

The Observatories of the
Carnegie Institution for Science
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James W. Johnson
Curriculum Vitae
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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	285+	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

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

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	
	<i>Johnson J.W., et al., 2021, MNRAS, 508, 4484, arxiv:2103.09838</i>	
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 Physics National Honor Society , Vanderbilt Chapter	
7 of 8 semesters	Dean's List , Vanderbilt, College of Arts & Sciences	

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 st - & 2 nd -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, PASJ	
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
 2021 – 2023 **“Galaxy Hour” meeting organizer**, Ohio State, Dept. of Astronomy
 2017 – 2023 **Diversity Journal Club participant**, Ohio State, Dept. of Astronomy
 June 2020 **Real Scientists Germany Online Outreach**
 Blog: <https://tinyurl.com/jamesjohnsonrealscientistsDE>
 Twitter: https://twitter.com/realsci_DE
 2015 – 2017 **Undergraduate Tutor, Proctor, Grader**
 Vanderbilt University, Dept. of Physics & Astronomy
 2015 **Cosmic Ray Observatory Project**
 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, accepted for publication in MNRAS 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, accepted for publication in ApJ arxiv:2210.01821

3. *Birth of the Galactic Disk Revealed by the H3 Survey*
Conroy C., et al., incl. **Johnson J.W.**
2022, ApJ, 47 – 67 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