

The Ohio State University
Department of Astronomy
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James W. Johnson

Presidential Fellow

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Education

The Ohio State University

Columbus, Ohio

June 2023 **Anticipate Ph.D. in Astrophysics**

Thesis Advisor: David H. Weinberg

November 20, 2019 **M.S. in Astrophysics**

Vanderbilt University

Nashville, Tennessee

May 12, 2017 **B.S., Physics major, Astronomy minor, *cum laude***

Highest Honors in Astronomy, Thesis Advisor: Andreas A. Berlind

Honors & Awards

Fall 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

May 2022 – Present **Presidential Fellowship, The Ohio State University**

Financial support for final-year graduate students

Aug 2017 – Aug 2018 **Graduate Student Fellowship, The Ohio State University**

Spring 2017 **Larry Ross Cathey Award**

Outstanding graduating senior studying astronomy

Vanderbilt University, Dept. of Physics & Astronomy

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

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

Research

Journal Publications

Author of 15 articles in refereed astronomical journals: 6 lead-author, 9 co-author

A full list of my publications is attached.

Open-Source 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>

Seminars & Conference Presentations

August 11 – 17, 2021	Sloan Digital Sky Survey Collaboration Meeting	Contributed Talk
June 22 – 24, 2021	2021 GALAH Science Meeting	Contributed Talk
June 22 – 26, 2020	Sloan Digital Sky Survey Collaboration Meeting	Contributed Talk
June 1 – 3, 2020	236th American Astronomical Society Meeting	iPoster-Plus
May 28, 2019	Inter[stellar+galactic] Medium Program of Studies	Seminar
	University of California at Santa Cruz	

Mentoring

May 2022 – Present	Daniel Boyea – The Ohio State University Senior Thesis, Summer Undergraduate Research Program Project: <i>Empirical Constraints on the Nucleosynthesis of Carbon</i>
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Teaching

The Ohio State University, Dept. of Astronomy: Python Bootcamp

	Program Creator – roughly 20 hours of instruction and exercises
Every May since 2020	Target audience: Summer Undergraduate Research Program
Fall 2022	Target audience: 1 st - and 2 nd -year graduate students
	Source material: https://github.com/giganano/PythonBootcamp.git
	Recordings: https://jamesjohnson.space/bootcamp

The Ohio State University, Dept. of Astronomy: Graduate Teaching Assistant

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

Broader Activities

Jan 2022 – Present	Polaris Leadership Committee – The Ohio State University Graduate student led organization dedicated to improving the retention of physics and astronomy students from marginalized backgrounds https://physics.osu.edu/student-organizations-0/polaris-0
August 2022	Undergraduate Residential Summer Access Program Early-arrival program ran by Polaris – <i>Academic Facilitator</i>
Fall 2021 – Present	“Galaxy Hour” weekly research meeting co-organizer
Fall 2017 – Present	Diversity Journal Club participant
June 15 – 21, 2020	Real Scientists Germany Online Outreach Blog: https://tinyurl.com/jamesjohnsonrealscientistsDE Twitter: https://twitter.com/realsci_DE
Jan 2015 – Apr 2017	Undergraduate Tutor Vanderbilt University, Department of Physics & Astronomy
Summer 2015	Cosmic Ray Observatory Project University of Nebraska-Lincoln, Department of Physics

List of Peer-Reviewed Publications

NASA ADS Libraries

All My Papers <https://ui.adsabs.harvard.edu/user/libraries/rIqfpNKmSdaOMIAhkk2VzQ>
 Lead-Author <https://ui.adsabs.harvard.edu/user/libraries/go1WSseGTMeft2SxdESAgw>
 Co-Author https://ui.adsabs.harvard.edu/user/libraries/sZkjSf_XRSKSRykqBe6B_w

Lead-Author Publications (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, submitted to MNRAS, under peer review 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 Publications (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, submitted to ApJ, under peer review 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