

Curriculum Vitae – Eric Coughlin

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(As of October 4th, 2026)

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EDUCATION

2013 — 2016	Ph.D.	University of Colorado at Boulder, Boulder, Colorado Department: Astronomy and Astrophysics Advisor: Mitchell C. Begelman
2011 — 2013	M.Sc.	University of Colorado at Boulder, Boulder, Colorado Department: Astronomy and Astrophysics Advisor: Mitchell C. Begelman
2007 — 2011	B.Sc.	Lehigh University, Bethlehem, Pennsylvania Major: Astrophysics Advisor: George McCluskey

RESEARCH APPOINTMENTS

08/2020 — Present	Assistant Professor Assistant Professor, Syracuse University, Syracuse, New York
07/2019 — 08/2020	Postdoctoral Researcher Hubble & Lyman Spitzer Fellow, Princeton University, Princeton, NJ
06/2018 — 07/2019	Postdoctoral Researcher Einstein Fellow, Columbia University, New York, NY
07/2016 — 05/2018	Postdoctoral Researcher Einstein Fellow, UC Berkeley, Berkeley, California
08/2011 — 06/2016	Graduate Research Assistant Research Assistant, CU Boulder, Boulder, Colorado

PUBLICATIONS (PhD students mentored by Coughlin in [blue](#), postdocs in [purple](#), high school students in [green](#), undergraduates in [orange](#))

105. “Stellar Core Survival and Revival in Tidal Disruption Events”
Kavanagh, C., Nixon, C.J., & **Coughlin, E.R.**, 2026, Monthly Notices of the Royal Astronomical Society, *Under Review*
104. “Outflows in steep density gradients: diversity of behavior and implications for tidal disruption events and luminous fast blue optical transient”
[Amend, B.](#), Camilo, M., **Coughlin, E.R.**, Ho, A.Y.Q., & Zrake, J., 2026, Publications of the Astronomical Society of Australia, *Under Review* (arXiv: 2608.19512)
103. “On the Origin of Anomalous Dissipation in Simulations of Tidal Disruption Events”
Nixon, C.J., **Coughlin, E.R.**, & Andalman, Z., 2026, The Astrophysical Journal, *In Press* (arXiv: 2605.20327)
102. “Systematic Error in Approximate Models of the GRB Early Afterglow”
[Amend, B.](#), **Coughlin, E.R.**, & Zrake, J., 2026, Monthly Notices of the Royal Astronomical Society, 551, 1611
101. “The Role of Stellar Spin in Repeating Partial Tidal Disruption Events”
[Bandopadhyay, A.](#), [Amend, B.](#), **Coughlin, E.R.**, Nixon, C.J., Pasham, D.R., & Wevers, T., 2026, The Astrophysical Journal, 1007, 181
100. “The interaction phase of engine-driven explosions and high-energy winds”
[Amend, B.](#), [Lagomarsino, C.](#), **Coughlin, E.R.**, & Zrake, J., Publications of the Astronomical Society of Australia, 2026, 43, 96

99. "On the Origin of Mass Ejection in Failed Supernovae"
Paradiso, D.A., Vallejo, S., & Coughlin, E.R., 2026, The Astrophysical Journal, 1004, 120
98. "AT2024lhc and AT2024kmq in the landscape of featureless tidal disruption events"
Yao, Y., Chornock, R., et al. (incl. Coughlin, E.R.), 2026, Monthly Notices of the Royal Astronomical Society, 549, 920
97. "AT2024wpp: An Extremely Luminous Fast Ultraviolet Transient Powered by Accretion onto a Black Hole"
Perley, D.A., Ho, A.Y.Q., McGrath, Z., et al. (incl. Coughlin, E.R. and B. Amend), 2026, Monthly Notices of the Royal Astronomical Society, 549, 678
96. "Resolving the (debate about) nozzle shocks in tidal disruption events"
Andalman, Z., Quataert, E., Coughlin, E.R., & Nixon, C.J., 2026, The Open Journal of Astrophysics, 962785
95. "Repeating Nuclear Transients from Repeating Partial Tidal Disruption Events"
Bandopadhyay, A., Coughlin, E.R., Fancher, J., Nixon, C.J., & Pasham, D.R., Astronomische Nachrichten, 347, 83
94. "Tidal disruption events with SPH-EXA: resolving the return of the stream"
Kubli, N., Franchini, A., Coughlin, E.R., et al., 2026, The Astrophysical Journal Letters, 999, L40
93. "The Maximum Gravity Model for Partial Tidal Disruption Events: Mass Loss, Peak Fallback Rate, and Dependence on Stellar Type"
Bandopadhyay, A., Coughlin, E.R., & Nixon, C.J., 2026, The Astrophysical Journal, 998, 81
92. "A Wind-driven Origin for the Firework Morphology of the Supernova Remnant Pa 30"
Coughlin, E.R., Salvesen, G., & Pasham, D.R., 2026, The Astrophysical Journal Letters, 996, L3
91. "Optical/infrared observations of the extraordinary GRB 250702B: a highly obscured afterglow in a massive galaxy consistent with multiple possible progenitors"
Carney, J., Andreoni, I., O'Connor, B., Freeburn, J., Skobe, H., Westcott, L., Busmann, M., Palmese, A., Hall, X.J., Gill, R., Beniamini, P., Coughlin, E.R., et al., 2025, The Astrophysical Journal Letters, 994, L46
90. "Comprehensive X-ray Observations of the Exceptional Ultra-long X-ray and Gamma-ray Transient GRB 250702B with Swift, NuSTAR, and Chandra: Insights from the X-ray Afterglow Properties"
O'Connor, B., Gill, R., DeLaunay, J., Hare, J., Pasham, D.R., Coughlin, E.R., Bandopadhyay, A., et al., 2025, The Astrophysical Journal Letters, 994, L17
89. "Tidal Disruption Events"
Mockler, B., Hammerstein, E., Coughlin, E.R., & Nicholl, M., 2025, Encyclopedia of Astrophysics, 3, 423-457
88. "Using Infrared Dust Echoes to Identify Bright Quasi-periodic Eruption Sources"
Pasham, D.R., Coughlin, E.R., van Velzen, S., & Hinkle, J., 2025, arXiv:2502.12078
87. "Predicting the Properties of the Fallback Rate from Tidal Disruption Events: Investigating the Maximum Gravity Model"
Fancher, J., Bandopadhyay, A., Coughlin, E.R., & Nixon, C.J., 2025, The Astrophysical Journal, 990, 104
86. "A Luminous Red Optical Flare and Hard X-ray Emission in the Tidal Disruption Event AT 2024kmq"
Ho, A., Yao, Y., Matsumoto, T., Schroeder, G., Coughlin, E.R., et al., 2025, The Astrophysical Journal, 989, 54
85. "What's Kickin' in Partial Tidal Disruption Events?"
Coughlin, E.R., & Nixon, C.J., Monthly Notices of the Royal Astronomical Society Letters, 542, L110
84. "The Double Tidal Disruption Event AT 2022dbl Implies That at Least Some 'Standard' Optical

TDEs are Partial Disruptions”

Makrygianni, L., Arcavi, I., Newsome, M., [Bandopadhyay, A.](#), **Coughlin, E.R.**, et al., 2025, The Astrophysical Journal Letters, 987, L20

83. “Repeated Tidal Interactions between Stars and Supermassive Black Holes: Mass Transfer, Stability and Implications for Repeating Tidal Disruption Events”

[Bandopadhyay, A.](#), **Coughlin, E.R.**, & Nixon, C.J., 2025, The Astrophysical Journal, 987, 16

82. “Gotta Go Fast: A Generalization of the Escape Speed to Fluid-dynamical Explosions and Implications for Astrophysical Transients”

[Paradiso, D.](#), & **Coughlin, E.R.**, 2025, The Astrophysical Journal, 985, 173

81. “Episodic X-ray Ultrafast Outflows from the Tidal Disruption Event ASASSN-14li”

Ajay, Y., Pasham, D.R., Tombesi, F., **Coughlin, E.R.**, Wevers, T., Steiner, J.F., & Guolo, M., 2025, The Astrophysical Journal Letters, 981, L14

80. “Alive and Strongly Kicking: Stable X-ray Quasi-Periodic Eruptions from eRO-QPE2 over 3.5 Years”

Pasham, D.R., Kejriwal, S., **Coughlin, E.R.**, et al., 2024, arXiv:2411.00289

79. “From Coasting to Energy-conserving: New Self-similar Solutions to the Interaction Phase of Strong Explosions”

Coughlin, E.R., 2024, The Astrophysical Journal Letters, 975, L14

78. “Repeating Nuclear Transients from Repeating Partial Tidal Disruption Events: Reproducing ASASSN-14ko and AT2020vdc”

[Bandopadhyay, A.](#), **Coughlin, E.R.**, Nixon, C.J., & Pasham, D.R., 2024, The Astrophysical Journal, 974, 80

77. “Quasi-stars as a Means of Rapid Black Hole Growth in the Early Universe”

Coughlin, E.R., & Begelman, M.C., 2024, The Astrophysical Journal, 970, 158

76. “A Potential Second Shut-off from AT2018fyk: An updated Orbital Ephemeris of the Surviving Star under the Repeating Partial Tidal Disruption Event Paradigm”

Pasham, Dheeraj, **Coughlin, E. R.**, Guolo, M., Wevers, T., Nixon, C.J., Hinkle, J.T., & [Bandopadhyay, A.](#), 2024, The Astrophysical Journal Letters, 971, L31

75. “Ultra-deep Cover: An Exotic and Jetted Tidal Disruption Event Candidate Disguised as a Gamma-ray Burst”

Eyles-Ferris, R., Nixon, C.J., **Coughlin, E.R.**, & O’Brien, P.T., 2024, The Astrophysical Journal Letters, 965, 20

74. “Repeated Partial Tidal Disruptions and Quasi-Periodic Eruptions in SwJ023017.0+283603”

Pasham, D.R., **Coughlin, E.R.**, et al., 2024, arXiv:2411.05948

73. “Light-curve Structure and H α Line Formation in the Tidal Disruption Event AT 2019azh”

Faris, S., Arcavi, I., Makrygianni, L., et al. (incl. **Coughlin, E.R.**), 2024, The Astrophysical Journal, 969, 104

72. “Lense-Thirring Precession after a Supermassive Black Hole Disrupts a Star”

Pasham, D.R., Zajacek, M., Nixon, C.J., **Coughlin, E.R.**, et al., 2024, Nature, 630, 325

71. “A Case for a Binary Black Hole System Revealed via Quasi-periodic Outflows”

Pasham, D.R., Tombesi, F., Sukova, P., Zajacek, M., Rakshit, S., **Coughlin, E.R.**, et al., 2024, Science Advances, 10, 13

70. "Alive but Barely Kicking: News from 3+ years of Swift and XMM-Newton X-ray Monitoring of Quasi-Periodic Eruptions from eRO-QPE1"
Pasham, D.R., **Coughlin, E.R.**, Zajacek, M., et al., 2024, The Astrophysical Journal Letters, 963, 47
69. "Low-energy Explosions in a Gravitational Field: Implications for Sub-energetic Supernovae and Fast X-ray Transients"
Paradiso, D., **Coughlin, E.R.**, Zrake, J., & Pasham, D.R., 2024, The Astrophysical Journal, 961, 158
68. "Delayed X-ray Brightening Accompanied by a Transient Ultra-fast Outflow Following a Tidal Disruption Event"
Wevers, T., Guolo, M., Pasham, D.R., Tombesi, F., **Coughlin, E.R.**, Yao, Y., & Gezari, S., 2024, The Astrophysical Journal, 963, 75
67. "X-ray Eruptions Every 22 Days from the Nucleus of a Nearby Galaxy"
Guolo, M., Pasham, D.R., Zajacek, M., **Coughlin, E.R.**, et al., 2024, Nature Astronomy, 8, 347
66. "The Peak of the Fallback Rate from Tidal Disruption Events: Dependence on Stellar Type"
Bandopadhyay, A., **Fancher, J.**, **Athian, A.**, **Indelicato, V.**, **Kapalanga, S.**, **Kumah, A.**, **Paradiso, D.A.**, Todd, M., **Coughlin, E.R.**, & Nixon, C.J., 2024, The Astrophysical Journal Letters, 961, L2
65. "On the Relative Importance of Shocks and Self-gravity in Modifying Tidal Disruption Event Debris Streams"
Fancher, J., **Coughlin, E.R.**, & Nixon, C.J., 2023, Monthly Notices of the Royal Astronomical Society, 526, 2323
64. "The Division between Weak and Strong Explosions from Failed Supernovae"
Coughlin, E.R., 2023, The Astrophysical Journal, 955, 110
63. "Measuring the Properties of f-mode Oscillations of a Protoneutron Star by Third-generation Gravitational-wave Detectors"
Afle, C., **Kundu, S.K.**, Cammerino, J., **Coughlin, E.R.**, Brown, D.A., Vartanyan, D., Burrows, A., 2023, PhRvD, 107, 123005
62. "The Luminosity Function of Tidal Disruption Events from Fallback-powered Emission: Implications for the Black Hole Mass Function"
Coughlin, E.R., Nicholl, M., 2023, The Astrophysical Journal Letters, 948, L22
61. "The Dynamics of Debris Streams from Tidal Disruption Events: Exact Solution, Critical Stream Density, and Hydrogen Recombination"
Coughlin, E.R., 2023, Monthly Notices of the Royal Astronomical Society, 522, 5500
60. "Tidal Capture of Stars by Supermassive Black Holes: Implications for Periodic Nuclear Transients and Quasi-periodic Eruptions"
Cufari, M., Nixon, C.J., **Coughlin, E.R.**, 2023, Monthly Notices of the Royal Astronomical Society Letters, 520, L38
59. "Live to Die Another Day: The Rebrightening of AT2018fyk as a Repeating Partial Tidal Disruption Event"
Wevers, T., **Coughlin, E.R.**, Pasham, D.R., et al., 2023, The Astrophysical Journal Letters, 942, L33
58. "Simulated Optical Lightcurves of Super-Eddington Tidal Disruption Events with ZEBRA Flows"
Eyles-Ferris, R.A.J., Starling, R.L.C., O'Brien, P.T., Nixon, C.J., & **Coughlin, E.R.**, 2022, Monthly Notices of the Royal Astronomical Society, 517, 6013
57. "The Birth of a Relativistic Jet Following the Disruption of a Star by a Supermassive Black Hole"
Pasham, D.R., Lucchini M., Laskar, T., Gompertz, B.P., Srivastav, S., Nicholl, M., Smartt, S.J., Miller-Jones, J.C.A., Alexander, K.D., Fender, R., Smith, G.P., Fulton, M., Dewangan, G., Gendreau, K., **Coughlin, E.R.**, et al., 2023, Nature Astronomy, 7, 88
56. "Stars Crushed by Black Holes. III. Mild Compression of Radiative Stars by Supermassive Black Holes"

[Kundu, S.K.](#), **Coughlin, E.R.**, & Nixon, C.J., 2022, The Astrophysical Journal, 939, 71

55. "A Simple and Accurate Prescription for the Tidal Disruption Radius of a Star and the Peak Accretion Rate in Tidal Disruption Events"

Coughlin, E.R., & Nixon, C.J., 2022, Monthly Notices of the Royal Astronomical Society Letters, 517, L26

54. "Spherically Symmetric Accretion onto a Compact Object through a Standing Shock: The Effects of General Relativity in the Schwarzschild Geometry"

[Kundu, S.K.](#), & **Coughlin, E.R.**, 2022, Monthly Notices of the Royal Astronomical Society, 516, 481

53. "On the Impact of Relativistic Gravity on the Rate of Tidal Disruption Events"

Coughlin, E.R., & Nixon, C.J., 2022, The Astrophysical Journal, 936, 70

52. "Using the Hills Mechanism to Generate Repeating Partial Tidal Disruption Events and ASASSN-14ko"

[Cufari, M.](#), **Coughlin, E.R.**, & Nixon, C.J., 2022, The Astrophysical Journal Letters, 929, L20

51. "Stellar Revival and Repeated Flares in Deeply Plunging Tidal Disruption Events"

Nixon, C.J., & **Coughlin, E.R.**, 2022, The Astrophysical Journal Letters, 927, L25

50. "A Physical Model of Delayed Rebrightenings in Shock-interacting Supernovae without Narrow-Line Emission"

Coughlin, E.R., & Zrake, J., 2022, The Astrophysical Journal, 927, 148

49. "Stars Crushed by Black Holes. II. A Physical Model of Adiabatic Compression and Shock Formation in Tidal Disruption Events"

Coughlin, E.R., & Nixon, C.J., 2022, The Astrophysical Journal, 926, 47

48. "The Eccentric Nature of Eccentric Tidal Disruption Events"

[Cufari, M.](#), **Coughlin, E.R.**, & Nixon, C.J., 2022, The Astrophysical Journal, 924, 34

47. "Tidal Disruption Disks Formed and Fed by Stream-Stream and Stream-Disk Interactions in Global GRHD Simulations"

Andalman, Z., Liska, M., Tchekhovskoy, S., **Coughlin, E.R.**, & Stone, N.C., 2021, Monthly Notices of the Royal Astronomical Society, 510, 1627

46. "Stars Crushed by Black Holes. I. On the Energy Distribution of Stellar Debris in Tidal Disruption Events"

Norman, S.M.J., Nixon, C.J., & **Coughlin, E.R.**, 2021, The Astrophysical Journal, 923, 184

45. "Partial, Zombie, and Full Tidal Disruption of Stars by Supermassive Black Holes"

Nixon, C.J., **Coughlin, E.R.**, & [Miles, P.R.](#), 2021, The Astrophysical Journal, 922, 168

44. "Dynamical Stability of Giant Planets: the Critical Adiabatic Index in the Presence of a Solid Core"

Kundu, S.K., **Coughlin, E.R.**, Youdin, A.N., & Armitage, P.J., 2021, Monthly Notices of the Royal Astronomical Society, 507, 6215

43. "Non-thermal Filaments from the Tidal Destruction of Clouds in the Galactic Center"

Coughlin, E.R., Nixon, C.J., & Ginsburg, A., 2021, Monthly Notices of the Royal Astronomical Society, 501, 1868

42. "Structured, Relativistic Jets Driven by Radiation"

Coughlin, E.R., & Begelman, M.C., 2020, Monthly Notices of the Royal Astronomical Society, 499, 3158

41. "The Persistence of Pancakes and the Revival of Self-gravity in Tidal Disruption Events"

Coughlin, E.R., Nixon, C.J., & [Miles, P.R.](#), 2020, The Astrophysical Journal, 900, L39

40. "Fallback Rates from Partial Tidal Disruption Events"

[Miles, P.R.](#), **Coughlin, E.R.**, & Nixon, C.J., 2020, The Astrophysical Journal, 899, 36

39. “Variability in Short Gamma-ray Bursts: Gravitationally Unstable Tidal Tails”
Coughlin, E.R., Nixon, C.J., Barnes, J., Metzger, B.D., & Margutti, R., 2020, The Astrophysical Journal, 896, L38
38. “The Structure of Nearly Isothermal, Adiabatic Shockwaves”
Coughlin, E.R., 2020, Monthly Notices of the Royal Astronomical Society Letters, 496, L43
37. “The Gravitational Instability of Adiabatic Filaments”
Coughlin, E.R., & Nixon, C.J., 2020, The Astrophysical Journal Supplement, 247, 51
36. “Short Gamma-ray Bursts and the Decompression of Neutron Star Matter in Tidal Streams”
Nixon, C.J., **Coughlin, E.R.**, & Pringle, J.E., 2020, The Astrophysical Journal Letters, 900, L12
35. “Emission from Elliptical Streams of Dusty Debris around White Dwarfs”
Nixon, C.J., Pringle, J.E., **Coughlin, E.R.**, Swan, A., & Farihi, J., 2020, arXiv: 2006.07639
34. “A Mildly Relativistic Outflow from the Energetic, Fast-rising Blue Optical Transient CSS161010 in a Dwarf Galaxy”
Coppejans, D.L., Margutti, R., Terreran, G., Nayana, A.J., **Coughlin, E.R.**, et al., 2020, The Astrophysical Journal Letters, 895, L23
33. “Partial Stellar Disruption by a Supermassive Black Hole: Is the Lightcurve Really Proportional to $t^{-9/4}$?”
Coughlin, E.R., & Nixon, C.J., 2019, The Astrophysical Journal Letters, 883, L17
32. “Energy-conserving, Relativistic Corrections to Strong Shock Propagation”
Coughlin, E.R., 2019, The Astrophysical Journal, 880, 108
31. “The Influence Black Hole Binarity on Tidal Disruption Events”
Coughlin, E.R., Armitage, P.J., Lodato, G., & Nixon, C., 2019, Space Science Reviews, 215, 45
30. “On the Diversity of Fallback Rates from Tidal Disruption Events with Accurate Stellar Structure”
Golightly, E.C.A., Nixon, C.J., & **Coughlin, E.R.**, 2019, The Astrophysical Journal Letters, 882, L26
29. “Ultra-deep Tidal Disruption Events: Prompt Self-intersections and Observables”
Darbha, S., **Coughlin, E.R.**, Kasen, D., & Nixon, C., 2019, Monthly Notices of the Royal Astronomical Society, 488, 5267
28. “Weak Shock Propagation with Accretion. III. A Numerical Study on Shock Propagation and Stability”
Ro, S., **Coughlin, E.R.**, & Quataert, E., 2019, The Astrophysical Journal, 878, 150
27. “Thawing the Frozen-in Approximation: Implications for Self-gravity in Deeply-plunging Tidal Disruption Events”
Steinberg, E., **Coughlin, E.R.**, Stone, N., & Metzger, B.D., 2019, Monthly Notices of the Royal Astronomical Society, 485, L146
26. “Black Hole Accretion Disks and Luminous Transients in Failed Supernovae from Non-rotating Supergiants”
Quataert, E., Lecoanet, D., & **Coughlin, E.R.**, 2019, Monthly Notices of the Royal Astronomical Society, 485, L83
25. “An Embedded X-ray Source Shines Through the Aspherical AT2018COW: Revealing the Inner Workings of the Most Luminous Fast-evolving Optical Transients”
Margutti, R., Metzger, B.D., Chornock, R., et al. (incl. **Coughlin, E.R.**), 2019, The Astrophysical Journal, 872, 18
24. “Tidal Disruption Events: the Role of Stellar Spin”
Golightly, E., **Coughlin, E.R.**, & Nixon, C.J., 2019, The Astrophysical Journal, 872, 163
23. “Gravitational Interactions of Stars with Supermassive Black Hole Binaries. II. Hypervelocity Stars”

- [Darbha, S.](#), **Coughlin, E.R.**, Kasen, D., & Quataert, E., 2019, Monthly Notices of the Royal Astronomical Society, 482, 2132
22. “A Loud Quasi-periodic Oscillation after a Star is Disrupted by a Massive Black Hole”
Pasham, D.J., et al. (incl. **Coughlin, E.R.**), 2019, Science, 363, 531
21. “Weak Shock Propagation with Accretion. II. Stability of Self-similar Solutions to Radial Perturbations”
Coughlin, E.R., Ro, S., & Quataert, E., 2018, The Astrophysical Journal, 874, 58
20. “Weak Shock Propagation with Accretion. I. Self-similar Solutions and Application to Failed Supernovae”
Coughlin, E.R., Quataert, E., & Ro, S., 2018, The Astrophysical Journal, 863, 158
19. “Stellar Binaries Incident on Supermassive Black Hole Binaries: Implications for Double Tidal Disruption Events, Calcium-rich Transients, and Hypervelocity Stars”
Coughlin, E.R., [Darbha, S.](#), Kasen, D., & Quataert, E., 2018, The Astrophysical Journal, 863, L24
18. “Super-Eddington Accretion in Tidal Disruption Events: The Impact of Realistic Fallback Rates on Accretion Rates”
[Wu, S.](#), **Coughlin, E.R.**, & Nixon, C., 2018, Monthly Notices of the Royal Astronomical Society, 478, 3016
17. “Tidal Disruption by Extreme Mass Ratio Binaries and Application to ASASSN-15lh”
Coughlin, E.R., & Armitage, P.J., 2018, Monthly Notices of the Royal Astronomical Society, 474, 3857
16. “Gravitational Interactions of Stars with Supermassive Black Hole Binaries. I. Tidal Disruption Events”
[Darbha, S.](#), **Coughlin, E.R.**, Kasen, D., & Quataert, E., 2018, Monthly Notices of the Royal Astronomical Society, 477, 4009
15. “A Physical Model of Mass Ejection in Failed Supernovae”
Coughlin, E.R., Quataert, E., Fernandez, R., & Kasen, D., 2018, Monthly Notices of the Royal Astronomical Society, 477, 1225
14. “Mass Ejection in Failed Supernovae: Variation with Stellar Progenitor”
Fernandez, R., Quataert, E., Kashiyama, K., & **Coughlin, E.R.**, 2018, Monthly Notices of the Royal Astronomical Society, 476, 2366
13. “Circumbinary Discs from Tidal Disruption Events”
Coughlin, E.R., & Armitage, P.J., 2017, Monthly Notices of the Royal Astronomical Society, 471, L115
12. “Spherically Symmetric, Cold Collapse: the Exact Solutions and a Comparison with Self-Similar Solutions”
Coughlin, E.R., 2017, The Astrophysical Journal, 835, 40
11. “Tidal Disruption Events from Supermassive Black Hole Binaries”
Coughlin, E.R., Armitage, P.J., Nixon, C., & Begelman, M.C., 2017, Monthly Notices of the Royal Astronomical Society, 465, 3840
10. “Electric and Magnetic Variations in the Near-Mars Environment”
Fowler, C.M., Andersson, L., Halekas, J., Espley, J.R., Mazelle, C., **Coughlin, E.R.**, et al., 2017, Journal of Geophysical Research, 122, 8536
9. “The Fine Line Between Total and Partial Tidal Disruption Events”
Mainetti, D., Lupi, A., Campana, S., Colpi, M., **Coughlin, E.R.**, Guillochon, J., & Ramirez-Ruiz, E., 2017, Astronomy & Astrophysics, 600, 124
8. “The Radiation Hydrodynamics of Relativistic Shear Flows”
Coughlin, E.R., & Begelman, M.C., 2016, The Astrophysical Journal, 821, 21
7. “On the Structure of Tidally-disrupted Stellar Debris Streams”

- Coughlin, E.R.**, Nixon, C., Begelman, M.C., & Armitage, P.J., 2016, Monthly Notices of the Royal Astronomical Society, 459, 3089
6. “Post-periapsis Pancakes: Sustenance for Self-gravity in Tidal Disruption Events”
Coughlin, E.R., Nixon, C., Begelman, M.C., Armitage, P.J., & Price, D.J., 2016, Monthly Notices of the Royal Astronomical Society, 455, 3612
 5. “Viscous Boundary Layers of Radiation-dominated, Relativistic Jets. II. The Free-streaming Jet Model”
Coughlin, E.R., & Begelman, M.C., 2015, The Astrophysical Journal, 809, 2
 4. “Viscous Boundary Layers of Radiation-dominated, Relativistic Jets. I. The Two-stream Model”
Coughlin, E.R., & Begelman, M.C., 2015, The Astrophysical Journal, 809, 1
 3. “Variability in Tidal Disruption Events: Gravitationally Unstable Streams”
Coughlin, E.R., & Nixon, C., 2015, The Astrophysical Journal Letters, 808, L11
 2. “The General Relativistic Equations of Radiation Hydrodynamics in the Viscous Limit”
Coughlin, E.R., & Begelman, M.C., 2014, The Astrophysical Journal, 797, 103
 1. “Hyperaccretion During Tidal Disruption Events: Weakly Bound Debris Envelopes and Jets”
Coughlin, E.R., & Begelman, M.C., 2014, The Astrophysical Journal, 781, 82

SUCCESSFUL PROPOSALS

- | | |
|------|--|
| 2026 | <i>Chandra/ACIS Observations of a Repeating Partial Tidal Disruption Event: Completing a 9-Year Legacy Dataset</i>
NASA/SAO Chandra ToO Proposal
PI: Pasham, D.R.; Co-I: Coughlin, E.R.
Amount: 50ks |
| 2026 | <i>XMM Snapshots of AT2018fyk: Testing repeating TDEs, building a legacy dataset</i>
ESA XMM-Newton Guest Investigator Proposal
PI: Pasham, D.R.; Co-PI: Coughlin, E.R.
Amount: \$60,000, |
| 2026 | <i>Order-of-magnitude Leap for SMBH Transients</i>
Las Cumbres Observatory Key Project
PI: Arcavi, I.; Co-PI: Newsome, M.; Co-I: Coughlin, E.R.
Amount: 550 hours LCO time |
| 2024 | <i>Astrophysical Transients from Failed and Sub-energetic Core-Collapse Supernovae</i>
NSF GRFP Grant
PI: Coughlin, E.R. ; GRFP Fellow: Paradiso, D.A.
Amount: \$159,000 |
| 2024 | <i>Exploring Repeating Partial Tidal Disruption Events as Sources of Extragalactic Periodic Nuclear Transients</i>
NASA FINESST Proposal
PI: Coughlin, E.R. , FI: Bandopadhyay, A.
Amount: \$147,986 |
| 2024 | <i>Extragalactic Outbursts and Repeating Nuclear Flares from Tidal Disruption Events</i>
NASA Astrophysics Theory Proposal
PI: Coughlin, E.R.
Amount: \$346,831 |
| 2023 | <i>Chandra/ACIS Observations to Confirm the X-ray Cutoff from a Repeating Partial Tidal Disruption Event</i> |

NASA/SAO Chandra ToO Proposal
 PI: Pasham, D.R., Co-I: **Coughlin, E.R.**
 Amount: \$38,000 (to SU)

- 2023 *Observing a Repeating Partial Tidal Disruption Event During a Flux Shutoff Phase*
 ESA XMM-Newton Guest Investigator Proposal
 PI: Pasham, D.R., Co-I: **Coughlin, E.R.**
 Amount: \$53,737
- 2023 *Continued NICER+Swift Monitoring of Repeating Stellar Tidal Disruption Events: Building a Legacy Dataset*
 NASA NICER Guest Observer Proposal
 PI: Pasham, D.R., Co-I: **Coughlin, E.R.**
 Award: \$42,999
- 2023 *Continued Swift Monitoring of Repeating Stellar Tidal Disruption Events: Towards a Legacy Dataset*
 NASA Swift Guest Investigator Proposal
 PI: **Coughlin, E.R.**, Co-I: Pasham, D.R.
 Award: \$40,000
- 2022 *Stars Crushed at the Gravitational Hand of a Supermassive Black Hole*
 Oakridge Associated Universities Ralph E. Powe Junior Faculty Enhancement Award
 PI: **Coughlin, E.R.**
 Award: \$10,000
- 2020 *Understanding the Long-term Evolution of Tidal Disruption Events*
 PI: **Coughlin, E.R.**
 NSF Astronomy and Astrophysics Grant, AST-2006684
 Award: \$330,317
- 2019 *The Appearance of Disappearing Stars: Mass Ejection, Fallback Accretion, and Jets from Weak and Failed Supernovae*
 PI: **Coughlin, E.R.**
 NASA Hubble Fellowship
 Award: \$330,000
- 2016 *Black Hole Enlightenment from Tidal Disruption Events*
 PI: **Coughlin, E.R.**
 NASA Einstein Fellowship
 Award: \$330,000

TEACHING EXPERIENCE

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|-------------------|--|
| 08/2025 — 12/2025 | Principles of General Relativity (PHY 585)/Theory of Relativity (PHY 785) |
| 08/2026 — 12/2026 | Combined undergraduate and graduate course on general relativity, covering fundamentals, Riemann tensor, Einstein's field equations, Schwarzschild metric, FRW metric, gravitational waves and perturbation theory, Lense-Thirring precession. |
| 01/2025 — 05/2025 | Astrophysical Fluid Dynamics (PHY 517) |
| 01/2026 — 05/2026 | Combined undergraduate and graduate course on fluid dynamics, covering fundamentals, shockwaves, explosions, potential flows, viscous flow, accretion discs. I designed this course from scratch. |
| 01/2022 — 05/2022 | Advanced Graduate Course (PHY 890) |
| | Designed and implemented an independent study with Duncan Brown, Charles Brightman Professor of Physics, on tides in interacting systems and applications to compact object coalescence. |
| 01/2022 — 05/2022 | Stellar and Interstellar Astrophysics/Modern Astrophysics (PHY 317) |
| 01/2023 — 05/2023 | Instructor; upper level course for majors and non-majors that offers an |

	overview of contemporary/modern astrophysics; typical enrollment ~ 15 students. I designed many of the materials for this course
08/2021 — 12/2021	Introductory Electricity and Magnetism (PHY 212)
08/2023 — 12/2023	Instructor for calculus-based, introductory electromagnetism
08/2024 — 12/2024	typical enrollment ~ 250 students, mostly engineering

I have also done various Undergraduate Independent Study (PHY 490) and Graduate Independent Study (PHY 690) courses, often leading to publications; see student authors listed in Publications.

RESEARCH ADVISING EXPERIENCE

POSTDOCS

08/2025 — 08/2026	Advisor for postdoctoral researcher Benjamin Amend Publications: Amend, B., et al., 2026, PASA, Perley, D., et al. (incl. Amend, B.), 2026, MNRAS, Amend, B., et al., 2026, MNRAS, Bandopadhyay, A., Amend, B., et al., 2026, ApJ Amend, B., et al., 2026, PASA, <i>Under Review</i> Current Occupation: Visiting Teaching Professor, Coastal Carolina University
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GRADUATE STUDENTS

05/2026 — Present	Advisor for Syracuse University graduate student Alexandra VonHaven
05/2026 — Present	Advisor for Syracuse University graduate student Ryan Coldren
05/2023 — Present	Advisor for Syracuse University graduate student Ananya Bandopadhyay Publications: Bandopadhyay, A., Fancher, J., et al., 2024, ApJL, 961, L2 Bandopadhyay, A., et al., 2024, ApJ, 974, 80 Bandopadhyay, A., et al., 2025, ApJ, 987, 16 Bandopadhyay, A., et al., 2026, ApJ, 998, 81 Bandopadhyay, A., et al., 2026, ApJ, 1007, 181 Awards: NASA FINESST Award Recipient 2024
06/2022 — Present	Mentor/Advisor for Syracuse University graduate student Daniel Paradiso Publications: Paradiso, D., et al., 2024, ApJ, 961, 158 Paradiso, D., & Coughlin, E.R., 2025, ApJ, 985, 173 Paradiso, D., et al., 2026, ApJ, Awards: NSF GRFP Fellowship 2024
05/2020 — 07/2023	Mentor for Syracuse University graduate student Suman Kumar Kundu Publications: Kundu, S.K., et al., 2021, MNRAS, 507, 6215 Kundu, S.K., & Coughlin, E.R., MNRAS, 516, 4814 Kundu, S.K., et al., ApJ, 939, 71 Degree: PhD, Summer 2023 Current Occupation: Tenure-track professor, Kansas Wesleyan University
05/2019 — 05/2021	Mentor/Advisor for Syracuse University graduate student Patrick Miles Publications: Miles, P.R., Coughlin, E.R., Nixon, C.J., 2020, ApJ, 899, 36 Coughlin, E.R., Nixon, C.J., & Miles, P.R., 2020, ApJL, 900, 39 Nixon, C.J., Coughlin, E.R., Miles, P.R., 2021, ApJ, 922, 168 Degree: MSc, Fall 2022 Current Occupation: Software Engineer at Lawrence Livermore National Lab

UNDERGRADUATE STUDENTS

05/2025 — Present	Advisor for Syracuse University undergraduate student Valentino Indelicato Publications: Bandopadhyay et al. (incl. Indelicato, V.), 2024, ApJL, 961, L2
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- 01/2026 — 05/2026 Advisor for Syracuse University undergraduate student **Chris Lagomarsino**
Publications: Amend, B., **Lagomarsino, C.**, et al., 2026, PASA, 43, 96
- 01/2024 — 01/2026 Advisor for Syracuse University undergraduate student **Sarah Vallejo**
Publications: Paradiso, D., **Vallejo, S.**, et al., 2026, ApJ, 1004, 120
Degree: BSc Physics, January 2026
Current Occupation: Researcher at Los Alamos National Lab
- 10/2022 — 05/2026 Advisor for Syracuse University undergraduate student **Julia Fancher**
Publications: **Fancher, J.**, Coughlin, E.R., Nixon, C., 2023, MNRAS, 526, 2323
Bandopadhyay, A., **Fancher, J.**, et al., 2024, ApJL, 961, L2
Fancher, J., Bandopadhyay, A., et al., 2025, ApJ, 990, 104
Awards: **Gelling Award (SU Physics), Goldwater Scholarship, Astronaut Scholarship, NSF GRFP Fellowship 2026**
Degree: BSc Physics, Spring 2026
Current Occupation: NSF GRFP Fellow, OSU, Astronomy
- 10/2020 — 05/2023 Mentor/Advisor for Syracuse University undergraduate student **Matt Cufari**
Publications: **Cufari, M.**, Coughlin, E.R., Nixon, C.J., 2022, ApJ, 924, 34
Cufari, M., Coughlin, E.R., Nixon, C.J., 2022, ApJ, 929, L20
Cufari, M., Coughlin, E.R., Nixon, C.J., 2022, MNRASL 520, L38
Awards and Honors: **Goldwater Scholarship, Astronaut Scholarship, LeRoy Apker Award, NSF GRFP Honorable Mention**
Degree: BSc Physics, Spring 2023
Current Occupation: Graduate student, MIT, Physics

OUTREACH

- 06/2022 — 08/2022 Initiated the Syracuse University Research in Physics (SURPh) program. Worked with
06/2023 — 08/2023 Syracuse high school students for 6 weeks, during summers of 2022, 2023,
06/2024 — 08/2024 2024, on research; published a paper in ApJL with 4 of those students
06/2026 — 08/2026 (Bandopadhyay et al. 2024; see above)
- 05/2022, 05/2023 Led discussion about supermassive black holes and career path as a scientist to
05/2024, 05/2026 4, AP physics classrooms at Ithaca High School, Ithaca, NY.
- 4/22/2022 Led a virtual presentation and panel discussion with Kathryn Gabriel to ~ 150 art
educators across the country on our science and art program. Sponsored by the
National Art Educators Association.
- 08/2020 — 05/2023 Designed a Science and Art Curriculum with Kathryn Gabriel
Working with Kathryn Gabriel, a professional artist and art teacher at
Fayetteville-Manlius High School in New York, to develop a multidisciplinary
curriculum that blends science and art. Individual programs and modules will be
co-taught in the classroom, with standalone units (in video format) available for
download for use anywhere.
- 01/2020 — 02/2020 Created and Lead a Science and Art Program at Emmaus High School
Collaborated with Alexis Soboleski, an art teacher at Emmaus High School,
Emmaus, PA, to teach a class combining science and art; led a three-class lecture
series on tidal disruption events; created visualizations of tidal disruption events
with gelatin molding and Corel Painter; critically assessed the progress and
works of the students.
- 11/2016 — 05/2018 Bay Area Scientist in School, Berkeley, California
Traveled to local elementary schools to give science demonstrations

RECENT PRESENTATIONS

On the Origin of Anomalous Dissipation in Simulations of Tidal Disruption Events
 248th Meeting of the American Astronomical Society talk, 2026, Pasadena, CA, June 15th

Tidal Disruption Events: The Road to Repetition
 Colloquium, Columbia University, 2026, April 1st

Repeating Partial Tidal Disruption Events
 Colloquium, Syracuse University, 2025, September 1st

Tidal Disruption Events, Partial Tidal Disruption Events, and Repeating Partial Tidal Disruption Events
 X-ray QPEs and Repeating Transients Meeting, 2025, European Space Agency Center, Madrid, Spain, June 16th

Repeating Partial Tidal Disruption Events
 Open Problems in Astrophysics Meeting, 2025, Niels Bohr Institute, Copenhagen, Denmark, June 12th

The Interaction Phase of Astrophysical Explosions
 Colloquium, University of Virginia, 2025, May 1st

Modeling the Interaction Phase of Strong Cosmological Explosions: A New Window into Extreme Astrophysical Transients
 Colloquium, RIT, 2024, November 18th

Astrophysical Explosions in the Time Domain
 Colloquium, Lehigh University, 2024, November 7th

New Solutions to the Interaction Phase of Strong Explosions
 Lunch Talk, Cornell University, 2024, October 2nd

Weak Explosions and Phantom Shock Breakouts: Possible Progenitors of Fast X-ray Transients
 Colloquium, Radboud University, 2024, February 20th

How a Black Hole Destroys a Star: New Advances in Understanding Tidal Disruption Events
 Colloquium, University of Colorado at Boulder, 2024, Boulder, Colorado, January 29th

Peak Luminosities from Tidal Disruption Events: Dependence on Stellar Type and Implications for Massive-star Disruptions
 243rd Meeting of the American Astronomical Society talk, 2024, New Orleans, LA, January 11th

Peak Fallback Rates from TDEs: Dependence on Stellar Type and Implications for Massive-star Disruptions
 RESCEU/NBIA Workshop 45-minute talk, University of Tokyo Hongo, Tokyo, Japan, 2023, December 14th

How a Black Hole Destroys a Star: New Advances in Understanding Tidal Disruption Events
 Colloquium, Clemson University, Clemson, SC, 2023, November 16th

Black Hole Accretion in Transient Astrophysical Phenomena
 European Astronomical Society Meeting, Kraków, Poland, 2023, July 13th

Stars Crushed by Black Holes in Extreme Tidal Disruption Events
 Aspen Center for Physics eXtreme Black Holes Conference, 2023, March 9th

Live to Die Another Day: Discovery of a Repeating Partial Tidal Disruption Event
 American Astronomical Society 241 Press Debriefing, Seattle WA, 2023, January 12th

Galactic Flares from Repeating Tidal Disruption Events
 Colloquium, University of Florida, 2022, April 7th

A Mechanism for Interacting Supernovae and Rebrightening without Narrow Line Emission
 High-Energy Astrophysics Division (HEAD) Meeting, 2022, March 17th

Stars Crushed by Black Holes in Extreme Tidal Disruption Events
 Deutsches Elektronen-Synchrotron (DESY) Seminar, 2022, February 4th

Stars Crushed by Black Holes in Extreme Tidal Disruption Events
 Colloquium, Cornell University, 2021, December 2nd

Mildly Relativistic Shock Propagation
 Plasma Astrophysics Seminar, Princeton University, 2020, July 14th

PROGRAMS AND CONFERENCES ORGANIZED

- 2025 Cornell University and Syracuse University “Research Day”
 Organized a day of talks and discussion among gravitational-wave astrophysicists and astronomers between Cornell and Syracuse, August 11th, 2025. Continued in 2026, held at Cornell
- 2024 “Towards a Physical Understanding of Tidal Disruption Events,”

- One of four scientific organizers for a four-week, Kavli Institute for Theoretical Physics (KITP) program, April 22nd — May 17, 2024, Santa Barbara, CA.
- 2024 “Anticipating the Rising Tide of Tidal Disruption Events,”
Lead organizer for the conference associated with our KITP program, April 23rd — April 26th, 2024, Santa Barbara, CA
- 2022 “Theoretical Advances in Tidal Disruption Events,”
Organized 90-minute special session at the High-Energy Astrophysics Division (HEAD) meeting of the American Astronomical Society, Pittsburgh, PA, 2022, March 15th,

RECENT HONORS AND AWARDS

- 2024 Named LSST Scialog Fellow
- 2022 Ralph E. Powe Junior Faculty Enhancement Award
- 2022 Syracuse University Teaching Excellence Award (for large-class instruction)
- 2019 Hubble Fellowship (taken to Princeton University)
- 2019 Lyman Spitzer Jr. Fellowship (Princeton University)
- 2019 CITA Fellowship (declined to accept joint Spitzer and Hubble Fellowship)
- 2018 International Astronomical Union Thesis Prize
- 2017 High Energy Division of the American Astronomical Society Dissertation Prize
- 2016 R.N. Thomas Award (University of Colorado, Boulder)
- 2016 Theoretical Astrophysics Center Fellowship (UC Berkeley)
- 2016 Einstein Fellowship (taken to UC Berkeley)
- 2016 Hubble Fellowship (declined to accept joint TAC and Einstein Fellowship)
- 2016 Burke Fellowship (Caltech; declined to accept joint TAC and Einstein Fellowship)

PUBLIC SERVICE

- Manuscript Referee* Monthly Notices of the Royal Astronomical Society
The Astrophysical Journal
The Astrophysical Journal Letters
Science Advances
Nature
Computational Astrophysics and Cosmology
Physical Review
Physical Review Letters
Publications of the Astronomical Society of Japan
Springer Space Science Reviews
Physics of Fluids
Astronomy and Astrophysics
- Proposal Reviewer* European Research Council Advanced Grant
NASA Postdoctoral Program
NASA Hubble Space Telescope Guest Observer Program
NASA FINNEST Program
NSF Astronomy and Astrophysics Grants
United States-Israel Binational Science Foundation Grants
NASA Astrophysics Theory Program
Neil Gehrels Swift Observatory Guest Investigator Program
NASA Earth and Space Science Fellowship
Polish National Science Center Grant

PROFESSIONAL MEMBERSHIPS

- 2022 — Present American Physical Society
- 2013 — Present American Astronomical Society
- 2011 — Present Phi Beta Kappa