The Ohio State University
Department of Astronomy
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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

Beginning 2023 **Postdoctoral Fellow**, Carnegie Theoretical Astrophysics Center
Supervisor: Ana Bonaca

Education

The Ohio State University — Columbus, Ohio

July 2023 **Anticipate Ph.D. in Astrophysics**
Simultaneous Constraints on Galaxy Evolution and Stellar Nucleosynthesis
Thesis Advisor: David H. Weinberg

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 Graduate Student Paper Prize**
The Ohio State University, Department 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 - Present **Presidential Fellowship**, **The Ohio State University**
Financial support for final-year graduate students

2017 - 2018 **Graduate Fellowship**, **The Ohio State University**

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

Inducted 2015 **Sigma Pi Sigma Physics National Honor Society**

7 of 8 semesters **Vanderbilt University Dean's List**

Research

15	6	9	200+	7
Journal Publications	Lead 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
Lead Author	https://ui.adsabs.harvard.edu/public-libraries/go1WSseGTMeft2SxdESAgw
Co-Author	https://ui.adsabs.harvard.edu/public-libraries/sZkjSf_XRSKSRykqBe6B_w

Seminars & Conference Presentations

Jan 2023	**241st AAS Conference**	Dissertation Talk
Aug 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**	Seminar
	Inter[stellar+galactic] Medium Program of Studies	

Mentoring

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

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: 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 - Present **Polaris Leadership Committee**
Graduate student led organization dedicated to fostering a more inclusive environment in physics and astronomy at Ohio State
https://physics.osu.edu/student-organizations-0/polaris-0

Aug 2022	**Undergraduate Residential Summer Access Program (URSA)** Early-arrival program ran by Polaris
2022 - 2023	**Polaris Mentorship Course**
2021 - Present	**"Galaxy Hour" weekly research meeting organizer**
2017 - Present	**Diversity Journal Club participant**, Ohio State Astronomy
June 2020	**Real Scientists Germany Online Outreach** Blog: https://tinyurl.com/jamesjohnsonrealscientistsDE Twitter: https://twitter.com/realsci_DE
2015 - 2017	**Undergraduate Tutor** Vanderbilt University, Department of Physics & Astronomy
2015	**Cosmic Ray Observatory Project** University of Nebraska-Lincoln, Department 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