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)
Advisor: 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	255+	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 – 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

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