*  
**J.W. Johnson**, C.S. Kochanek, K.Z. Stanek  
2022, submitted to MNRAS, under peer review arxiv:2210.01818
3. *Empirical constraints on the nucleosynthesis of nitrogen*  
**J.W. Johnson**, D.H. Weinberg, F. Vincenzo, J.C. Bird, E.J. Griffith  
2022, MNRAS, 520, 782 - 803 arxiv:2202.04666
4. *Stellar migration and chemical enrichment in the milky way disc: a hybrid model*  
**J.W. Johnson**, et al.  
2021, MNRAS, 508, 4484 - 4511 arxiv:2103.09838
5. *The impact of starbursts on element abundance ratios*  
**J.W. Johnson**, D.H. Weinberg  
2020, MNRAS, 498, 1364 - 1381 arxiv:1911.02598
6. *The secondary spin bias of dark matter haloes*  
**J.W. Johnson**, A.H. Maller, A.A. Berlind, M. Sinha, J.K. Holley-Bockelmann  
2019, MNRAS, 486, 1156 - 1166 arxiv:1812.02206

### Contributing Author (reverse chronological order)

1. *Untangling the Sources of Abundance Dispersion in Low-Metallicity Stars*  
E.J. Griffith, J.A. Johnson, D.H. Weinberg, I. Ilyin, **J.W. Johnson**, R. Rodriguez-Martinez,  
K.G. Strassmeier  
2022, accepted for publication in ApJ arxiv:2210.01821
2. *Birth of the Galactic Disk Revealed by the H3 Survey*  
C. Conroy, et al., incl. **J.W. Johnson**  
2022, submitted to ApJ, under peer review arxiv:2204.02989

3. *Primordial Helium-3 Redux: The Helium Isotope Ratio of the Orion Nebula*  
R.J. Cooke, P. Noterdaeme, **J.W. Johnson**, M. Pettini, L. Welsh, C. Peroux, M.T. Murphy,  
D.H. Weinberg  
2022, ApJ, 932, 60 - 76 arxiv:2203.11256
  
4. *Residual Abundances in GALAH DR3: Implications for Nucleosynthesis and Identification of Unique Stellar Populations*  
E.J. Griffith, D.H. Weinberg, S. Buder, J.A. Johnson, **J.W. Johnson**, F. Vincenzo  
2021, ApJ, 931, 23 - 50 arxiv: 2110.06240
  
5. *Chemical Cartography with APOGEE: Mapping Disk Populations with a Two-Process Model and Residual Abundances*  
D.H. Weinberg, et al., incl. **J.W. Johnson**  
2021, ApJS, 260, 32 - 77 arxiv:2108.08860
  
6. *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*  
F. Vincenzo, et al., incl. **J.W. Johnson**  
2021, submitted to MNRAS, under peer review arxiv:2106.03912
  
7. *The Impact of Black Hole Formation on Population-averaged Supernova Yields*  
E.J. Griffith, T. Sukhbold, D.H. Weinberg, J.A. Johnson, **J.W. Johnson**, F. Vincenzo  
2021, ApJ, 921, 73 - 94 arxiv:2103.09837
  
8. *Nucleosynthesis signatures of neutrino-driven winds from proto-neutron stars: a perspective from chemical evolution models*  
F. Vincenzo, T.A. Thompson, D.H. Weinberg, E.J. Griffith, **J.W. Johnson**, J.A. Johnson  
2021, MNRAS, 508, 3499 - 3507 arxiv:2102.04920
  
9. *The Similarity of Abundance Ratio Trends and Nucleosynthetic Patterns in the Milky Way Disk and Bulge*  
E.J. Griffith, et al., incl. **J.W. Johnson**  
2021, ApJ, 909, 77 - 101 arxiv:2009.05063