Drummond B. Fielding

Publication List

Flatiron Research Fellow

Center for Computational Astrophysics, Flatiron Institute, 162 Fifth Ave., New York, NY 10010, USA

☑ drummondfielding@gmail.com ☑ dfielding14.github.io 🖺 arXiv

Publications — ADS search — ORCID

refereed: 30 – citations: 1097 – h-index: 20 (2022-10-31)

First Author

- Fielding, D. B.; Bryan, G. L., The Structure of Multiphase Galactic Winds, ApJ, **924**, 82, 2022 (arXiv:2108.05355) [24 citations]
- ⁶ Fielding, D. B.; Tonnesen, S.; DeFelippis, D.; Li, M. et al., First Results from SMAUG: Uncovering the Origin of the Multiphase Circumgalactic Medium with a Comparative Analysis of Idealized and Cosmological Simulations, ApJ, 903, 32, 2020 (arXiv:2006.16316) [30 citations]
- ⁵ **Fielding, D. B.**; Ostriker, E. C.; Bryan, G. L.; Jermyn, A. S., *Multiphase Gas and the Fractal Nature of Radiative Turbulent Mixing Layers*, ApJ, **894**, 2020 (arXiv:2003.08390) [65 citations]
- ⁴ **Fielding, D. B.**; Quataert, E.; Martizzi, D., Clustered supernovae drive powerful galactic winds after superbubble breakout, MNRAS, **481**, 3325, 2018 (arXiv:1807.08758) [87 citations]
- ³ **Fielding, D. B.**; Quataert, E.; Martizzi, D.; Faucher-Giguère, C., *How supernovae launch galactic winds*, MNRAS, **470**, 2017 (arXiv:1704.01579) [61 citations]
- ² Fielding, D. B.; Quataert, E.; McCourt, M.; Thompson, T. A., The impact of star formation feedback on the circumgalactic medium, MNRAS, 466, 3810, 2017 (arXiv:1606.06734) [111 citations]
- Fielding, D. B.; McKee, C. F.; Socrates, A.; Cunningham, A. J. et al., The turbulent origin of spin-orbit misalignment in planetary systems, MNRAS, 450, 3306, 2015 (arXiv:1409.5148) [73 citations]

Second Author (*=primary mentor for student lead project)

- 9 *Abruzzo, M. W.; Fielding, D. B.; Bryan, G. L., Taming the TuRMoiL: The Temperature Dependence of Turbulence in Cloud-Wind Interactions, 2022 (arXiv:2210.15679)
- 8 Orr, M. E.; **Fielding, D. B.**; Hayward, C. C.; Burkhart, B., Bursting Bubbles: Feedback from Clustered Supernovae and the Trade-off Between Turbulence and Outflows, ApJ, **932**, 88, 2022 (arXiv:2109.14656) [7 citations]
- 7 Orr, M. E.; **Fielding, D. B.**; Hayward, C. C.; Burkhart, B., Bursting Bubbles: Clustered Supernova Feedback in Local and High-redshift Galaxies, ApJ, **924**, 2022 (arXiv:2109.14626) [3 citations]

- ⁶ *Pandya, V.; **Fielding, D. B.**; Anglés-Alcázar, D.; Somerville, R. S. *et al.*, *Characterizing mass, momentum, energy, and metal outflow rates of multiphase galactic winds in the FIRE-2 cosmological simulations*, MNRAS, **508**, 2979, 2021 (arXiv:2103.06891) [26 citations]
- 5 Stachenfeld, K.; **Fielding, D. B.**; Kochkov, D.; Cranmer, M. et al., Learned Coarse Models for Efficient Turbulence Simulation, 2021 (arXiv:2112.15275) [8 citations]
- ⁴ *Butsky, I. S.; **Fielding, D. B.**; Hayward, C. C.; Hummels, C. B. *et al.*, *The Impact of Cosmic Rays on Thermal Instability in the Circumgalactic Medium*, ApJ, **903**, 77, 2020 (arXiv:2008.04915) [45 citations]
- 3 Stern, J.; Fielding, D. B.; Faucher-Giguère, C.; Quataert, E., *The maximum accretion rate of hot gas in dark matter haloes*, MNRAS, **492**, 6042, 2020 (arXiv:1909.07402) [27 citations]
- 2 Stern, J.; Fielding, D. B.; Faucher-Giguère, C.; Quataert, E., Cooling flow solutions for the circumgalactic medium, MNRAS, 488, 2549, 2019 (arXiv:1906.07737) [42 citations]
- 1 Martizzi, D.; **Fielding, D. B.**; Faucher-Giguère, C.; Quataert, E., Supernova feedback in a local vertically stratified medium: interstellar turbulence and galactic winds, MNRAS, **459**, 2311, 2016 (arXiv:1601.03399) [83 citations]

Co-author

- Butsky, I. S.; Werk, J. K.; Tchernyshyov, K.; Fielding, D. B. et al., The Impact of Cosmic Rays on the Kinematics of the Circumgalactic Medium, ApJ, 935, 69, 2022 (arXiv:2106.14889) [7 citations]
- Hafen, Z. et al. (incl. **DBF**), Hot-mode accretion and the physics of thin-disc galaxy formation, MNRAS, **514**, 5056, 2022 (arXiv:2201.07235) [14 citations]
- Abruzzo, M. W.; Bryan, G. L.; **Fielding, D. B.**, *A Simple Model for Mixing and Cooling in Cloud-Wind Interactions*, ApJ, **925**, 199, 2022 (arXiv:2101.10344) [14 citations]
- Stern, J. et al. (incl. **DBF**), Neutral CGM as damped Ly α absorbers at high redshift, MNRAS, **507**, 2869, 2021 (arXiv:2105.06489) [8 citations]
- Stern, J.; Faucher-Giguère, C.; **Fielding, D. B.**; Quataert, E. et al., Virialization of the Inner CGM in the FIRE Simulations and Implications for Galaxy Disks, Star Formation, and Feedback, ApJ, **911**, 88, 2021 (arXiv:2006.13976) [43 citations]
- 9 Pandya, V. et al. (incl. DBF), First Results from SMAUG: The Need for Preventative Stellar Feed-back and Improved Baryon Cycling in Semianalytic Models of Galaxy Formation, ApJ, 905, 4, 2020 (arXiv:2006.16317) [22 citations]
- 8 Burkhart, B. et al. (incl. **DBF**), The Catalogue for Astrophysical Turbulence Simulations (CATS), ApJ, **905**, 14, 2020 (arXiv:2010.11227) [8 citations]
- ⁷ Kim, C.; Ostriker, E. C.; **Fielding, D. B.**; Smith, M. C. *et al.*, A *Framework for Multiphase Galactic Wind Launching Using TIGRESS*, ApJ, **903**, 2020 (arXiv:2010.09090) [16 citations]
- ⁶ Kim, C. et al. (incl. **DBF**), First Results from SMAUG: Characterization of Multiphase Galactic Outflows from a Suite of Local Star-forming Galactic Disk Simulations, ApJ, **900**, 61, 2020 (arXiv:2006.16315) [48 citations]
- 5 Lochhaas, C. et al. (incl. **DBF**), Properties of the simulated circumgalactic medium, MNRAS, **493**, 1461, 2020 (arXiv:1908.00021) [24 citations]

- 4 Martizzi, D.; Quataert, E.; Faucher-Giguère, C.; **Fielding, D. B.**, *Simulations of jet heating in galaxy clusters: successes and challenges*, MNRAS, **483**, 2465, 2019 (arXiv:1805.06461) [36 citations]
- 3 Stern, J. et al. (incl. **DBF**), Does Circumgalactic O VI Trace Low-pressure Gas Beyond the Accretion Shock? Clues from H I and Low-ion Absorption, Line Kinematics, and Dust Extinction, ApJ, **865**, 91, 2018 (arXiv:1803.05446) [37 citations]
- ² Offner, S. S. R. et al. (incl. **DBF**), The Turbulent Origin of Outflow and Spin Misalignment in Multiple Star Systems, ApJ, **827**, 2016 (arXiv:1606.08445) [68 citations]
- Schlieder, J. E. et al. (incl. **DBF**), The Na 8200 Å Doublet as an Age Indicator in Low-mass Stars, AJ, **143**, 114, 2012 (arXiv:1202.4191) [60 citations]

Submitted & In Prep.

- **Fielding, D. B.**; Ripperda, B., Philippov, S., *Plasmoid Instability in the Multiphase Interstellar Medium* [Submitted to ApJ—on arXiv by 8 Nov 2022]
- **Fielding, D. B.**; Chen, Z.; Bryan, G. L., The Anatomy of a Turbulent Radiative Mixing Layer: Essential properties of 3D Simulations [on arXiv by 1 Dec 2022]
- Smith, M.; **Fielding, D. B.**; Bryan, G. L.; Kim, C.G.; Ostriker, E.; Somerville, R., *Arkenstone I* [on arXiv by 15 Nov 2022]
- *Chen, Z., **Fielding, D. B.**; Bryan, G. L., *The Anatomy of a Turbulent Radiative Mixing Layer: Insights from an Intuitive Analytic Model* [Submitted to ApJ—on arXiv by 3 Nov 2022]
- Pandya, V.; Fielding, D. B.; Bryan, G. L.; Carr, C.; Somerville, R., A unified model for the co-evolution of galaxies and their circumgalactic medium: the relative roles of turbulence and atomic cooling physics[Submitted to ApJ—on arXiv by 14 Nov 2022]
- *Tan, B.; **Fielding, D. B.**; The Fate of Cold Clouds in Realistic Galactic Winds[on arXiv by 1 Dec 2022]
- *Chow, A.; Fielding, D. B.; Bryan, G. L., Modeling Non-homogeneous Cold Cloud Population in Multiphase Galactic Winds[on arXiv by 1 Dec 2022]
- Stern, J.; **Fielding, D. B.**; Naor, N., On the structure of hot, rotating, turbulent CGM and how they feed disk galaxies[on arXiv by 15 Dec 2022]
- Carr, C.; Bryan, G. L.; **Fielding, D. B.**; Pandya, V.; Somerville, R., *Regulation of Star Formation by a Hot Circumgalactic Medium*[on arXiv by 15 Nov 2022]
- Damle, M., Tonnesen, S., **Fielding, D. B.**; Sparre, M., How satellites influence the cold CGM around TNG50 galaxies[on arXiv by 15 Dec 2022]
- Roy, M., Su, K.Y., Tonnesen, S., **Fielding, D. B.**, *Seeding the CGM*; How Satellites Populate the Cold Phase of Milky Way Halos[on arXiv by 1 Dec 2022]
- Reichardt Chu, B. et al. (incl. DBF), DUVET: Spatially Resolved Observations of Star Formation Regulation via Galactic Outflows in a Starbursting Disk Galaxy[Accepted in ApJ—on arXiv by 4 Nov 2022]
- Coil, A. L. et al. (incl. **DBF**), Detection of Spatially Extended Ionized Gas in an Odd Radio Circle[Submitted to Nature—on arXiv 15 Dec 2022]