

The Observatories of the  
Carnegie Institution for Science  
813 Santa Barbara St.  
Pasadena, CA 91101  
<https://jamesjohnson.space>

James W. Johnson  
Curriculum Vitae  
[jjohnson10@carnegiescience.edu](mailto:jjohnson10@carnegiescience.edu)

## ACADEMIC APPOINTMENTS

---

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

## EDUCATION

---

[The Ohio State University](#) Columbus, Ohio  
July 2023 **Ph.D. in 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. in Physics & Astronomy**, *cum laude*  
Highest Honors in Astronomy, Thesis Advisor: Andreas A. Berlind

## RESEARCH

---

16	6	10	315+	10
Journal Publications	First Author	Contributing Author	Citations	H-Index

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

All My 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)

### Mentoring

2022 – 2023 **Daniel A. Boyea**, Ohio State, Dept. of Astronomy  
Undergraduate Honors Thesis, Summer Undergraduate Research Program  
Now: Ph.D. student at University of Victoria (Advisor: Julio F. Navarro)

### Astronomical Software Development

VICE

**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>

## Seminars & Conference Presentations

Contributed Talk	<b>Surveying the Milky Way: The Universe in Our Own Backyard</b>	2023
	California Institute of Technology, Pasadena, CA	
Dissertation Talk	<b>241<sup>st</sup> American Astronomical Society Meeting</b>	2023
Contributed Talk	<b>Sloan Digital Sky Survey Collaboration Meeting</b>	2021
Contributed Talk	<b>Galactic Archaeology with Hermes Science Meeting</b>	2021
Contributed Talk	<b>Sloan Digital Sky Survey Collaboration Meeting</b>	2020
Poster	<b>236<sup>th</sup> American Astronomical Society Meeting</b>	2020
Seminar	<b>Inter[stellar+galactic] Medium Program of Studies</b>	2019
	University of California, Santa Cruz, Dept. of Astronomy & Astrophysics	

## HONORS & AWARDS

---

2022	<b>Ann S. Tuttle Paper Prize</b> , Ohio State, Dept. of Astronomy	
	Annual award to the top graduate student-led publication of the previous year	
	<i>Johnson J.W., et al., 2021, MNRAS, 508, 4484, arxiv:2103.09838</i>	
2022 – 2023	<b>Presidential Fellowship</b> , Ohio State, College of Arts & Sciences	
	Financial support for final-year graduate students	
2017 – 2018	<b>University Fellowship</b> , Ohio State, College of Arts & Sciences	
	Financial support for first-year graduate students	
2017	<b>Larry Ross Cathey Award</b> , Vanderbilt, Dept. of Physics & Astronomy	
	Outstanding graduating senior studying astronomy	
Inducted 2015	<b>Sigma Pi Sigma Physics National Honor Society</b> , Vanderbilt Chapter	
7 of 8 semesters	<b>Dean's List</b> , Vanderbilt, College of Arts & Sciences	

## TEACHING

---

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

	<b>Program Creator</b> , 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: <a href="https://jamesjohnson.space/bootcamp">https://jamesjohnson.space/bootcamp</a>	
	Source material: <a href="https://github.com/giganano/PythonBootcamp">https://github.com/giganano/PythonBootcamp</a>	

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

2018 – 2020	<b>Astronomy 1101: From Planets to Cosmos</b>	5 sections
2019	<b>Astronomy 1142: Black Holes</b>	1 section
2019	<b>Astronomy 1221: Astronomy Data Analysis</b>	1 section
2018	<b>Astronomy 1140: Planets and the Solar System</b>	1 section

## MISCELLANEOUS

---

2022 – Present	<b>Manuscript Referee</b> : ApJ, MNRAS, PASJ	
2024	<b>Advancing Inclusive Mentoring</b> , Carnegie Observatories	
	Academic mentor training, California State University Long Beach	
2021 – 2023	<b>“Galaxy Hour” meeting organizer</b> , Ohio State, Dept. of Astronomy	
2017 – 2023	<b>Diversity Journal Club</b> , Ohio State, Dept. of Astronomy	

- 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 **Academic Facilitator**, Undergraduate Residential Summer Access Program  
 A Polaris early-arrival program for first-year undergraduates
- June 2020 **Real Scientists Germany Online Outreach**  
 Blog: <https://tinyurl.com/jamesjohnsonrealscientistsDE>  
 Twitter: [https://twitter.com/realsci\\_DE](https://twitter.com/realsci_DE)
- 2015 – 2017 **Undergraduate Tutor, Proctor, Grader**  
 Vanderbilt University, Dept. of Physics & Astronomy
- 2015 **Cosmic Ray Observatory Project**, Instrumentation lab  
 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*  
**Johnson J.W.**, et al.  
 2022, MNRAS, 526, 5084 – 5109 arxiv:2210.01816
2. *Binaries drive high Type Ia supernova rates in dwarf galaxies*  
**Johnson J.W.**, Kochanek C.S., Stanek K.Z.  
 2022, MNRAS, 526, 5911 – 5918 arxiv:2210.01818
3. *Empirical constraints on the nucleosynthesis of nitrogen*  
**Johnson J.W.**, Weinberg D.H., Vincenzo F., Bird J.C., Griffith E.J.  
 2022, MNRAS, 520, 782 – 803 arxiv:2202.04666
4. *Stellar migration and chemical enrichment in the Milky Way disc: a hybrid model*  
**Johnson J.W.**, et al.  
 2021, MNRAS, 508, 4484 – 4511 arxiv:2103.09838
5. *The impact of starbursts on element abundance ratios*  
**Johnson J.W.**, Weinberg D.H.  
 2020, MNRAS, 498, 1364 – 1381 arxiv:1911.02598
6. *The secondary spin bias of dark matter haloes*  
**Johnson J.W.**, Maller A.H., Berlind A.A., Sinha M., Holley-Bockelmann J.K.  
 2019, MNRAS, 486, 1156 – 1166 arxiv:1812.02206

### Contributing Author (reverse chronological order)

1. *The Scale of Stellar Yields: Implications of the Measured Mean Iron Yield of Core Collapse Supernovae*  
 Weinberg D.H., Griffith E.J., **Johnson J.W.**, Thompson T.A.  
 2023, submitted to ApJ, under peer review arxiv:2309.05719

2. *Untangling the Sources of Abundance Dispersion in Low-Metallicity Stars*  
 Griffith E.J., Johnson J.A., Weinberg D.H., Ilyin I., **Johnson J.W.**, Rodriguez-Martinez R.,  
 Strassmeier K.G.  
 2022, ApJ, 944, 47 – 67 arxiv:2210.01821
3. *Birth of the Galactic Disk Revealed by the H3 Survey*  
 Conroy C., et al., incl. **Johnson J.W.**  
 2022, submitted to ApJ, under peer review arxiv:2204.02989
4. *Primordial Helium-3 Redux: The Helium Isotope Ratio of the Orion Nebula*  
 Cooke R.J., Noterdaeme P., **Johnson J.W.**, Pettini M., Welsh L., Peroux C., Murphy M.T.,  
 Weinberg D.H.  
 2022, ApJ, 932, 60 – 76 arxiv:2203.11256
5. *Residual Abundances in GALAH DR3: Implications for Nucleosynthesis and Identification of Unique Stellar Populations*  
 Griffith E.J., Weinberg D.H., Buder S., Johnson J.A., **Johnson J.W.**, Vincenzo F.  
 2021, ApJ, 931, 23 – 50 arxiv: 2110.06240
6. *Chemical Cartography with APOGEE: Mapping Disk Populations with a Two-Process Model and Residual Abundances*  
 Weinberg D.H., et al., incl. **Johnson J.W.**  
 2021, ApJS, 260, 32 – 77 arxiv:2108.08860
7. *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*  
 Vincenzo F., et al., incl. **Johnson J.W.**  
 2021, submitted to MNRAS, under peer review arxiv:2106.03912
8. *The Impact of Black Hole Formation on Population-averaged Supernova Yields*  
 Griffith E.J., Sukhbold T., Weinberg D.H., Johnson J.A., **Johnson J.W.**, Vincenzo F.  
 2021, ApJ, 921, 73 – 94 arxiv:2103.09837
9. *Nucleosynthesis signatures of neutrino-driven winds from proto-neutron stars: a perspective from chemical evolution models*  
 Vincenzo F., Thompson T.A., Weinberg D.H., Griffith E.J., **Johnson J.W.**, Johnson J.A.  
 2021, MNRAS, 508, 3499 – 3507 arxiv:2102.04920
10. *The Similarity of Abundance Ratio Trends and Nucleosynthetic Patterns in the Milky Way Disk and Bulge*  
 Griffith E.J., et al., incl. **Johnson J.W.**  
 2021, ApJ, 909, 77 – 101 arxiv:2009.05063