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

15	6	9	260+	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

Seminars & Conference Presentations

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

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

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

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

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: 1st- & 2nd-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	**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*
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