Riddhi Bandyopadhyay

Curriculum Vitae

Assistant Professor
Department of Physics and Astronomy, University of Delaware
Webpage: https://sites.google.com/view/riddhib/home

Email: riddhib@udel.edu
Office: 104 The Green,
Newark, DE, 19716, USA

EDUCATION

2016- 2020 **Ph.D. in Physics**, University of Delaware, Newark DE, USA
Thesis supervisor: Prof. William H. Matthaeus

2014- 2016 **M.Sc. in Physics**, Indian Institute of Technology (IIT) Kanpur, India

2011- 2014 **B.Sc. with Physics Honours**, University of Calcutta, India

PROFESSIONAL EMPLOYMENT

2025- present Assistant Professor
Department of Physics and Astronomy, **University of Delaware**, Newark DE, USA

2021- present Associate Research Scholar
Department of Astrophysical Sciences, **Princeton University**, Princeton NJ, USA

2020- 2021 Postdoctoral Research Associate
Department of Astrophysical Sciences, **Princeton University**, Princeton NJ, USA
Group of Prof. David J. McComas.

2020- 2020 Postdoctoral Researcher
Department of Physics and Astronomy, **University of Delaware**, Newark DE, USA
Group of Prof. William H. Matthaeus.

HONORS AND AWARDS

An article titled "Collisional-like dissipation in collisionless plasmas" was chosen as a Featured Article in Physics of Plasmas. Companion science highlight published in Scilight.

2021 AAPPS-DPP U30 (under 30 years old) Doctoral Scientist/Student Award instituted by the Division of Plasma Physics, Association of Asia-Pacific Physical Societies (AAPPS-DPP).

2020 Parvez Guzdar Young Scientist Award instituted by the Institute for Plasma Research, Bhat, Gandhinagar, India.

2020 Daicar-Bata Award, Department of Physics and Astronomy, University of Delaware, for authoring one of the department's three most impactful publications.

2020 Donald L. Turcotte Award from American Geophysical Union (AGU) for outstanding dissertation research that contributes directly to nonlinear geophysics.

2020 Qaisar and Monika Shafi Theoretical Physics Outstanding Dissertation Award, Department of Physics and Astronomy, University of Delaware.

2019 Daicar-Bata Highest GPA Award, Department of Physics and Astronomy, University of Delaware.

Innovation in Science Pursuit for Inspired Research (INSPIRE) scholarship by Ministry of Science and Technology, Government of India for a period of five years (2011 – 2016).

RESEARCH GRANT SELECTION

NASA ROSES-2020 Heliophysics Guest Investigator (H-GI) "Open" Program: "Investigation of the Nature of Turbulent Dissipation in near-Earth Space Plasma" (**PI**, 2021 – 2025).

NASA ROSES-2021 Parker Solar Probe Guest Investigator (PSP-GI) Program: "Geometry of Magnetic Fluctuations near the Sun" (**PI**, 2021 – 2025).

NASA MMS Early-Career Grant: "Ion and Electron Heating within Current Sheets in the Magnetosheath" (**PI**, 2021 – 2025).

INVITED TALKS

Pathways to Dissipation in Weakly-Collisional Plasmas, Geophysical Fluid Dynamics Session, AGU 2020.

Dissipation in Electron-only Reconnection Events: Insights from Pressure-Strain Interaction, Electron-only Reconnection Splinter Session, MMS Spring 2021 SWT Meeting.

Characterization of the sub-Alfvénic Solar Wind Observed by Parker Solar Probe, Asia Oceania Geosciences Society (AOGS) 2022 Virtual Meeting.

Energy transfer and proton-electron heating in turbulent plasmas, TESS 2022.

Energy transfer and proton-electron heating in turbulent plasmas, AAPPS-DPP 2022.

Energy Dissipation in Electron-only Reconnection, MR2023 Workshop on Magnetic Reconnection.

Turbulent Cascade and Proton–Electron Heating in Collisionless Plasmas, AGU 2023.

PUBLICATIONS (26 **first author, Google-Scholar citations=**1973**, h-index=**26)*

[1] Subash Adhikari, Carlos A. González, Yan Yang, Sean Oughton, *et al.*, *Estimation of Effective Viscosity to Quantify Collisional Behavior in Collisionless Plasma*. The Astrophysical Journal, **vol. 992**(2), (2025), p. 180. URL http://dx.doi.org/10.3847/1538-4357/ae08b4.

[2] **R. Bandyopadhyay**, J. Ward, D. J. McComas, N. A. Schwadron, *et al.*, *Asymmetric Tangential Velocity inside Switchbacks: Implication for Switchback Origin*. The Astrophysical Journal, **vol. 991**(1), (2025), p. 41. URL http://dx.doi.org/10.3847/1538-4357/adfc45.

[3] M. E. Cuesta, G. Livadiotis, D. J. McComas, L. Y. Khoo, *et al.*, *Transfer of Entropy between the Magnetic Field and Solar Energetic Particles during an Interplanetary Coronal Mass Ejection*. The Astrophysical Journal Letters, **vol. 984**(2), (2025), p. L50. URL http://dx.doi.org/10.3847/2041-8213/adcbff.

[4] H. A. Farooki, M. E. Cuesta, **R. Bandyopadhyay**, G. Livadiotis, *et al.*, *Estimating the Bulk Velocity of Energetic Particle Populations Using ISOIS/EPI-Lo Measurements*. The Astrophysical Journal, **vol. 984**(1), (2025), p. 70. URL http://dx.doi.org/10.3847/1538-4357/adc12b.

[5] M. Baraka, O. Le Contel, P. Canu, S. W. Alqeeq, *et al.*, *MMS Analysis of a Dayside Compressed Magnetospheric Separatrix in the Presence of Cold Ions and a Moderate Guide Field*. Journal of Geophysical Research: Space Physics, **vol. 130**(4), (2025), p. e2024JA033234. URL http://dx.doi.org/10.1029/2024JA033234.

[6] M. E. Cuesta, L. Y. Khoo, G. Livadiotis, M. M. Shen, *et al.*, *Comparing Methods for Calculating Solar Energetic Particle Intensities: Rebinning versus Spectral Binning*. The Astrophysical Journal, **vol. 980**(2), (2025), p. 235. URL http://dx.doi.org/10.3847/1538-4357/adaea9.

[7] **Riddhi Bandyopadhyay**, James R. Beattie, and Amitava Bhattacharjee, *Density Fluctuation–Mach Number Scaling in Compressible, High Plasma Beta Turbulence: In Situ Space Observations and High-Reynolds Number Simulations*. The Astrophysical Journal Letters, **vol. 982**(2), (2025), p. L45. URL http://dx.doi.org/10.3847/2041-8213/adbe3b.

*Underlined authors indicate student mentees

[8] Zachary Bailey, **Riddhi Bandyopadhyay**, Shadia Habbal, and Miloslav Druckmüller, *Measurement of Turbulence Injection Scale Down to the Chromosphere*. The Astrophysical Journal Letters, **vol. 980**(2), (2025), p. L20. URL http://dx.doi.org/10.3847/2041-8213/ada363.

[9] J. E. Stawarz, P. A. Muñoz, N. Bessho, R. Bandyopadhyay, *et al.*, *The Interplay Between Collisionless Magnetic Reconnection and Turbulence*. Space Science Reviews, **vol. 220**(8), (2024), p. 90. URL http://dx.doi.org/10.1007/s11214-024-01124-8.

[10] David Ruffolo, Panisara Thepthong, Peera Pongkitiwanichakul, Sohom Roy, *et al.*, *Observed Fluctuation Enhancement and Departure from WKB Theory in Sub-Alfvénic Solar Wind*. The Astrophysical Journal Letters, **vol. 977**(1), (2024), p. L19. URL http://dx.doi.org/10.3847/2041-8213/ad9727.

[11] O. W. Roberts, K. G. Klein, Z. Vörös, R. Nakamura, *et al.*, *Measurement of the Taylor Microscale and the Effective Magnetic Reynolds Number in the Solar Wind With Cluster*. Journal of Geophysical Research: Space Physics, **vol. 129**(11), (2024), p. e2024JA032968. URL http://dx.doi.org/https://doi.org/10.1029/2024JA032968.

[12] **R. Bandyopadhyay**, N. V. Sarlis, J. M. Weygand, R. J. Strangeway, *et al.*, *Observation of chaotic fluctuations in turbulent plasma*. Physics of Plasmas, **vol. 31**(10), (2024), p. 100702. ISSN 1070-664X. URL http://dx.doi.org/10.1063/5.0220376.

[13] M. E. Cuesta, A. T. Cummings, G. Livadiotis, D. J. McComas, *et al.*, *Observations of Kappa Distributions in Solar Energetic Protons and Derived Thermodynamic Properties*. The Astrophysical Journal, **vol. 973**(2), (2024), p. 76. URL http://dx.doi.org/10.3847/1538-4357/ad68fd.

[14] G. Livadiotis, A. T. Cummings, M. E. Cuesta, **R. Bandyopadhyay**, *et al.*, *Kappa-tail Technique: Modeling and Application to Solar Energetic Particles Observed by Parker Solar Probe*. The Astrophysical Journal, **vol. 973**(1), (2024), p. 6. URL http://dx.doi.org/10.3847/1538-4357/ad5e72.

[15] H. Hasegawa, M. R. Argall, N. Aunai, R. Bandyopadhyay, *et al.*, *Advanced methods for analyzing in-situ observations of magnetic reconnection*. Space Science Reviews, **vol. 220**(1572-9672). URL http://dx.doi.org/10.1007/s11214-024-01095-w.

[16] J. T. Lang, R. D. Strauss, N. E. Engelbrecht, J. P. van den Berg, *et al.*, *A Detailed Survey of the Parallel Mean Free Path of Solar Energetic Particle Protons and Electrons*. The Astrophysical Journal, **vol. 971**(1), (2024), p. 105. URL http://dx.doi.org/10.3847/1538-4357/ad55c3.

[17] Manuel Enrique Cuesta, D. J. McComas, L. Y. Khoo, **R. Bandyopadhyay**, *et al.*, *Correlation of Coronal Mass Ejection Shock Temperature with Solar Energetic Particle Intensity*. The Astrophysical Journal, **vol. 964**(2), (2024), p. 114. URL http://dx.doi.org/10.3847/1538-4357/ad245d.

[18] S. Roy, **R. Bandyopadhyay**, W. H. Matthaeus, and P. S. Pyakurel, *Energy Dissipation in Electron-only Reconnection*. The Astrophysical Journal, **vol. 964**(1), (2024), p. 44. URL http://dx.doi.org/10.3847/1538-4357/ad2769.

[19] C. A. González, J. L. Verniero, **R. Bandyopadhyay**, and A. Tenerani, *Local Proton Heating at Magnetic Discontinuities in Alfvénic and Non-Alfvénic Solar Wind*. The Astrophysical Journal, **vol. 963**(2), (2024), p. 148. URL http://dx.doi.org/10.3847/1538-4357/ad1be5.

[20] Yan Yang, William H Matthaeus, Sean Oughton, **Riddhi Bandyopadhyay**, *et al.*, *Effective viscosity, resistivity, and Reynolds number in weakly collisional plasma turbulence*. Monthly Notices of the Royal Astronomical Society, **vol. 528**(4), (2024), pp. 6119. ISSN 0035-8711. URL http://dx.doi.org/10.1093/mnras/stae355.

[21] Panisara Thepthong, Peera Pongkitiwanichakul, David Ruffolo, Rungployphan Kieokaew, *et al.*, *Scale and Time Dependence of Alfvénicity in the Solar Wind as Observed by the Parker Solar Probe*. The Astrophysical Journal, **vol. 962**(1), (2024), p. 37. URL http://dx.doi.org/10.3847/1538-4357/ad1592.

[22] **R. Bandyopadhyay**, C. M. MeyerC. M. MeyerBaileyC. M. MeyerC. M. Meyer, W. H. Matthaeus, D. J. McComas, *et al.*, *Estimates of Proton and Electron Heating Rates Extended to the Near-Sun Environment*. The Astrophysical Journal Letters, **vol. 955**(2), (2023), p. L28. URL http://dx.doi.org/10.3847/2041-8213/acf85e.

[23] O. W. Roberts, Z. Voros, K. Torkar, J. Stawarz, *et al.*, *Estimation of the Error in the Calculation of the Pressure-Strain Term: Application in the Terrestrial Magnetosphere*. Journal of Geophysical Research: Space Physics, **vol. 128**(8), (2023), p. e2023JA031565. URL http://dx.doi.org/https://doi.org/10.1029/2023JA031565.

[24] **Riddhi Bandyopadhyay**, Yan Yang, William H. Matthaeus, Tulasi N. Parashar, *et al.*, *Collisional-like dissipation in collisionless plasmas*. Physics of Plasmas, **vol. 30**(8), (2023), p. 080702. ISSN 1070-664X. URL http://dx.doi.org/10.1063/5.0146986.

[25] F Pecora, Y Yang, A Chasapis, S Servidio, *et al.*, *Relaxation of the turbulent magnetosheath*. Monthly Notices of the Royal Astronomical Society, **vol. 525**(1), (2023), pp. 67. ISSN 0035-8711. https://academic.oup.com/mnras/article-pdf/525/1/67/51088731/stad2232.pdf, URL http://dx.doi.org/10.1093/mnras/stad2232.

[26] J. L. Burch, K. J. Genestreti, S. V. Heuer, A. Chasapis, *et al.*, *Electron energy dissipation in a magnetotail reconnection region*. Physics of Plasmas, **vol. 30**(8), (2023), p. 082903. ISSN 1070-664X. URL http://dx.doi.org/10.1063/5.0153628.

[27] Maruca, Bennett A., Qudsi, Ramiz A., Alterman, B. L., Walsh, Brian M., *et al.*, *The Trans-Heliospheric Survey - Radial trends in plasma parameters across the heliosphere*. Astronomy & Astrophysics, **vol. 675**, (2023), p. A196. URL http://dx.doi.org/10.1051/0004-6361/202345951.

[28] N. Andrés, **R. Bandyopadhyay**, D. J. McComas, J. R. Szalay, *et al.*, *Observation of Turbulent Magnetohydrodynamic Cascade in the Jovian Magnetosheath*. The Astrophysical Journal, **vol. 945**(1), (2023), p. 8. URL http://dx.doi.org/10.3847/1538-4357/acb7e0.

[29] Yan Yang, Francesco Pecora, William H. Matthaeus, Sohom Roy, *et al.*, *Quantifying the Agyrotropy of Proton and Electron Heating in Turbulent Plasmas*. The Astrophysical Journal, **vol. 944**(2), (2023), p. 148. URL http://dx.doi.org/10.3847/1538-4357/acb25a.

[30] N. E. Raouafi, L. Matteini, J. Squire, S. T. Badman, *et al.*, *Parker Solar Probe: Four Years of Discoveries at Solar Cycle Minimum*. Space Science Reviews, **vol. 219**(1572-9672), (2023), p. 8. URL http://dx.doi.org/10.1007/s11214-023-00952-4.

[31] S. Roy, **R. Bandyopadhyay**, Y. Yang, T. N. Parashar, *et al.*, *Turbulent Energy Transfer and Proton–Electron Heating in Collisionless Plasmas*. The Astrophysical Journal, **vol. 941**(2), (2022), p. 137. URL http://dx.doi.org/10.3847/1538-4357/aca479.

[32] C. Phillips, **R. Bandyopadhyay**, D. J. McComas, and S. D. Bale, *Association of intermittency with electron heating in the near-Sun solar wind*. Monthly Notices of the Royal Astronomical Society: Letters. ISSN 1745-3925. Slac143, URL http://dx.doi.org/10.1093/mnrasl/slac143.

[33] **Riddhi Bandyopadhyay**, Ramiz A. Qudsi, S. Peter Gary, William H. Matthaeus, *et al.*, *Interplay of turbulence and proton-microinstability growth in space plasmas*. Physics of Plasmas, **vol. 29**(10), (2022), p. 102107. URL http://dx.doi.org/10.1063/5.0098625.

[34] Yanwen Wang, Rohit Chhiber, Subash Adhikari, Yan Yang, *et al.*, *Strategies for Determining the Cascade Rate in MHD Turbulence: Isotropy, Anisotropy, and Spacecraft Sampling*. The Astrophysical Journal, **vol. 937**(2), (2022), p. 76. URL http://dx.doi.org/10.3847/1538-4357/ac8f90.

[35] J. Zhang, S. Y. Huang, Z. G. Yuan, K. Jiang, *et al.*, *Higher-order Turbulence Statistics in the Sub-Alfvénic Solar Wind Observed by Parker Solar Probe*. The Astrophysical Journal, **vol. 937**(2), (2022), p. 70. URL http://dx.doi.org/10.3847/1538-4357/ac8c34.

[36] **R. Bandyopadhyay**, L. J. Begley, B. A. Maruca, D. J. McComas, *et al.*, *Beta-Dependent Constraints on Ion Temperature Anisotropy in Jupiter's Magnetosheath*. Geophysical Research Letters, **vol. 49**(15), (2022), p. e2022GL098053. URL http://dx.doi.org/https://doi.org/10.1029/2022GL098053.

[37] C. Phillips, **R. Bandyopadhyay**, and D. J. McComas, *Taylor microscale and effective Reynolds number near the Sun from PSP*. The Astrophysical Journal, **vol. 933**(1), (2022), p. 33. URL http://dx.doi.org/10.3847/1538-4357/ac713f.

[38] Nikos Sioulas, Zesen Huang, Marco Velli, Rohit Chhiber, *et al.*, *Magnetic Field Intermittency in the Solar Wind: Parker Solar Probe and SolO Observations Ranging from the Alfvén Region up to 1 AU*. The Astrophysical Journal, **vol. 934**(2), (2022), p. 143. URL http://dx.doi.org/10.3847/1538-4357/ac7aa2.

[39] Manuel Enrique Cuesta, Rohit Chhiber, Sohom Roy, Joshua Goodwill, *et al.*, *Isotropization and Evolution of Energy-containing Eddies in Solar Wind Turbulence: Parker Solar Probe, Helios 1, ACE, WIND, and Voyager 1*. The Astrophysical Journal Letters, **vol. 932**(1), (2022), p. L11. URL http://dx.doi.org/10.3847/2041-8213/ac73fd.

[40] Sakshee Sakshee, **Riddhi Bandyopadhyay**, and Supratik Banerjee, *MHD-scale anisotropy in solar wind turbulence near the Sun using Parker solar probe data*. Monthly Notices of the Royal Astronomical Society, **vol. 514**(1), (2022), pp. 1282. ISSN 0035-8711. URL http://dx.doi.org/10.1093/mnras/stac1449.

[41] Rohit Chhiber, William H Matthaeus, Arcadi V Usmanov, **Riddhi Bandyopadhyay**, *et al.*, *An extended and fragmented Alfvén zone in the Young Solar Wind*. Monthly Notices of the Royal Astronomical Society, **vol. 513**(1), (2022), pp. 159. ISSN 0035-8711. URL http://dx.doi.org/10.1093/mnras/stac779.

[42] Yan Yang, William H. Matthaeus, Sohom Roy, , *et al.*, *Pressure-Strain Interaction as the Energy Dissipation Estimate in Collisionless Plasma*. The Astrophysical Journal, **vol. 929**(2), (2022), p. 142. URL http://dx.doi.org/10.3847/1538-4357/ac5d3e.

[43] Nikos Sioulas, Marco Velli, Rohit Chhiber, Loukas Vlahos, *et al.*, *Statistical Analysis of Intermittency and its Association with Proton Heating in the Near-Sun Environment*. The Astrophysical Journal, **vol. 927**(2), (2022), p. 140. URL http://dx.doi.org/10.3847/1538-4357/ac4fc1.

[44] Francesco Pecora, William H. Matthaeus, Leonardo Primavera, Antonella Greco, *et al.*, *Magnetic Switchback Occurrence Rates in the Inner Heliosphere: Parker Solar Probe and 1 au*. The Astrophysical Journal Letters, **vol. 929**(1), (2022), p. L10. URL http://dx.doi.org/10.3847/2041-8213/ac62d4.

[45] **R. Bandyopadhyay**, W. H. Matthaeus, D. J. McComas, R. Chhiber, *et al.*, *Sub-Alfvénic Solar Wind Observed by the Parker Solar Probe: Characterization of Turbulence, Anisotropy, Intermittency, and Switchback*. The Astrophysical Journal Letters, **vol. 926**(1), (2022), p. L1. URL http://dx.doi.org/10.3847/2041-8213/ac4a5c.

[46] **R. Bandyopadhyay** and D. J. McComas, *Geometry of Magnetic Fluctuations near the Sun from the Parker Solar Probe*. The Astrophysical Journal, **vol. 923**(2), (2021), p. 193. URL http://dx.doi.org/10.3847/1538-4357/ac3486.

[47] **R. Bandyopadhyay**, A. Chasapis, W. H. Matthaeus, T. N. Parashar, *et al.*, *Energy dissipation in turbulent reconnection*. Physics of Plasmas, **vol. 28**(11), (2021), p. 112305. URL http://dx.doi.org/10.1063/5.0071015.

[48] Carlos S. Hernández, Luca Sorriso-Valvo, **Riddhi Bandyopadhyay**, Alexandros Chasapis, *et al.*, *Impact of Switchbacks on Turbulent Cascade and Energy Transfer Rate in the Inner Heliosphere*. The Astrophysical Journal Letters, **vol. 922**(1), (2021), p. L11. URL http://dx.doi.org/10.3847/2041-8213/ac36d1.

[49] **R. Bandyopadhyay**, D. J. McComas, J. R. Szalay, F. Allegrini, *et al.*, *Observation of Kolmogorov Turbulence in the Jovian Magnetosheath From JADE Data*. Geophysical Research Letters, **vol. 48**(15), (2021), p. e2021GL095006. URL http://dx.doi.org/10.1029/2021GL095006.

[50] E. J. Zirnstein, R. Kumar, **R. Bandyopadhyay**, M. A. Dayeh, *et al.*, *Turbulent Acceleration of Interstellar Pickup Ions at the Heliospheric Termination Shock Forms the Global ENA Spectrum*. The Astrophysical Journal Letters, **vol. 916**(2), (2021), p. L21. URL http://dx.doi.org/10.3847/2041-8213/ac12cc.

[51] Bennett A. Maruca, Jeffersson A. Agudelo Rueda, **Riddhi Bandyopadhyay**, Federica B. Bianco, *et al.*, *MagneToRE: Mapping the 3-D Magnetic Structure of the Solar Wind Using a Large Constellation of Nanosatellites*. Frontiers in Astronomy and Space Sciences, **vol. 8**, (2021), p. 108. ISSN 2296-987X. URL http://dx.doi.org/10.3389/fspas.2021.665885.

[52] Yanwen Wang, **Riddhi Bandyopadhyay**, Rohit Chhiber, William H. Matthaeus, *et al.*, *Statistical Survey of Collisionless Dissipation in the Terrestrial Magnetosheath*. Journal of Geophysical Research: Space Physics, **vol. 126**(6), (2021), p. e2020JA029000. URL http://dx.doi.org/https://doi.org/10.1029/2020JA029000.

[53] **R. Bandyopadhyay**, W. H. Matthaeus, D. J. McComas, C. J. Joyce, *et al.*, *Energetic Particle Behavior in near-Sun Magnetic Field Switchbacks from PSP*. Astroomy & Astrophysics, **vol. 650**, (2021), p. L4. URL http://dx.doi.org/10.1051/0004-6361/202039800.

[54] T. A. Bowen, S. D. Bale, **R. Bandyopadhyay**, J. W. Bonnell, *et al.*, *Kinetic-Scale Turbulence in the Venusian Magnetosheath*. Geophysical Research Letters, **vol. 48**(2), (2021), p. e2020GL090783. URL http://dx.doi.org/https://doi.org/10.1029/2020GL090783.

[55] Alexandros Chasapis, William H. Matthaeus, **R. Bandyopadhyay**, Rohit Chhiber, *et al.*, *Scaling and Anisotropy of Solar Wind Turbulence at Kinetic Scales during the MMS Turbulence Campaign*. The Astrophysical Journal, **vol. 903**(2), (2020), p. 127. URL http://dx.doi.org/10.3847/1538-4357/abb948.

[56] **R. Bandyopadhyay**, Alexandros Chasapis, D. J. Gershman, B. L. Giles, *et al.*, *Observation of an inertial-range energy cascade within a reconnection jet in the Earth's magnetotail*. Monthly Notices of the Royal Astronomical Society: Letters, **vol. 500**(1), (2020), pp. L6. ISSN 1745-3925. URL http://dx.doi.org/10.1093/mnrasl/slaa171.

[57] S. Peter Gary, **R. Bandyopadhyay**, Ramiz A. Qudsi, William H. Matthaeus, *et al.*, *Particle-in-cell Simulations of Decaying Plasma Turbulence: Linear Instabilities versus Nonlinear Processes in 3D and 2.5D Approximations*. The Astrophysical Journal, **vol. 901**(2), (2020), p. 160. URL http://dx.doi.org/10.3847/1538-4357/abb2ac.

[58] D. Ruffolo, W. H. Matthaeus, R. Chhiber, A. V. Usmanov, *et al.*, *Shear-driven Transition to Isotropically Turbulent Solar Wind Outside the Alfvén Critical Zone*. The Astrophysical Journal, **vol. 902**(2), (2020), p. 94. URL http://dx.doi.org/10.3847/1538-4357/abb594.

[59] **R. Bandyopadhyay**, William H. Matthaeus, Alexandros Chasapis, Christopher T. Russell, *et al.*, *Direct Measurement of the Solar-wind Taylor Microscale Using MMS Turbulence Campaign Data*. The Astrophysical Journal, **vol. 899**(1), (2020), p. 63. URL http://dx.doi.org/10.3847/1538-4357/ab9ebe.

[60] **Riddhi Bandyopadhyay**, William H. Matthaeus, Tulasi N. Parashar, Yan Yang, *et al.*, *Statistics of Kinetic Dissipation in the Earth's Magnetosheath: MMS Observations*. Physical Review Letters, **vol. 124**, (2020), p. 255101. URL http://dx.doi.org/10.1103/PhysRevLett.124.255101.

[61] **Riddhi Bandyopadhyay**, Luca Sorriso-Valvo, Alexandros Chasapis, Petr Hellinger, *et al.*, *In Situ Observation of Hall Magnetohydrodynamic Cascade in Space Plasma*. Physical Review Letters, **vol. 124**, (2020), p. 225101. URL http://dx.doi.org/10.1103/PhysRevLett.124.225101.

[62] Ramiz A. Qudsi, **Riddhi Bandyopadhyay**, Bennett A. Maruca, Tulasi N. Parashar, *et al.*, *Intermittency and Ion Temperature–Anisotropy Instabilities: Simulation and Magnetosheath Observation*. The Astrophysical Journal, **vol. 895**(2), (2020), p. 83. URL http://dx.doi.org/10.3847/1538-4357/ab89ad.

[63] **Riddhi Bandyopadhyay**, Yan Yang, William H. Matthaeus, Alexandros Chasapis, *et al.*, *In Situ Measurement of Curvature of Magnetic Field in Turbulent Space Plasmas: A Statistical Study*. The Astrophysical Journal Letters, **vol. 893**(1), (2020), p. L25. URL http://dx.doi.org/10.3847/2041-8213/ab846e.

[64] William H. Matthaeus, Yan Yang, Minping Wan, Tulasi N. Parashar, *et al.*, *Pathways to Dissipation in Weakly Collisional Plasmas*. The Astrophysical Journal, **vol. 891**(1), (2020), p. 101. URL http://dx.doi.org/10.3847/1538-4357/ab6d6a.

[65] T. N. Parashar, M. L. Goldstein, B. A. Maruca, W. H. Matthaeus, *et al.*, *Measures of Scale-dependent Alfvénicity in the First PSP Solar Encounter*. The Astrophysical Journal Supplement Series, **vol. 246**(2), (2020), p. 58. URL http://dx.doi.org/10.3847/1538-4365/ab64e6.

[66] Rohit Chhiber, M L. Goldstein, B. A. Maruca, A. Chasapis, *et al.*, *Clustering of Intermittent Magnetic and Flow Structures near Parker Solar Probe's First Perihelion—A Partial-variance-of-increments Analysis*. The Astrophysical Journal Supplement Series, **vol. 246**(2), (2020), p. 31. URL http://dx.doi.org/10.3847/1538-4365/ab53d2.

[67] R. A. Qudsi, B. A. Maruca, W. H. Matthaeus, T. N. Parashar, *et al.*, *Observations of Heating along Intermittent Structures in the Inner Heliosphere from PSP Data*. The Astrophysical Journal Supplement Series, **vol. 246**(2), (2020), p. 46. URL http://dx.doi.org/10.3847/1538-4365/ab5c19.

[68] **Riddhi Bandyopadhyay**, W. H. Matthaeus, T. N. Parashar, R. Chhiber, *et al.*, *Observations of Energetic-particle Population Enhancements along Intermittent Structures near the Sun from the Parker Solar Probe*. The Astrophysical Journal Supplement Series, **vol. 246**(2), (2020), p. 61. URL http://dx.doi.org/10.3847/1538-4365/ab6220.

[69] **Riddhi Bandyopadhyay**, M. L. Goldstein, B. A. Maruca, W. H. Matthaeus, *et al.*, *Enhanced Energy Transfer Rate in Solar Wind Turbulence Observed near the Sun from Parker Solar Probe*. The Astrophysical Journal Supplement Series, **vol. 246**(2), (2020), p. 48. URL http://dx.doi.org/10.3847/1538-4365/ab5dae.

[70] **Riddhi Bandyopadhyay**, William H. Matthaeus, Sean Oughton, and Minping Wan, *Evolution of Similarity Lengths in Anisotropic Magnetohydrodynamic Turbulence*. Journal of Fluid Mechanics, **vol. 876**, (2019), pp. 5. URL http://dx.doi.org/10.1017/jfm.2019.513.

[71] **Riddhi Bandyopadhyay**, S. Oughton, M. Wan, W. H. Matthaeus, *et al.*, *Finite Dissipation in Anisotropic Magnetohydrodynamic Turbulence*. Physical Review X, **vol. 8**, (2018), p. 041052. URL http://dx.doi.org/10.1103/PhysRevX.8.041052.

[72] Tulasi N. Parashar, Alexandros Chasapis, **R. Bandyopadhyay**, Rohit Chhiber, *et al.*, *Kinetic Range Spectral Features of Cross Helicity Using the Magnetospheric Multiscale Spacecraft*. Physical Review Letters, **vol. 121**, (2018), p. 265101. URL http://dx.doi.org/10.1103/PhysRevLett.121.265101.

[73] R. Chhiber, A. Chasapis, **R. Bandyopadhyay**, T. N. Parashar, *et al.*, *Higher-Order Turbulence Statistics in the Earth's Magnetosheath and the Solar Wind Using Magnetospheric Multiscale Observations*. Journal of Geophysical Research: Space Physics, **vol. 123**(12), (2018), pp. 9941. URL http://dx.doi.org/10.1029/2018JA025768.

[74] B. A. Maruca, A. Chasapis, S. P. Gary, **R. Bandyopadhyay**, *et al.*, *MMS Observations of Beta-Dependent Contraints on Ion Temperature-Anisotropy in Earth's Magnetosheath*. The Astrophysical Journal, **vol. 866**, (2018), p. 25. URL http://dx.doi.org/10.3847/1538-4357/aaddfb.

[75] **Riddhi Bandyopadhyay**, A. Chasapis, R. Chhiber, T. N. Parashar, *et al.*, *Incompressive Energy Transfer in the Earth's Magnetosheath: Magnetospheric Multiscale Observations*. The Astrophysical Journal, **vol. 866**(2), (2018), p. 106. URL http://dx.doi.org/10.3847/1538-4357/aade04.

[76] **Riddhi Bandyopadhyay**, A. Chasapis, R. Chhiber, T. N. Parashar, *et al.*, *Solar Wind Turbulence Studies Using MMS Fast Plasma Investigation Data*. The Astrophysical Journal, **vol. 866**(2), (2018), p. 81. URL http://dx.doi.org/doi.org/10.3847/1538-4357/aade93.

[77] **Riddhi Bandyopadhyay**, William H. Matthaeus, and Tulasi N. Parashar, *Single-Mode Nonlinear Langevin Emulation of Magnetohydrodynamic turbulence*. Phys. Rev. E, **vol. 97**, (2018), p. 053211. URL http://dx.doi.org/10.1103/PhysRevE.97.053211.

[78] **Riddhi Bandyopadhyay** and Mahendra K. Verma, *Discrete Symmetries in Dynamo Reversals*. Physics of Plasmas, **vol. 24**(6), (2017), p. 062307. 1705.09630, URL http://dx.doi.org/10.1063/1.4985307.

TEACHING EXPERIENCE

Guest Lecturer (University of Delaware)

Plasma Physics I (Graduate level course on fluids and magnetohydrodynamics)	Fall 2019
PHYS638 Turbulent Flows (Graduate level course on fundamental characteristics of turbulence)	Spring 2025
PHYS809 Electrodynamics I (Graduate level course on Electrodynamics)	Fall 2025

Teaching Assistant (University of Delaware)

Introductory Physics I (Introduction to classical physics and fluid mechanics for students in the life and environmental sciences)	2017 Winter, 2017 Fall, 2018 Winter
Introductory Physics II (Introduction to electromagnetism and optics for students in the life and environmental sciences)	2017 Spring
Fundamentals of Physics II (Introduction to electromagnetism for students in the physical sciences and engineering)	2017 Summer, 2017 Fall

SYNERGISTIC ACTIVITIES

Reviewer for The Astrophysical Journal (ApJ), The Astrophysical Journal Letters (ApJL), Geophysical Research Letters (GRL), Monthly Notices of the Royal Astronomical Society (MNRAS), Physics of Plasmas (PoP), Physical Review Letters (PRL), Earth and Space Science (ESS), Physical Review E (PRE), Scientific Reports, Astronomy & Astrophysics (A & A), Nature Communications, Journal of Plasma Physics (JPP), Space Science Reviews (SSR) (~ 10 per year).

NASA Review Panels

Review Panelist	2021, 2022, 2023
External Reviewer	2020, 2024
Executive Secretary	2020

Conference Panel Organization

Magnetospheric Multiscale (MMS) Mission Science Working Team meeting	Spring 2020, Fall 2020, Fall 2024
Interstellar Boundary Explorer (IBEX) Mission Science Team meeting	2021, 2022
Solar Heliospheric and INterplanetary Environment (SHINE) workshop	2022, 2023, 2024

Graduate Student & Dissertation Advising	**Next Position**
William Taranto (Ph.D. expected 2030, University of Delaware)	N/A (ongoing)
Sohom Roy (Ph.D. December 2024, University of Delaware)	postdoc at Space Research Institute (Institut für Weltraumforschung, IWF), Graz, Austria
Camryn Phillips (Fall 2021 and Spring 2022 semester projects, Princeton University)	changed field

Undergraduate Student Advising	**Next Position**
Yanwen Wang, ’22 (2019 Sophomore Project), University of Delaware	Ph.D. student at the University of Maryland, College Park
Luke Begley, ’22 (2020 Junior Project), Princeton University	joined industry
Siegfried Gawenda, ’23 (2022 Spring Junior Project), Princeton University	Ph.D. student at the University of Texas Rio Grande Valley
Ryan LoRusso, ’24 (2022 Fall Junior Project), Princeton University	Ph.D. student at Indiana University at Bloomington
Cole Meyer, ’24 (2022 Fall Junior Project), Princeton University	Ph.D. student at Lunar and Planetary Laboratory at the University of Arizona
Juston Ward, ’24 (Princeton University Undergraduate Summer Research Program via National Radio Astronomy Observatory/National Astronomy Consortium; 2023&2024 Summer), Sam Houston State University	Ph.D. student at Baylor University

Public Outreach

Lecture and public interaction at the “Science Under the Stars" series organized by the New Jersey State Museum.