

Prof. Blakesley K. Burkhart

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Appointments

Assistant Professor, Rutgers, the State University of New Jersey, 2019-present
Associate Research Scientist, Flatiron Institute Center for Computational Astrophysics, 2018-present
Institute for Theory and Computation (ITC) Postdoctoral Fellow, Harvard, 2017-2018
NASA Einstein Postdoctoral Fellow (NASA Hubble Fellowship Program), 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, 2008, *Magna Cum Laude*

Awards and Honors

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
2004 University of Louisville Presidential Scholarship

Recent Invited Talks (Selected)

2022

Invited Review, Vietnam, July

Heidelberg Colloquium, June

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

APS General Meeting, Invited Talk, March

UC Boulder Colloquium, February

Galaxy Formation Workshop, Tel Aviv, Israel, February

Arizona/Steward Colloquium, January

2021

1st VARNET Workshop on Star Formation and Stellar Feedback, December

APS MAS, Invited Review, December

NASA Cosmic Origins Program - Stars Science Interest Group Invited Review, November

JPL Colloquium, September

MagNet, Madison, WI, August

The Grand Cascade, Paris, France, July

AAS Plenary Talk, Virtual, June

AAS-LAD Invited Talk, Virtual, June

2020

UW Madison, Colloquium, December

Computational Galaxy Formation 2020, Ringberg, Germany, April

Where the Star Formation Ends, Leiden, Netherlands, March

Magnetic Fields in the Universe VI, Vietnam, February

2019

Confronting simulations with observations from pc to Mpc scale, Hunter Valley, Australia, November

LOFAR MKSP Annual Meeting, Bochum, Germany, September

SO-Star, Paris, France, September

Joint IAS/Princeton Colloquium, Princeton, March

Life and Death of Star Forming Galaxies, Perth, Australia, March

Teaching

2022 Fall, *Physics 345: Computational Astrophysics*, Rutgers

2021 Fall, *Physics 610: Interstellar Matter*, Rutgers

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

2019 Fall, *Physics 610: Interstellar Matter*, Rutgers

2016 Spring, Guest Instructor *Ast 253, Plasma Astrophysics*, Harvard University

2014 Spring, Teaching Assistant, *Ast 104, Exploration of the Solar System*, UW Madison

2008 Spring, Teaching Assistant, *Physics 224*, University of Louisville

2006-2008 Supplemental Instructor of Physics (6 semesters), University of Louisville

Student/Postdoc Supervision

Current:

2022-current, Megan Pirecki, Rutgers Undergrad. Student
2021-current, Lori Porter, CCA Undergrad. Intern
2020-current, Megan Tillman, Rutgers Grad. Student
2019-current, Dr. Matt Orr, Rutgers/CCA Postdoctoral Scholar
2019-current, Diane Salim, Rutgers Grad. Student
2018-current, Sabrina Appel, Rutgers Grad. Student

Past:

2021-2022, Avery Kiihne, Rutgers Undergrad. Student
2019-2022, Brandon Shane, Rutgers Undergrad. Student
2018-2022, Michael Foley, Harvard Grad. Student
2020-2021, Michael O'Brien, CCA Undergrad. Intern
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

Grants (total since 2019: \$2.07 million)

2022-2025, “*A Revolution for Astrophysical Turbulence Using Machine Learning*”, NASA FINESST, \$150,000
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

Conferences Organized

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 Service (selected)

2022 Faculty Evaluator for the Rutgers SGS Deans Fellowships to Broaden Participation
2022 Hubble Postdoctoral Fellowship Selection Committee
2021-current CCA Computational Steering Committee
2021-current Hyperion UV NASA MIDEX (proposed) Space Telescope, Science Co-Lead
2021 Guest Editor, *Annual Review of Astronomy and Astrophysics*, Volume 59
2021 Selection Committee for *The PI Launchpad: A NASA Space Mission Workshop*
2020-current Faculty Adviser for the Rutgers Astronomical Society
2020 Founder of CATS: Catalogue for Astrophysical Turbulence Simulations, mhdturbulence.com
2019 Rutgers Astro Seminar/Colloquium Organizer
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*

Outreach (selected)

2022-current *Open Interval* Dance Choreograph Collaboration
2020-2022 Rutgers Astronomical Society Faculty mentor
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
2010 *SciFest Africa* Exhibitioner, Grahamstown, South Africa
2009-2010 Writer for American Physical Society's *Physics Frontline*

Refereed Journal Publications

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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:1103.3299¹
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- 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 Ultra-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

¹++ denotes a student or postdoc primarily mentored by B. B.

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 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 HI 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 HI 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 HI 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 α 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 HI-to-H₂ 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., & Starckenburg, 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
66. Smith, M. C., Bryan, G. L., Somerville, R. S., Hu, C.-Y., Teyssier, R., **Burkhart, B.**, & Hernquist, L., 2021, “*Efficient early stellar feedback can suppress galactic outflows by reducing supernova clustering*”, MNRAS, 506 3882, arXiv:2009.11309
67. **Burkhart, B.**, 2021, “*Diagnosing the Magnetized Turbulent Interstellar Medium of Galaxies*”, a review in the *Publications of the Astronomical Society of the Pacific*, 133, 1028 , arXiv:2106.02239
68. Olsen, K., **Burkhart, B.**, Mac Low, M. M., Treß, R. G., Greve, T. R., Vizgan, D., Motka, J., Borrow, J., Popping, G., Davé, R., Smith, R. J., & Narayan, D., 2021, “*SIGAME v3: Gas Fragmentation in Post-processing of Cosmological Simulations for More Accurate Infrared Line Emission Modeling*”, ApJ, 922, 880, arXiv:2102.02868
69. Nelson, E. J., Tacchella, S., Diemer, B., Leja, J., Hernquist, L., Whitaker, K. E., Weinberger, R., Pillepich, A., Nelson, D., Terrazas, B. A., Nevin, R., Brammer, G. E., **Burkhart, B.**, Cochrane, R., van Dokkum P., Johnson, B. D., Mowla, L., Pakmor, R., Skelton, R., Speagle, J., Springel, V., Torrey, P., Vogelsberger, M., & Wuyts, S., 2021, “*Spatially resolved star formation and inside-out quenching in the TNG50 simulation and 3D-HST observations*”, MNRAS, 508, 219, arXiv:2101.12212
70. Lake, W., Naoz, S., Chiou, Y. S., **Burkhart, B.**, Marinacci, F., Vogelsberger, M., & Kremer, K. 2021, “*The Supersonic Project: SIGOs, a Proposed Progenitor to Globular Clusters, and their Connections to Gravitational Wave Anisotropies*”, ApJ, 922, 86, arXiv:2104.11226
71. Sharda, P., Menon, S., Federrath, C., Krumholz, M., Jameson, K., Beattie, J., Tokuda, K., **Burkhart, B.**, Fukui, Y., Sano, H., Pingel, N., Seta, A., Crocker, R., Plucinsky, P., & Gaetz, T., 2021, “*First extragalactic measurement of the turbulence driving parameter: ALMA observations of the star-forming region N159E in the Large Magellanic Cloud*”, MNRAS, 509, 2180, arXiv: 2109.03983

72. ++Appel, S., **Burkhart, B.**, Semenov, V., Federrath, C., & Rosen, A., “ *The Effects of Outflow Feedback on the Density Distribution of Star Forming Clouds*”, 2022, ApJ, 927, 75, arXiv: 2109.13271
73. ++Orr, M., Fielding D., Hayward, C., & **Burkhart, B.**, 2022, “*Bursting Feedback’s Bubble: Clustered SNe and the Trade-off Between Turbulence and Outflows*”, ApJ, 932, 88O, arXiv: 2109.14656
74. ++Orr, M., Fielding D., Hayward, C., & **Burkhart, B.**, 2022, “*Bursting Bubbles: Clustered SNe Feedback in Local and High-redshift Galaxies* ”, ApJL, 924, 28O, arXiv: 2109.14626
75. ++O’Brien, M., **Burkhart, B.**, & Shelley, M, 2022, “*Identifying Turbulence Driving Scales with Bispectral Analysis*”, ApJ, 930, 149O, arXiv: 2203.13334
76. Hensley et al., (including **Burkhart, B.**), 2022, “*The Simons Observatory: Galactic Science Goals and Forecasts*”, AAS journals, submitted, arXiv:2111.02425
77. Villaescusa-Navarro, F., et al. (including **Burkhart, B.**), 2022, “*The CAMELS project: public data release*”, MNRAS, submitted, arXiv:2201.01300
78. ++Porter, L., Orr, M., **Burkhart, B.** et al., 2022, “*Spatially Resolved Gas-phase Metallicity in FIRE-2 Dwarfs: Affecting Metallicity Relations with Star Formation and Mergers*”, MNRAS, 515, 3, arXiv:2204.06572
79. **Burkhart, B.**, Tillman, M., Gurvich, A., Bird, S., Tonneson, S., Bryan, G., & Somerville, R., 2022, “*The low redshift Lyman- α Forest as a constraint for models of AGN feedback*”, ApJL, 933, 46, arXiv:2204.09712
80. Forbes, J., Emami, R., Somerville, R., Genel, S., Torrey, P., Hernquist, L., Pillepich, A., Nelson, D., **Burkhart, B.**, Bryan, G., Krumholz, M., & Hayward C., 2022, “*Accretion Driven Turbulence*”, MNRAS, submitted, arXiv:2204.05344
81. Steinwandel, U., Bryan G., Somerville, R., Hayward, C., & **Burkhart, B.** “*On the impact of Walkaway and Runaway stars on resolved galaxy outflows in dwarf galaxies*”, MNRAS, submitted, arXiv:2205.09774
82. Takemura, H., et al., including **Burkhart, B.**, 2022, “*CARMA-NRO Orion Survey: unbiased survey of dense cores and core mass functions in Orion A*”, MNRAS, submitted.
83. Hamden, E., Schiminovich, D., Nikzad, S., Turner N., **Burkhart, B.** et al., 2022, “*Hyperion: The origin of the stars A FUV high-resolution wide-field spectrograph*”, JATIS, submitted
84. ++Orr, M., **Burkhart, B.**, et al., 2022, “*Azimuthal Gas-Phase Metallicity Variations: Spiral Arms are Metal Freeways*”, MNRAS, submitted
85. Lake, W., Naoz, S., **Burkhart, B.**, et al., 2022, “ *The Supersonic Project: The Early Evolutionary Path of SIGOs*”, MNRAS, submitted, arXiv:2208.05987