## Prof. Blakesley Burkhart

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### Current Appointments

Associate Professor, Rutgers, The State University of New Jersey

Research Associate, American Museum of Natural History

Associate Research Scientist, Flatiron Institute Center for Computational Astrophysics

### Past Appointments

Assistant Professor, Rutgers, The State University of New Jersey, 2019-2024

Institute for Theory and Computation (ITC) Postdoctoral Fellow, Harvard, 2017-2018

NASA Einstein Postdoctoral Fellow, Harvard, 2014-2017

### Education

Ph.D. Astronomy, University of Wisconsin-Madison, 2014

M.A. Astronomy, University of Wisconsin-Madison, 2010

M.S. Physics, University of Wisconsin-Madison, 2010

B.S. Physics & Mathematics (minor: Latin), University of Louisville, *Magna Cum Laude*, 2008

### Awards and Honors

2024 National Academy of Sciences Kavli Fellow

2024 Rutgers Board of Trustees Research Fellowship for Scholarly Excellence

2022 Maria Goeppert Mayer Award, American Physical Society

2021 Alfred P. Sloan Research Fellowship

2020 Packard Fellowship for Science and Engineering

2019 Annie Jump Cannon Award, American Astronomical Society

2017 Robert J. Trumpler Award, Astronomical Society of the Pacific

2016 Division of Astrophysics Ph.D. Thesis Award Finalist, American Physical Society

2011 UW Madison Jansky Fellowship for Outstanding Research

2011 NASA Space Science Student Ambassador

2009 National Science Foundation Graduate Research Fellowship (Astrophysics)

2008 Donald M. Bennett Award for Outstanding Scholastic Achievement in Physics

2008 American Astronomical Society, Chambliss Award, Honorable Mention

2006 Bullitt Award in Astrophysics

**Grants: faculty career total 2.7 million dollars**

2024-2027, *"NSF-BSF: Choreographing Astrophysical Turbulence Using Machine Learning, Simulations, and Novel Analytic Modeling"*, NSF AAG, $400,256

2024-2027, *"Star Formation in the Early Universe via the Stream Velocity in the Era of JWST"*, NASA ATP, $225,968

2022-2025, *"A Revolution for Astrophysical Turbulence Using Machine Learning"*, NASA FINESST, $150,00

2022-2025, *"The Cosmic Origins Spectrograph as a Probe of AGN Feedback in the Low Redshift Lyman Alpha Forest"*, NASA ATP, $354,361

2021-2023, Alfred P. Sloan Research Fellowship, $75,000

2020-2025, Packard Fellowship for Science and Engineering, $875,000

2020-2023, *"Shining Light on Supersonically Induced Gas Objects (SIGOs)"*, NASA ATP, $314,000

2021-2024, *"Collaborative Research: Stars from the Clouds - Turbulence, Magnetic Fields and the Dynamics of Star Cluster Formation"*, NSF AAG, $299,643

**Recent Invited Talks**

**2024**

*The National Academy of Sciences Frontiers of Science Symposium*, Beijing, November

*10th Anniversary of the Illustris Project*, Italy, November

*Computational Galaxy Formation*, Ringberg, October

The Darema Colloquium, UC Davis, September

*To Our Cosmic Horizon and Beyond: A Celebration of 20 Years of the Institute for Theory and Computation*, Cambridge, May

*The Fullness of Space: A Celebration of Chris Mckee*, Berkeley, May

*Recipes to Regulate Star Formation at All Scales: From the Nearby Universe to the First Galaxies*, Baltimore, April

Johns Hopkins Physics Colloquium, February

Harvard-Smithsonian Colloquium, February

Star Formation School, Les Houches, February

**2023**

*Cosmic turbulence and magnetic fields: physics of baryonic matter across time and scales*, Corsica, FR, September

*The Physics of Star Formation: From Stellar Cores to Galactic Scales*, Lyon, FR, June

Johns Hopkins Astronomy Colloquium, May

Wesleyan Astronomy Colloquium, May

Univ. Illinois Astronomy Colloquium, April

UC Berkeley Astronomy Colloquium, April

Harvard-Smithsonian CfA Colloquium, April

*KITP Galaxy Evolution with Data-Driven Astronomy*, Santa Barbara, March

**2022**

MSU Physics Colloquium, November

*SAGI workshop*, Invited Review, Vietnam, July

University of Heidelberg Astronomy Colloquium, June

*EPoS 2020 The Early Phase of Star Formation - Insights from Dynamics*, Invited Review, Ringberg, Germany, April

APS General Meeting, Invited Talk, March

UMASS Amherst Astronomy Colloquium, March

CU Boulder Astronomy Colloquium, February

*Galaxy Formation Workshop*, Tel Aviv, Israel, February

Arizona/Steward Astronomy Colloquium, January

*Young CMSO*, Durham, New Hampshire, October

**Teaching**

2024 Fall, *Physics 345: Computational Astrophysics*

2023 Fall, *Physics 345: Computational Astrophysics*

2022 Fall, *Physics 345: Computational Astrophysics*

2021 Fall, *Physics 610: Interstellar Matter*

2020 Fall, *Honors Seminar: The Past, Present, and Future of Prediction*

2019 Fall, *Physics 610: Interstellar Matter*

**Rutgers Student/Postdoc Supervision**

2024-2025, Tom Thomasson, Rutgers Undergrad.

2023-current, Madisen Johnson, Rutgers Grad.

2023-current, Dr. Shyam Menon, Rutgers/CCA FRF Postdoctoral Scholar

2023-current, Avi Chen, Rutgers Grad.

2022-current, Megan Pirecki, Rutgers Undergrad.

2020-current, Megan Tillman, Rutgers Grad.

2019-current, Dr. Matt Orr, Rutgers/CCA FRF Postdoctoral Scholar

2019-current, Diane Salim, Rutgers Grad.

2018-2024, Sabrina Appel, Rutgers Grad.

2021-2024, Lori Porter, CCA Undergrad. Intern

2021-2024, Avery Kiihne, Rutgers Undergrad.

2019-2023, Brandon Shane, Rutgers Undergrad.

2020-2021, Michael O'Brien, CCA Undergrad. Intern

**Other Student/Postdoc Supervision**

2018-2024, Mike Foley, Harvard Ph.D. Student

2018-2020, Lucas Barreto Santos, University of Sao Paulo Masters Student

2017-2019, Monica Gallegos-Garcia, Harvard Banneker & Aztlán Student

2016, Missy McIntosh, Harvard Senior Thesis

2015, Alex Gurvich, Harvard REU Student

2014, Chris Herron, UW Madison/Univ. Sydney Ph.D. Student

2012-2014, Caio Correia, UFRN Brazil Masters Student

2010, Ben Tofflemire, UW Madison REU student

**Conferences Organized**

2026 SOC, The National Academy of Sciences Frontiers of Science (FoS) symposium, Irvine, CA

2025 SOC Chair, *Turbulence in the Heavens: A Conference Honoring Alex Lazarian*, Cancun

2024 SOC, CCA-CFC Workshop on Extreme Star Formation, UT Austin

2024 SOC Co-Chair, *Eos Space Telescope Meeting*, New York

2024 SOC, *Extreme Star Formation*, Austin, TX

2023 KITP Conference Coordinator, *Galaxy Formation and Evolution in the Data Science Era*, Santa Barbara

2023 SOC Co-Chair, *Hyperion/Eos Space Telescope Meeting*, New York

2023 SOC, *FRBs at CCA*, New York

2023 SOC, *Olympian Symposium*, Greece

2022 SOC, *From Stars to Galaxies II*, Gothenburg, Sweden

2021 SOC, *The Interstellar Institute*, Paris, France

2020 SOC Chair, *The Interstellar Medium of Galaxies in the Era of Big Data*, AAS Mini-meeting, virtual

2019 SOC Chair, *Universality: Turbulence Across Vast Scales*, CCA, New York, NY

2019 SOC Chair, *Big Apple Magnetic Fields*, CCA, New York, NY

2017 SOC Chair, *Harvard-Heidelberg Star Formation Workshop*, Cambridge, MA

2017 SOC, *Magnetic Fields in the Universe VI*, Natal, Brazil

2016 SOC Chair, *Star formation, magnetic fields, and diffuse matter in the Galaxy: A conference honoring the contributions of Richard Crutcher & Carl Heiles*, Madison, WI

2015 SOC, *Harvard-Heidelberg Star Formation Workshop*, Cambridge, MA

2011, 2012, 2013, 2014 Conference Co-Organizer for the *Midwest Magnetic Fields*, Madison, WI

2011 Conference Co-Organizer for *ISM and Magnetic Fields Workshop*, Natal, Brazil

**Professional External Service**

2024-current The *Eos* Mission, NASA SMEX (proposed) Space Telescope, Science Team Co-Lead

2024 NASA Panelist

2024 Founder of CCA ISM Group

2023 JWST Cycle 2 Review Panelist

2022 Hubble Postdoctoral Fellowship Selection Committee

2021-2023 CCA Computational Steering Committee

2019-2022 *Hyperion*, NASA MIDEX (proposed) Space Telescope, Science Co-Lead

2021 Guest Editor, *Annual Review of Astronomy and Astrophysics*, Volume 59

2021-current Selection Committee for *The PI Launchpad: A NASA Space Mission Workshop*

2020 Founder of CATS: Catalogue for Astrophysical Turbulence Simulations, mhdturbulence.com

2019 *Advancing Theoretical Astrophysics Summer School*, teaching/organizing.

2019 *CCA Plasma Astrophysics Summer School*, teaching

2018-current Flatiron Research Postdoc Fellow (FRF) selection committee

2016-2019 NRAO Science Review Panel

2015, 2016 CfA Seminar & ITC Colloquium Co-Chair

2012-current Referee for: *Astrophysical Journal, Astrophysical Journal Letters, Astronomy & Astrophysics, Monthly Notices of the Royal Astronomical Society, Nature, Nature Astronomy*

**Rutgers Internal Service**

2025 Undergraduate Committee

Class of 2027 Undergrad Adviser

2024 Graduate Student Recruiting

2022-current Faculty Evaluator for the Rutgers SGS Deans Fellowships to Broaden Participation

2020-current Honors Student Mentor

2020, 2022 Graduate Admissions in Physics

2021, 2022 Qualifier Exam Committee

2022-current Building Committee

2020, 2021, 2024, 2025 Faculty Adviser for the Rutgers Astronomical Society

2019, 2024, 2025 Rutgers Astro Seminar/Colloquium Organizer

**Outreach**

2022-current *Open Interval* Dance Choreograph Collaboration

2020-2022 Rutgers Astronomical Society Speaker

2020 Rutgers Scarlet Speakers Public Talk

2019 CCA Telescope Outreach Coordinator

2017 Harvard Observatory Nights Public Talk

2013-2014 *5 Minute Astronomy*, Host of Podcast on iTunes, Featured on iTunes *New and Noteworthy*

2012-2014 *Radio Astronomy*, Host of weekly radio show WORT 89.9FM, Madison, WI

2011-2013 Outreach Coordinator for the Department of Astronomy, UW Madison

2008-2012 Organizer for *Expanding Your Horizons* (STEM middle school girl's program)

2008-2014 *Universe in the Park* telescope shows

2011 *Science Expeditions* Presenter, Madison, WI

2011 *Madison Middle School Science Symposium* Mentor

2008-2011 Public Outreach Talks at the UW Space Place and Local Public Schools

2010 *SciFest Africa* Exhibitioner, Grahamstown, South Africa

2009-2010 Writer for American Physical Society's *Physics Frontline*

2008-2009 Assistant Editor of *The Nucleus* (National Society of Physics Students website)

**Refereed Journal Publications**

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**++ denotes a student or postdoc primarily mentored by B. B.**

1. **Burkhart, B.**, Falceta-Gonçalves D., Kowal G., & Lazarian A., 2009, *"Density Studies of MHD Interstellar Turbulence: Statistical Moments, Correlations and Bispectrum"*, ApJ, 692, 250, arXiv:0811.0822
2. **Burkhart, B.**, Stanimirović S., Lazarian A., & Kowal G., 2010, *"Characterizing Magnetohydrodynamic Turbulence in the Small Magellanic Cloud"*, ApJ, 708, 1204, arXiv:0911.3652
3. ++Tofflemire, B. M., **Burkhart, B.**, & Lazarian, A., 2011, *"Interstellar Sonic and Alfvénic Mach Numbers and the Tsallis Distribution"*, ApJ, 736, 60, arXiv:1103.3299
4. Gaensler, B. M., Haverkorn, M., **Burkhart, B.**, Newton-McGee, K. J., Ekers, R. D., Lazarian, A., McClure-Griffiths, N. M., Robishaw, T., Dickey, J. M., & Green, A. J., 2011, *"Low-Mach-number turbulence in interstellar gas revealed by radio polarization gradients"*, Nature, 478, 214, arXiv:1110.2896
5. **Burkhart, B.**, Lazarian A., & Gaensler B. M., 2012, *"Properties of Interstellar Turbulence from Gradients of Linear Polarization Maps"*, ApJ, 749, 145, arXiv:1111.3544
6. **Burkhart, B.** & Lazarian A., 2012, *"The Column Density Variance-$\mathcal{M}_s$ Relationship"*, ApJ, 755, L19, arXiv:1205.3792
7. Saul, D. R., Peek, J. E. G., Grcevich, J., Putman, M. E., Douglas, K. A., Korpela, E. J., Stanimirović, S., Heiles, C., Gibson, S. J., Lee, M., Begum, A., Brown, A. R. H., **Burkhart, B.**, Hamden, E. T., Pingel, N. M., & Tonnesen, S., 2012, *"The GALFA-HI Compact Cloud Catalog"*, ApJ, 758, 44, arXiv:1208.4103
8. **Burkhart, B.**, Lazarian, A., Goodman, A., & Rosolowsky, E., 2013, *"Hierarchical Structure of Magnetohydrodynamic Turbulence in Position-position-velocity Space"*, ApJ, 770, 141, arXiv:1206.4703
9. **Burkhart, B.**, Ossenkopf, V., Lazarian, A., & Stutzki, J., 2013, *"The Effects of Radiative Transfer on the Probability Distribution Functions of Molecular Magnetohydrodynamic Turbulence"*, ApJ, 771, 122, arXiv:1304.3131
10. **Burkhart, B.**, Lazarian, A., Ossenkopf V., & Stutzki J., 2013, *"The Turbulence Power Spectrum in Optically Thick Interstellar Clouds"*, ApJ, 771, 123, arXiv:1305.3619
11. Pingel, N., Stanimirović, S., Peek, J. E. G., Lee, M.-Y., Lazarian, A., **Burkhart, B.**, Begum, A., Douglas, K. A., Heiles, C., Gibson, S. J., Grcevich, J., Korpela, E. J., Lawrence, A., Murray, C., Putman, M. E., & Saul, D., 2013, *"Characterizing the Turbulent Properties of the Starless Molecular Cloud MBM 16"*, ApJ, 779, 36, arXiv:1310.7244
12. ++Correia, C., **Burkhart, B.**, Lazarian, A., Ossenkopf, V., Stutzki, J., Kainulainen J., Kowal, G., & de Medeiros, J. R., 2013, *"Opacity Broadening of $^{13}CO$ Linewidths and its Effects on the Variance-Sonic Mach Number Relation"*, ApJ, 785, L1, arXiv:1402:6702
13. Meyer, C. D., Balsara, D. S., **Burkhart, B.**, & Lazarian, A., 2013, *"Observational diagnostics for two-fluid turbulence in molecular clouds as suggested by simulations"*, MNRAS, 439, 219, arXiv:1307.3527
14. ++Iacobelli, M., **Burkhart, B.**, Haverkorn, M., Lazarian, A., Carretti, E., Staveley-Smith, L., Gaensler, B. M., Bernardi, G., Kesteven, M. J., & Poppi, S., 2014, *"Galactic interstellar turbulence across the southern sky seen through spatial gradients of the polarization vector"*, A&A, 566, A5, arXiv:1404.6077
15. **Burkhart, B.**, Lazarian A., Leão, I. C., & de Medeiros, J. R., 2014, *"Measuring the Alfvénic Nature of the Interstellar Medium: Velocity Anisotropy Revisited"*, ApJ, 790, 130, arXiv:1408.4858
16. **Burkhart, B.**, Lazarian A., Balsara, D., Meyer, C., & Cho, J., 2015, *"Alfvénic Turbulence Beyond the Ambipolar Diffusion Scale"*, ApJ, 805, 118, arXiv:1412.3452
17. **Burkhart, B.**, Collins, D. C., & Lazarian, A., 2015, *"Observational Diagnostics of Self-gravitating MHD Turbulence in Giant Molecular Clouds"*, ApJ, 808, 48, arXiv:1505.03855

**18.** Chepurnov, A., **Burkhart, B.**, Lazarian, A., & Stanimirović, S., 2015, *"The Turbulence Velocity Power Spectrum of Neutral Hydrogen in the Small Magellanic Cloud"*, ApJ, 810, 33, arXiv:1506.03448

**19.** **Burkhart, B.**, Lee, M.-Y., Murray, C. E., & Stanimirović, S., 2015, *"The Lognormal Probability Distribution Function of the Perseus Molecular Cloud: A Comparison of H I and Dust"*, ApJ, 811, L28, arXiv:1509.02889

**20.** ++Correia, C., Lazarian, A., **Burkhart, B.**, Pogosyan, D., & de Medeiros, J. R., 2016, *"Principal Component Analysis Studies of Turbulence in Optically Thick Gas"*, ApJ, 818, 118, arXiv: 1511.03712

**21.** ++Herron, C. A., **Burkhart, B.**, Lazarian, A., Gaensler, B. M., & McClure-Griffiths, N. M., 2015, *"Radio Synchrotron Fluctuation Statistics as a Probe of Magnetized Interstellar Turbulence"*, ApJ, 822, 13, arXiv:1603.02751

**22.** Krumholz, M. R. & **Burkhart, B.**, 2016, *"Is turbulence in the interstellar medium driven by feedback or gravity? An observational test"*, MNRAS, 458, 1671, arXiv:1512.03439

**23.** **Burkhart, B.** & Loeb, A., 2016, *"Predicted Sizes of Pressure-Supported H I Clouds in the Outskirts of the Virgo Cluster"*, ApJ, 834, L7, arXiv:1604.01767

**24.** **Burkhart, B.** & Lazarian, A., 2016, *"The Phase Coherence of Interstellar Density Fluctuations"*, ApJ, 827, 26, arXiv:1511.03660

**25.** Imara, N. & **Burkhart, B.**, 2016, *"The H I Probability Distribution Function and the Atomic-to-molecular Transition in Molecular Clouds"*, ApJ, 829, 2, arXiv:1609.04817

**26.** **Burkhart, B.**, Stalpes, K., & Collins, D. C., 2017, *"The Razor's Edge of Collapse: The Transition Point from Lognormal to Power-Law Distributions in Molecular Clouds"*, ApJ, 834, L1, arXiv:1609.04409

**27.** ++Gurvich, A., **Burkhart, B.**, & Bird, S., 2017, *"The Effect of AGN Heating on the Low-redshift Ly$\alpha$ Forest"*, ApJ, 835, 175, arXiv:1608.03293

**28.** Hoang, T., Lazarian, A., **Burkhart, B.**, & Loeb, A., 2017, *"The Interaction of Relativistic Spacecrafts with the Interstellar Medium"*, ApJ, 837, 5, arXiv:1608.05284

**29.** Mocz, P., **Burkhart, B.**, Hernquist, L., McKee, C. F., & Springel, V., 2017, *"Moving-mesh Simulations of Star-forming Cores in Magneto-gravo-turbulence"*, ApJ, 838, 40, arXiv:1702.06133

**30.** Herron, C. A., Federrath, C., Gaensler, B. M., McClure-Griffiths, N. M., & **Burkhart, B.**, 2017, *"Probes of turbulent driving mechanisms in molecular clouds from fluctuations in synchrotron intensity"*, MNRAS, 466, 2272, arXiv:1612.05672

**31.** Hull, C. L. H., Mocz, P., **Burkhart, B.**, Goodman, A. A., Girart, J. M., Cortés, P. C., Hernquist, L., Springel, V., Li, Z.-Y., & Lai, S.-P., 2017, *"Unveiling the Role of the Magnetic Field at the Smallest Scales of Star Formation"*, ApJ, 842, L9, arXiv:1706.03806

**32.** ++Bialy, S., **Burkhart, B.**, & Sternberg, A., 2017, *"The H I-to-$H_2$ Transition in a Turbulent Medium"*, ApJ, 843, 92, arXiv:1703.08549

**33.** **Burkhart, B.** & Loeb, A., 2017, *"The Detectability of Radio Auroral Emission from Proxima b"*, ApJ, 849, L10, arXiv:1706.07038

**34.** ++Herron, C. A., **Burkhart, B.**, Gaensler, B. M., Lewis, G. F., McClure-Griffiths, N. M., Bernardi, G., Carretti, E., Haverkorn, M., Kesteven, M., Poppi, S., & Staveley-Smith, L., 2018, *"Advanced Diagnostics for the Study of Linearly Polarized Emission. II. Application to Diffuse Interstellar Radio Synchrotron Emission"*, ApJ, 855, 29, arXiv:1802.05403

**35.** ++Pingel, N. M., Lee, M.-Y., **Burkhart, B.**, & Stanimirović, S., 2018, *"Multi-phase Turbulence Density Power Spectra in the Perseus Molecular Cloud"*, ApJ, 856, 136, arXiv:1802.10092

**36.** ++Chen, H. H.-H., **Burkhart, B.**, & Goodman, A., 2018, *"The Anatomy of the Column Density Probability Distribution Function (N-PDF)"*, ApJ, 859, 162, arXiv:1707.09356

**37.** Kong, S., et al. (including **Burkhart, B.** and 36 co-authors), 2018, *"The CARMA-NRO Orion Survey*, ApJS, 236, 25, arXiv:1803.11522

**38.** Krumholz, M., **Burkhart, B.**, Forbes, J., & Crocker, R., *"A unified model for galactic discs: star formation, turbulence driving, and mass transport"*, 2018, MNRAS, 477, 2716, arXiv:1706.00106

**39.** Portillo, S. K. N., Slepian, Z., **Burkhart, B.**, Kahraman, S., & Finkbeiner, D. P., 2018, *"Developing the 3-point Correlation Function for the Turbulent Interstellar Medium"*, ApJ, 862, 119, arXiv:1711.09907

**40.** **Burkhart, B.**, 2018, *"The Star Formation Rate in the Gravoturbulent Interstellar Medium"*, ApJ, 863, 118, arXiv:1801.05428

**41.** Yuen, K. H., Chen, J., Hu, Y., Ho, K. W., Lazarian, A., Lazarian, V., Yang, B., **Burkhart, B.**, Correia, C., Cho, J., Canto, B., & de Medeiros, J. R., 2018, *"Statistical Tracing of Magnetic Fields: Comparing and Improving the Techniques"*, ApJ, 865, 54, arXiv:1804.02732

**42.** Mocz, P. & **Burkhart, B.**, 2018, *"Star formation from dense shocked regions in supersonic isothermal magnetoturbulence turbulence"*, MNRAS, 480, 3916, arXiv:1805.11105

**43.** González-Casanova, D., Lazarian, A., & **Burkhart, B.**, 2019, *"Velocity centroid gradients for absorbing media"*, MNRAS, 483, 1287, arXiv:1703.03035

**44.** Chiou, Y., Naoz, S., **Burkhart, B.**, Marinacci, F., & Vogelsberger, M., 2019, *"The Supersonic Project: Shining Light on SIGOs — A New Formation Channel for Globular Clusters"*, ApJ, 878, L23, arXiv:1904.08941

**45.** Koch, E. W., Rosolowsky, E. W., Boyden, R. D., **Burkhart, B.**, Ginsburg, A, Loeppky, J. L., & Offner, S. S. R., 2019, *"TURBUSTAT: Turbulence Statistics in Python"*, AJ, 158, 1, arXiv:1904.10484

**46.** **Burkhart, B.** & Mocz, P., 2019, *"The Self-gravitating Gas Fraction and the Critical Density for Star Formation"*, ApJ, 879, 129, arXiv:1805.11104

**47.** Peek, J. & **Burkhart, B.**, 2019, *"Do Androids Dream of Magnetic Fields? Using Neural Networks to Interpret the Turbulent Interstellar Medium"*, ApJ, 882, L12, arXiv:1905.00918

**48.** Basu, A., Schwarz, D. J., Klöckner, H.-R., von Hausegger, S., Kramer, M., Wieching, G., & **Burkhart, B.**, 2019, *"CMB foreground measurements through broad-band radio spectro-polarimetry: prospects of the SKA-MPG telescope"*, MNRAS, 488, 161, arXiv:1906.04788

**49.** Mocz, P. & **Burkhart, B.**, 2019, *"A Markov Model for Non-lognormal Density Distributions in Compressive Isothermal Turbulence"*, ApJ, 884, L35, arXiv:1908.00544

**50.** Bialy, S., Neufeld, D., Wolfire, M., Sternberg, A., & **Burkhart, B.**, 2019, *"Chemical Abundances in a Turbulent Medium — $H_2$, $OH^+$, $H_2O^+$, $ArH^+$"*, ApJ, 885, 109, arXiv:1909.12305

**51.** Basu, A., Fletcher, A., Mao, S. A., **Burkhart, B.**, Beck, R., & Schnitzeler, D., 2019, *"An In-depth Investigation of Faraday Depth Spectrum Using Synthetic Observations of Turbulent MHD Simulations"*, Galaxies, 7, 89, arXiv:1911.09029

**52.** Rosen, A. L., Li, P. S., Zhang, Q., & **Burkhart, B.**, 2019, *"Massive-star Formation via the Collapse of Subvirial and Virialized Turbulent Massive Cores"*, ApJ, 887, 108, arXiv:1902.10153

**53.** Raymond, J. C., Chilingarian, I. V., Blair, W. P., Sankrit, R., Slavin, J. D., & **Burkhart, B.**, 2020, *"Turbulence and Energetic Particles in Radiative Shock Waves in the Cygnus Loop. I. Shock Properties"*, ApJ, 894, 108, arXiv:2004.09567

**54.** ++Bialy, S. & **Burkhart, B.**, 2020, *"The Driving Scale-Density Decorrelation Scale Relation in a Turbulent Medium"*, ApJ, 894, L2, arXiv:1909.12305

**55.** ++Gallegos-Garcia, M., **Burkhart, B.**, Rosen, A. L., Naiman, J. P., & Ramirez-Ruiz, E., 2020, *"Winds in Star Clusters Drive Kolmogorov Turbulence"*, ApJ, 899, L30, arXiv:2006.14626

**56.** Heyer, M., Soler, J. D., & **Burkhart, B.**, 2020, *"The relative orientation between the magnetic field and gradients of surface brightness within thin velocity slices of $^{12}CO$ and $^{13}CO$ emission from the Taurus molecular cloud"*, MNRAS, 496, 4546, arXiv:2006.10775

**57.** Yuan, Y., Krumholz, M. R., & **Burkhart, B.**, 2020, *"Understanding biases in measurements of molecular cloud kinematics using line emission"*, MNRAS, 498, 2440, arXiv:2007.13488

**58.** Raymond, J. C., Slavin, J. D., Blair, W. P., Chilingarian, I. V., **Burkhart, B.**, & Sankrit, R., 2020, *"Turbulence and Energetic Particles in Radiative Shock Waves in the Cygnus Loop. II. Development of Postshock Turbulence"*, ApJ, 903, 2, arXiv:2010.12911

**59.** Pandya, V., Somerville, R. S., Anglés-Alcázar, D., Hayward, C. C., Bryan, G. L., Fielding, D. B., Forbes, J. C., **Burkhart, B.**, Genel, S., Hernquist, L., Kim, C.-G., Tonnesen, S., & Starkenburg, T., 2020, *"First Results from SMAUG: The Need for Preventative Stellar Feedback and Improved Baryon Cycling in Semianalytic Models of Galaxy Formation"*, ApJ, 905, 4, arXiv:2006.16317

**60.** **Burkhart, B.**, et al., 2020, *"The Catalogue for Astrophysical Turbulence Simulations (CATS)"*, ApJ, 905, 14, arXiv:2010.11227

**61.** Chiou, Y. S., Naoz, S., **Burkhart, B.**, Marinacci, F., & Vogelsberger, M., 2021, *"The Supersonic Project: To Cool or Not to Cool Supersonically Induced Gas Objects (SIGOs)?"*, ApJ, 906, 25, arXiv:2008.02808

**62.** Takemura, H. et al. (including **Burkhart, B.** and 30 co-authors), 2021, *"The Core Mass Function in the Orion Nebula Cluster Region: What Determines the Final Stellar Masses?"*, 2021, ApJ, 910, L6, arXiv:2103.08527

**63.** Saydjari, A. K., Portillo, S. K. N., Slepian, Z., Kahraman, S., **Burkhart, B.**, & Finkbeiner, D. P., 2021, *"Classification of Magnetohydrodynamic Simulations Using Wavelet Scattering Transforms"*, ApJ, 910, 122, arXiv:2010.11963

**64.** ++Barreto-Mota, L., de Gouveia Dal Pino, E. M., **Burkhart, B.**, Melioli, C., Santos-Lima, R., & Kadowaki, L. H. S., 2021, *"Magnetic field orientation in self-gravitating turbulent molecular clouds"*, MNRAS, 503, 5425, arXiv:2101.03246

**65.** Villaescusa-Navarro, F., Anglés-Alcázar, D., Genel, S., Spergel, D. N., Somerville, R. S., Davé, R., Pillepich, A., Hernquist, L., Nelson, D., Torrey, P., Narayanan, D., Li, Y., Philcox, O., La Torre, V., Delgado, A. M., Ho, S., Hassan, S., **Burkhart, B.**, Wadekar, D., Battaglia, N., & Contardo, G., 2021, *"The CAMELS Project: Cosmology and Astrophysics with Machine Learning Simulations"*, ApJ, 915, 71, arXiv:2010.00619

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