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Stephen R. Taylor, Ph.D.

Department of Physics & Astronomy,
Vanderbilt University, Nashville, TN 37235
Office: (615) 343-6296 Cell: (626) 689-5832

stephen.r.taylor@vanderbilt.edu
https://my.vanderbilt.edu/stephentaylor
Stephen R. Taylor on https://scholar.google.com

EDUCATION - DEGREES EARNED

UNIVERSITY OF CAMBRIDGE	CAMBRIDGE, UK	PH.D.	2014

Thesis: Exploring The Cosmos With Gravitational Waves
Advisor: Dr. Jonathan R. Gair

UNIVERSITY OF OXFORD	OXFORD, UK	MPHYS (1ST CLASS)	2010

Thesis: The Cosmic Evolution Of Black-hole Accretion
Advisor: Prof. Steven Rawlings

EMPLOYMENT HISTORY

Assistant Professor of Physics & Astronomy, Vanderbilt University	2019-present
Faculty Affiliate, Data Science Institute, Vanderbilt University	2019-present
NANOGrav Senior Postdoctoral Fellow, California Institute of Technology	2017-2019
Caltech Postdoctoral Scholar, NASA Jet Propulsion Laboratory	2016-2017
NASA Postdoctoral Fellow, NASA Jet Propulsion Laboratory	2014-2016

Professional affiliations

- North American Nanohertz Observatory for Gravitational waves (NANOGrav), Chair
- Gravitational Wave International Committee (GWIC), NANOGrav Representative
- International Pulsar Timing Array (IPTA), Member
- LISA Consortium, Member
- OzGrav ARC Centre of Excellence for Gravitational-wave Discovery, Partner Investigator
- American Physical Society (DGRAV, DAP), Lifetime Member
- Royal Astronomical Society, Fellow
- American Astronomical Society, Member

HONORS & AWARDS

Fred Kavli Plenary Lectureship, American Astronomical Society	Jan 2024
National Science Foundation CAREER Award	Dec 2021
Visiting Astronomer, l'Observatoire de Paris	Dec 2019
Dean's Faculty Fellowship, Vanderbilt University College of Arts & Science	2019-2021
Marie Skłodowska-Curie Incoming Fellowship, University of Birmingham *[declined]*	2017
OzGrav ARC Centre of Excellence Fellowship, Swinburne & Monash Universities *[declined]*	2017
International Pulsar Timing Array Steering Committee Prize – Honorable Mention	2016
Gravitational Wave International Committee Thesis Prize – Honorable Mention	2016
NASA Postdoctoral Fellowship, Jet Propulsion Laboratory	2014
UK Science and Technology Facilities Council (STFC) – Full Ph.D. studentship award	2010
Scholarship, Jesus College, Oxford, UK	2007

RESEARCH

Research Grants Received

1. *"Mapping the host galaxies of low-frequency gravitational-wave sources";* National Science Foundation AST, Award #2307719; Windows on the Universe program.
   Principal Investigator: Stephen R. Taylor
   Co-PI: Chung-Pei Ma
   Total award: $625,613; Period of award: 09/01/2023–08/31/2026
2. *"CAREER: Unveiling the Nanohertz GW Discovery Landscape by Broadening Participation In Multi-messenger Astrophysics"*; National Science Foundation CAREER, PHY; Award #2146016.
   Principal Investigator: Stephen R. Taylor
   Total award: $450,000; Period of award: 12/15/2021 - 11/30/2026
3. *"Establishing Multimessenger Astronomy Inclusive Training";* National Science Foundation DGE; Award #2125764.
   Principal Investigator: Kelly Holley-Bockelmann
   Co-PIs: Arnold Burger, Jessie Runnoe, Stephen R. Taylor
   Total award: $3,000,000; Period of award: 09/01/2021–08/31/2026
4. *"The NANOGrav Physics Frontier Center";* National Science Foundation PHY & AST; PFC & MSIP programs. Award #2020265.
   Principal Investigator: Xavier Siemens
   Co-PIs: Scott Ransom, James Cordes, Maura McLaughlin, Sarah Burke-Spolaor
   Institutional PI: Stephen R. Taylor
   Total award: $17,000,000 ($758,139 for Vanderbilt); Period of award: 04/01/2021–03/31/2026
5. *"Multi-messenger Titans: Probing The Dynamics & Environments Of Supermassive Binary Black Holes";* National Science Foundation AST, Award #2007993; Windows on the Universe program.
   Principal Investigator: Stephen R. Taylor
   Co-PI: Jessie Runnoe
   Total award: $523,920; Period of award: 09/01/2020–08/31/2023

Observing Proposals

1. Co-Investigator: "High impact MSPs for the International Pulsar Timing Array"; Green Bank Telescope. Proposal GBT17A-353. Status: awarded 21.0 hours. Nov 2016.
2. Co-Investigator: "High impact MSPs for the International Pulsar Timing Array"; Arecibo Radio Telescope. Proposal P3133. Status: awarded 32.5 hours. Sep 2016.

Refereed Journal Articles - Primary Research

h-index = 42

Note: the policy of NANOGrav and some other collaborations is for authorship on all large analysis papers to be alphabetical. These are labeled by a star. For all others, author ordering indicates the level of participation.

Top 5 Cited (overall)

1. **[662 citations; Chair of Working Group]** *Z. Arzoumanian, P. T. Baker, H. Blumer, et al. (2020), "The NANOGrav 12.5 yr Data Set: Search for an Isotropic Stochastic Gravitational-wave Background", The Astrophysical Journal, 905, L34 (18 pp), https://doi.org/10.3847/2041-8213/abd401, arXiv:2009.04496.

2. **[442 citations]** *Z. Arzoumanian, A. Brazier, S. Burke-Spolaor, et al. (2018), "The NANOGrav 11-year Data Set: High-precision Timing of 45 Millisecond Pulsars", The Astrophysical Journal Supplement Series, 235, 37 (41 pp), https://doi.org/10.3847/1538-4365/aab5b0, arXiv:1801.01837.
3. **[422 citations; Core Analysis Team]** L. Lentati, **S. R. Taylor**, C. M. F. Mingarelli, et al. (2015), "European Pulsar Timing Array limits on an isotropic stochastic gravitational-wave background", Monthly Notices of the Royal Astronomical Society, 453, 2576-2598 (23 pp), https://doi.org/10.1093/mnras/stv1538, arXiv:1504.03692.
4. **[365 citations; Corresponding Author]** *Z. Arzoumanian, P. T. Baker, A. Brazier, et al. (2018), "The NANOGrav 11 Year Data Set: Pulsar-timing Constraints on the Stochastic Gravitational-wave Background", The Astrophysical Journal, 859, 47 (22 pp), https://doi.org/10.3847/1538-4357/aabd3b, arXiv:1801.02617.
5. **[355 citations]** *G. Desvignes, R. N. Caballero, L. Lentati, et al. (2016), "High-precision timing of 42 millisecond pulsars with the European Pulsar Timing Array", Monthly Notices of the Royal Astronomical Society, 458, 3341-3380 (40 pp), https://doi.org/10.1093/mnras/stw483, arXiv:1602.08511.

Top 5 Cited (non-collaboration)

1. **[181 citations]** S. Burke-Spolaor, **S. R. Taylor**, M. Charisi, T. Dolch, J. S. Hazboun, A. M. Holgado, L. Z. Kelley, T. J. W. Lazio, D. R. Madison, N. McMann, C. M. F. Mingarelli, A. Rasskazov, X. Siemens, J. J. Simon, and T. L. Smith (2019), "The astrophysics of nanohertz gravitational waves", Astronomy and Astrophysics Review, 27, 5 (78 pp), https://doi.org/10.1007/s00159-019-0115-7, arXiv:1811.08826.
2. **[135 citations] S. R. Taylor**, J. R. Gair, and I. Mandel (2012), "Cosmology using advanced gravitational-wave detectors alone", Physical Review D, 85, 023535, (22 pp), https://doi.org/10.1103/PhysRevD.85.023535, arXiv:1108.5161.
3. **[134 citations] S. R. Taylor** and J. R. Gair (2012), "Cosmology with the lights off: Standard sirens in the Einstein Telescope era", Physical Review D, 86, 023502, (23 pp), https://doi.org/10.1103/PhysRevD.86.023502, arXiv:1204.6739.
4. **[96 citations] S. R. Taylor**, M. Vallisneri, J. A. Ellis, C. M. F. Mingarelli, T. J. W. Lazio, and R. van Haasteren (2016), "Are We There Yet? Time to Detection of Nanohertz Gravitational Waves Based on Pulsar-timing Array Limits", The Astrophysical Journal, 819, L6 (6 pp), https://doi.org/10.3847/2041-8205/819/1/L6, arXiv:1511.05564.
5. **[101 citations]** C. M. F. Mingarelli, T. J. W. Lazio, A. Sesana, J. E. Greene, J. A. Ellis, C.-P. Ma, S. Croft, S. Burke-Spolaor, and **S. R. Taylor** (2017), "The local nanohertz gravitational-wave landscape from supermassive black hole binaries", Nature Astronomy, 1, 886-892 (7 pp), https://doi.org/10.1038/s41550-017-0299-6, arXiv:1708.03491.

Full Reverse-chronological Publication List

1. *G. Agazie, A. Anumarlapudi, A. M. Archibald, P. T. Baker, B. Bécsy, L. Blecha, A. Bonilla, A. Brazier, P. R. Brook, S. Burke-Spolaor, and 105 colleagues (2023), "The NANOGrav 15 yr Data Set: Constraints on Supermassive Black Hole Binaries from the Gravitational-wave Background", The Astrophysical Journal, 952, L37 (30 pp), https://doi.org/10.3847/2041-8213/ace18b, arXiv:2306.16220.
2. *G. Agazie, A. Anumarlapudi, A. M. Archibald, Z. Arzoumanian, P. T. Baker, B. Bécsy, L. Blecha, A. Brazier, P. R. Brook, S. Burke-Spolaor, and 89 colleagues (2023), "The NANOGrav 15 yr Data Set: Bayesian Limits on Gravitational Waves from Individual Supermassive Black Hole Binaries", The Astrophysical Journal, 951, L50 (18 pp), https://doi.org/10.3847/2041-8213/ace18a, arXiv:2306.16222.

3. *Z. Arzoumanian, P. T. Baker, L. Blecha, H. Blumer, A. Brazier, P. R. Brook, S. Burke-Spolaor, B. Bécsy, J. A. Casey-Clyde, M. Charisi, and 69 colleagues (2023), "The NANOGrav 12.5 yr Data Set: Bayesian Limits on Gravitational Waves from Individual Supermassive Black Hole Binaries", The Astrophysical Journal, 951, L28 (17 pp), https://doi.org/10.3847/2041-8213/acdbc7, arXiv:2301.03608.
4. *A. Afzal, G. Agazie, A. Anumarlapudi, A. M. Archibald, Z. Arzoumanian, P. T. Baker, B. Bécsy, J. J. Blanco-Pillado, L. Blecha, K. K. Boddy, and 114 colleagues (2023), "The NANOGrav 15 yr Data Set: Search for Signals from New Physics", The Astrophysical Journal, 951, L11 (56 pp), https://doi.org/10.3847/2041-8213/acdc91, arXiv:2306.16219.
5. *G. Agazie, A. Anumarlapudi, A. M. Archibald, Z. Arzoumanian, P. T. Baker, B. Bécsy, L. Blecha, A. Brazier, P. R. Brook, S. Burke-Spolaor, and 82 colleagues (2023), "The NANOGrav 15 yr Data Set: Detector Characterization and Noise Budget", The Astrophysical Journal, 951, L10 (57 pp), https://doi.org/10.3847/2041-8213/acda88, arXiv:2306.16218.
6. *G. Agazie, M. F. Alam, A. Anumarlapudi, A. M. Archibald, Z. Arzoumanian, P. T. Baker, L. Blecha, V. Bonidie, A. Brazier, P. R. Brook, and 91 colleagues (2023), "The NANOGrav 15 yr Data Set: Observations and Timing of 68 Millisecond Pulsars", The Astrophysical Journal, 951, L9 (78 pp), https://doi.org/10.3847/2041-8213/acda9a, arXiv:2306.16217.
7. *G. Agazie, A. Anumarlapudi, A. M. Archibald, Z. Arzoumanian, P. T. Baker, B. Bécsy, L. Blecha, A. Brazier, P. R. Brook, S. Burke-Spolaor, and 105 colleagues (2023), "The NANOGrav 15 yr Data Set: Evidence for a Gravitational-wave Background", The Astrophysical Journal, 951, L8 (24 pp), https://doi.org/10.3847/2041-8213/acdac6, arXiv:2306.16213.
8. *M. Falxa, S. Babak, P. T. Baker, B. Bécsy, A. Chalumeau, S. Chen, Z. Chen, N. J. Cornish, L. Guillemot, J. S. Hazboun, and 118 colleagues (2023), "Searching for continuous Gravitational Waves in the second data release of the International Pulsar Timing Array", Monthly Notices of the Royal Astronomical Society, 521, 5077-5086 (10 pp), https://doi.org/10.1093/mnras/stad812, arXiv:2303.10767.
9. L. Speri, N. K. Porayko, M. Falxa, S. Chen, J. R. Gair, A. Sesana, and S. R. Taylor (2023), "Quality over quantity: Optimizing pulsar timing array analysis for stochastic and continuous gravitational wave signals", Monthly Notices of the Royal Astronomical Society, 518, 1802-1817 (16 pp), https://doi.org/10.1093/mnras/stac3237, arXiv:2211.03201.
10. N. Pol, S. R. Taylor, and J. D. Romano (2022), "Forecasting Pulsar Timing Array Sensitivity to Anisotropy in the Stochastic Gravitational Wave Background", The Astrophysical Journal, 940, 173 (13 pp), https://doi.org/10.3847/1538-4357/ac9836, arXiv:2206.09936.
11. M. Mould, D. Gerosa, and S. R. Taylor (2022), "Deep learning and Bayesian inference of gravitational-wave populations: Hierarchical black-hole mergers", Physical Review D, 106, 103013 (pp), https://doi.org/10.1103/PhysRevD.106.103013, arXiv:2203.03651.
12. Q. Wang and S. R. Taylor (2022), "Controlling outlier contamination in multimessenger time-domain searches for supermasssive binary black holes", Monthly Notices of the Royal Astronomical Society, 516, 5874-5886 (13 pp), https://doi.org/10.1093/mnras/stac2679, arXiv:2112.05698.
13. A. R. Kaiser, N. S. Pol, M. A. McLaughlin, S. Chen, J. S. Hazboun, L. Z. Kelley, J. Simon, S. R. Taylor, S. J. Vigeland, and C. A. Witt (2022), "Disentangling Multiple Stochastic Gravitational Wave Background Sources in PTA Data Sets", The Astrophysical Journal, 938, 115 (12 pp), https://doi.org/10.3847/1538-4357/ac86cc, arXiv:2208.02307.
14. C. A. Witt, M. Charisi, S. R. Taylor, and S. Burke-Spolaor (2022), "Quasars with Periodic Variability: Capabilities and Limitations of Bayesian Searches for Supermassive Black Hole Binaries in Time-domain Surveys", The Astrophysical Journal, 936, 89 (14 pp), https://doi.org/10.3847/1538-4357/ac8356, arXiv:2110.07465.

15. A. D. Johnson, S. J. Vigeland, X. Siemens, and S. R. Taylor (2022), "Gravitational-wave Statistics for Pulsar Timing Arrays: Examining Bias from Using a Finite Number of Pulsars", The Astrophysical Journal, 932, 105 (8 pp), https://doi.org/10.3847/1538-4357/ac6f5e, arXiv:2201.10657.
16. S. R. Taylor, J. Simon, L. Schult, N. Pol, and W. G. Lamb (2022), "A parallelized Bayesian approach to accelerated gravitational-wave background characterization", Physical Review D, 105, 084049 (pp), https://doi.org/10.1103/PhysRevD.105.084049, arXiv:2202.08293.
17. M. Charisi, S. R. Taylor, J. Runnoe, T. Bogdanovic, and J. R. Trump (2022), "Multimessenger time-domain signatures of supermassive black hole binaries", Monthly Notices of the Royal Astronomical Society, 510, 5929-5944 (16 pp), https://doi.org/10.1093/mnras/stab3713, arXiv:2110.14661.
18. *J. Antoniadis, Z. Arzoumanian, S. Babak, M. Bailes, A.-S. Bak Nielsen, P. T. Baker, C. G. Bassa, B. Bécsy, A. Berthereau, M. Bonetti, and 116 colleagues (2022), "The International Pulsar Timing Array second data release: Search for an isotropic gravitational wave background", Monthly Notices of the Royal Astronomical Society, 510, 4873-4887 (15 pp), https://doi.org/10.1093/mnras/stab3418, arXiv:2201.03980.
19. *Z. Arzoumanian, P. T. Baker, H. Blumer, B. Bécsy, A. Brazier, P. R. Brook, S. Burke-Spolaor, M. Charisi, S. Chatterjee, S. Chen, and 56 colleagues (2021), "Searching for Gravitational Waves from Cosmological Phase Transitions with the NANOGrav 12.5-Year Dataset", Physical Review Letters, 127, 251302 (pp), https://doi.org/10.1103/PhysRevLett.127.251302, arXiv:2104.13930.
20. *Z. Arzoumanian, P. T. Baker, H. Blumer, B. Bécsy, A. Brazier, P. R. Brook, S. Burke-Spolaor, M. Charisi, S. Chatterjee, S. Chen, and 62 colleagues (2021), "The NANOGrav 12.5-year Data Set: Search for Non-Einsteinian Polarization Modes in the Gravitational-wave Background", The Astrophysical Journal, 923, L22 (18 pp), https://doi.org/10.3847/2041-8213/ac401c, arXiv:2109.14706.
21. S. Banagiri, A. Criswell, T. Kuan, V. Mandic, J. D. Romano, and S. R. Taylor (2021), "Mapping the gravitational-wave sky with LISA: a Bayesian spherical harmonic approach", Monthly Notices of the Royal Astronomical Society, 507, 5451-5462 (12 pp), https://doi.org/10.1093/mnras/stab2479, arXiv:2103.00826.
22. A. Toubiana, K. W. K. Wong, S. Babak, E. Barausse, E. Berti, J. R. Gair, S. Marsat, and S. R. Taylor (2021), "Discriminating between different scenarios for the formation and evolution of massive black holes with LISA", Physical Review D, 104, 083027 (pp), https://doi.org/10.1103/PhysRevD.104.083027, arXiv:2106.13819.
23. *Z. Arzoumanian, P. T. Baker, A. Brazier, P. R. Brook, S. Burke-Spolaor, B. Becsy, M. Charisi, S. Chatterjee, J. M. Cordes, N. J. Cornish, and 47 colleagues (2021), "The NANOGrav 11 yr Data Set: Limits on Supermassive Black Hole Binaries in Galaxies within 500 Mpc", The Astrophysical Journal, 914, 121 (15 pp), https://doi.org/10.3847/1538-4357/abfcd3, arXiv:2101.02716.
24. *N. S. Pol, S. R. Taylor, L. Z. Kelley, S. J. Vigeland, J. Simon, S. Chen, Z. Arzoumanian, P. T. Baker, B. Bécsy, A. Brazier, and 43 colleagues (2021), "Astrophysics Milestones for Pulsar Timing Array Gravitational-wave Detection", The Astrophysical Journal, 911, L34 (10 pp), https://doi.org/10.3847/2041-8213/abf2c9, arXiv:2010.11950.
25. *M. F. Alam, Z. Arzoumanian, P. T. Baker, H. Blumer, K. E. Bohler, A. Brazier, P. R. Brook, S. Burke-Spolaor, K. Caballero, R. S. Camuccio, and 61 colleagues (2021), "The NANOGrav 12.5 yr Data Set: Wideband Timing of 47 Millisecond Pulsars", The Astrophysical Journal Supplement Series, 252, 5 (53 pp), https://doi.org/10.3847/1538-4365/abc6a1, arXiv:2005.06495.
26. *M. F. Alam, Z. Arzoumanian, P. T. Baker, H. Blumer, K. E. Bohler, A. Brazier, P. R. Brook, S. Burke-Spolaor, K. Caballero, R. S. Camuccio, and 61 colleagues (2021), "The NANOGrav 12.5 yr Data Set: Observations and Narrowband Timing of 47 Millisecond Pulsars", The Astrophysical Journal Supplement Series, 252, 4 (48 pp), https://doi.org/10.3847/1538-4365/abc6a0, arXiv:2005.06490.

27. *Z. Arzoumanian, P. T. Baker, H. Blumer, B. Bécsy, A. Brazier, P. R. Brook, S. Burke-Spolaor, S. Chatterjee, S. Chen, J. M. Cordes, and 52 colleagues (2020), "The NANOGrav 12.5 yr Data Set: Search for an Isotropic Stochastic Gravitational-wave Background", The Astrophysical Journal, 905, L34 (18 pp), https://doi.org/10.3847/2041-8213/abd401, arXiv:2009.04496.
28. S. R. Taylor, R. van Haasteren, and A. Sesana (2020), "From bright binaries to bumpy backgrounds: Mapping realistic gravitational wave skies with pulsar-timing arrays", Physical Review D, 102, 084039 (pp), https://doi.org/10.1103/PhysRevD.102.084039, arXiv:2006.04810.
29. K. Nguyen, T. Bogdanović, J. C. Runnoe, S. R. Taylor, A. Sesana, M. Eracleous, and S. Sigurdsson (2020), "Pulsar Timing Array Constraints on the Merger Timescale of Subparsec Supermassive Black Hole Binary Candidates", The Astrophysical Journal, 900, L42 (7 pp), https://doi.org/10.3847/2041-8213/abb2ab, arXiv:2006.12518.
30. *Z. Arzoumanian, P. T. Baker, A. Brazier, P. R. Brook, S. Burke-Spolaor, B. Bécsy, M. Charisi, S. Chatterjee, J. M. Cordes, N. J. Cornish, and 50 colleagues (2020), "Multimessenger Gravitational-wave Searches with Pulsar Timing Arrays: Application to 3C 66B Using the NANOGrav 11-year Data Set", The Astrophysical Journal, 900, 102 (11 pp), https://doi.org/10.3847/1538-4357/ababa1, arXiv:2005.07123.
31. *M. Vallisneri, S. R. Taylor, J. Simon, W. M. Folkner, R. S. Park, C. Cutler, J. A. Ellis, T. J. W. Lazio, S. J. Vigeland, K. Aggarwal, and 54 colleagues (2020), "Modeling the Uncertainties of Solar System Ephemerides for Robust Gravitational-wave Searches with Pulsar-timing Arrays", The Astrophysical Journal, 893, 112 (11 pp), https://doi.org/10.3847/1538-4357/ab7b67, arXiv:2001.00595.
32. A. Susobhanan, A. Gopakumar, G. Hobbs, and S. R. Taylor (2020), "Pulsar timing array signals induced by black hole binaries in relativistic eccentric orbits", Physical Review D, 101, 043022 (pp), https://doi.org/10.1103/PhysRevD.101.043022, arXiv:2002.03285.
33. *G. Hobbs, L. Guo, R. N. Caballero, W. Coles, K. J. Lee, R. N. Manchester, D. J. Reardon, D. Matsakis, M. L. Tong, Z. Arzoumanian, and 49 colleagues (2020), "A pulsar-based time-scale from the International Pulsar Timing Array", Monthly Notices of the Royal Astronomical Society, 491, 5951-5965 (15 pp), https://doi.org/10.1093/mnras/stz3071, arXiv:1910.13628.
34. *J. S. Hazboun, J. Simon, S. R. Taylor, M. T. Lam, S. J. Vigeland, K. Islo, J. S. Key, Z. Arzoumanian, P. T. Baker, A. Brazier, and 53 colleagues (2020), "The NANOGrav 11 yr Data Set: Evolution of Gravitational-wave Background Statistics", The Astrophysical Journal, 890, 108 (15 pp), https://doi.org/10.3847/1538-4357/ab68db, arXiv:1909.08644.
35. *K. Aggarwal, Z. Arzoumanian, P. T. Baker, A. Brazier, P. R. Brook, S. Burke-Spolaor, S. Chatterjee, J. M. Cordes, N. J. Cornish, F. Crawford, and 51 colleagues (2020), "The NANOGrav 11 yr Data Set: Limits on Gravitational Wave Memory", The Astrophysical Journal, 889, 38 (11 pp), https://doi.org/10.3847/1538-4357/ab6083, arXiv:1911.08488.
36. *B. B. P. Perera, M. E. DeCesar, P. B. Demorest, M. Kerr, L. Lentati, D. J. Nice, S. Osłowski, S. M. Ransom, M. J. Keith, Z. Arzoumanian, and 65 colleagues (2019), "The International Pulsar Timing Array: second data release", Monthly Notices of the Royal Astronomical Society, 490, 4666-4687 (22 pp), https://doi.org/10.1093/mnras/stz2857, arXiv:1909.04534.
37. S. R. Taylor (2019), "Catching Gravitational Waves With A Galaxy-sized Net Of Pulsars", Frontiers For Young Minds. 7:80, (8 pp), https://doi.org/10.3389/frym.2019.00080, arXiv:1906.07568.
38. H. Wang, S. R. Taylor, and M. Vallisneri (2019), "Bayesian cross validation for gravitational-wave searches in pulsar-timing array data", Monthly Notices of the Royal Astronomical Society, 487, 3644-3649 (6 pp), https://doi.org/10.1093/mnras/stz1537, arXiv:1904.05355.
39. *K. Aggarwal, Z. Arzoumanian, P. T. Baker, A. Brazier, M. R. Brinson, P. R. Brook, S. Burke-Spolaor, S. Chatterjee, J. M. Cordes, N. J. Cornish, and 54 colleagues (2019), "The NANOGrav 11 yr Data Set:

Limits on Gravitational Waves from Individual Supermassive Black Hole Binaries", The Astrophysical Journal, 880, 116 (11 pp), https://doi.org/10.3847/1538-4357/ab2236, arXiv:1812.11585.

40. L. O'Beirne, N. J. Cornish, S. J. Vigeland, and S. R. Taylor (2019), "Constraining alternative polarization states of gravitational waves from individual black hole binaries using pulsar timing arrays", Physical Review D, 99, 124039 (pp), https://doi.org/10.1103/PhysRevD.99.124039, arXiv:1904.02744.
41. *R. N. Caballero, Y. J. Guo, K. J. Lee, P. Lazarus, D. J. Champion, G. Desvignes, M. Kramer, K. Plant, Z. Arzoumanian, M. Bailes, and 70 colleagues (2018), "Studying the Solar system with the International Pulsar Timing Array", Monthly Notices of the Royal Astronomical Society, 481, 5501-5516 (16 pp), https://doi.org/10.1093/mnras/sty2632, arXiv:1809.10744.
42. S. R. Taylor and D. Gerosa (2018), "Mining gravitational-wave catalogs to understand binary stellar evolution: A new hierarchical Bayesian framework", Physical Review D, 98, 083017 (pp), https://doi.org/10.1103/PhysRevD.98.083017, arXiv:1806.08365.
43. S. J. Vigeland, K. Islo, S. R. Taylor, and J. A. Ellis (2018), "Noise-marginalized optimal statistic: A robust hybrid frequentist-Bayesian statistic for the stochastic gravitational-wave background in pulsar timing arrays", Physical Review D, 98, 044003 (pp), https://doi.org/10.1103/PhysRevD.98.044003, arXiv:1805.12188.
44. *B. B. P. Perera, B. W. Stappers, S. Babak, M. J. Keith, J. Antoniadis, C. G. Bassa, R. N. Caballero, D. J. Champion, I. Cognard, G. Desvignes, and 18 colleagues (2018), "Improving timing sensitivity in the microhertz frequency regime: limits from PSR J1713+0747 on gravitational waves produced by supermassive black hole binaries", Monthly Notices of the Royal Astronomical Society, 478, 218-227 (10 pp), https://doi.org/10.1093/mnras/sty1116, arXiv:1804.10571.
45. L. Z. Kelley, L. Blecha, L. Hernquist, A. Sesana, and S. R. Taylor (2018), "Single sources in the low-frequency gravitational wave sky: properties and time to detection by pulsar timing arrays", Monthly Notices of the Royal Astronomical Society, 477, 964-976 (13 pp), https://doi.org/10.1093/mnras/sty689, arXiv:1711.00075.
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77. N. Laal, W. G. Lamb, J. D. Romano, X. Siemens, S. R. Taylor, and R. van Haasteren (2023), "Exploring the Capabilities of Gibbs Sampling in Single-pulsar Analyses of Pulsar Timing Arrays", arXiv:2305.12285.
78. M. Charisi, S. R. Taylor, C. A. Witt, and J. Runnoe (2023), "Efficient large-scale, targeted gravitational-wave probes of supermassive black-hole binaries", arXiv:2304.03786.
79. W. G. Lamb, S. R. Taylor, and R. van Haasteren (2023), "The Need For Speed: Rapid Refitting Techniques for Bayesian Spectral Characterization of the Gravitational Wave Background Using PTAs", arXiv:2303.15442.
80. R. J. Jennings, J. M. Cordes, S. Chatterjee, M. A. McLaughlin, P. B. Demorest, Z. Arzoumanian, P. T. Baker, H. Blumer, P. R. Brook, T. Cohen, and 34 colleagues (2022), "An unusual pulse shape change event in PSR J1713+0747 observed with the Green Bank Telescope and CHIME", arXiv:2210.12266.

Referred Journal Articles - Reviews

81. S. Burke-Spolaor, S. R. Taylor, M. Charisi, T. Dolch, J. S. Hazboun, A. M. Holgado, L. Z. Kelley, T. J. W. Lazio, D. R. Madison, N. McMann, C. M. F. Mingarelli, A. Rasskazov, X. Siemens, J. J. Simon, and T. L. Smith (2019), "The astrophysics of nanohertz gravitational waves", Astronomy and Astrophysics Review, 27, 5 (78 pp), https://doi.org/10.1007/s00159-019-0115-7, arXiv:1811.08826.

Books

82. S. R. Taylor, "Nanohertz Gravitational Wave Astronomy". Published November 24, 2021 by CRC Press (172 pp), ISBN 9780367768621

Book Chapters

83. S. R. Taylor and J. Simon (2018), "From Megaparsecs To Milliparsecs: Galaxy Evolution and Supermassive Black Holes with NANOGrav and the ngVLA", Science with a Next Generation Very Large Array, ASP Conference Series, Vol. 517. ASP Monograph 7, 611-618 (8 pp), ISBN: 9781583819197, arXiv:1808.06020.
84. S. Vitale, D. Gerosa, W. M. Farr, and S. R. Taylor (2021), "Inferring the properties of a population of compact binaries in presence of selection effects", Handbook of Gravitational Wave Astronomy Editors C. Bambi, S. Katsanevas and K. Kokkotas, Springer Singapore, (57 pp), https://doi.org/10.1007/978-981-15-4702-7, arXiv:2007.05579.

Published Conference Proceedings (Refereed)

85. R. M. Shannon, S. Chamberlin, N. J. Cornish, J. A. Ellis, C. M. F. Mingarelli, D. Perrodin, P. Rosado, A. Sesana, S. R. Taylor, L. Wen, C. G. Bassa, J. Gair, G. H. Janssen, R. Karuppusamy, M. Kramer, K. J. Lee, K. Liu, I. Mandel, M. Purver, T. Sidery, R. Smits, B. W. Stappers, and A. Vecchio (2014), "Summary of session C1: pulsar timing arrays", General Relativity and Gravitation, 46, 1765 (11 pp), https://doi.org/10.1007/s10714-014-1765-4.

Editorials

86. S. Taylor (2020), "A Lopsided Merger", Physics Online Journal, 13, 114, https://doi.org/10.1103/Physics.13.114.

Community White-papers & Other Non-refereed Articles

87. C. M. F. Mingarelli, S. R. Taylor, B. S. Sathyaprakash, and W. M. Farr (2019), "Understanding Omega_gw(f) in Gravitational Wave Experiments", arXiv:1911.09745.
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90. S. Ransom, A. Brazier, S. Chatterjee, T. Cohen, J. M. Cordes, M. E. DeCesar, P. B. Demorest, J. S. Hazboun, M. T. Lam, R. S. Lynch, M. A. McLaughlin, S. M. Ransom, X. Siemens, S. R. Taylor, and S. J. Vigeland (2019), "The NANOGrav Program for Gravitational Waves and Fundamental Physics", Bulletin of the American Astronomical Society, 51, 195, https://baas.aas.org/pub/2020n7i195/release/1, arXiv:1908.05356.
91. A. Siemiginowska, G. Eadie, I. Czekala, et al. (2019), "The Next Decade of Astroinformatics and Astrostatistics", Bulletin of the American Astronomical Society, 51, 355, https://baas.aas.org/pub/2020n3i355/release/1, arXiv:1903.06796.
92. S. Taylor, S. Burke-Spolaor, P. T. Baker, M. Charisi, K. Islo, L. Z. Kelley, D. R. Madison, J. Simon, S. Vigeland, and NANOGrav Collaboration (2019), "Supermassive Black-hole Demographics & Environments With Pulsar Timing Arrays", Bulletin of the American Astronomical Society, 51, 336, https://baas.aas.org/pub/2020n3i336/release/1, arXiv:1903.08183.
93. S. R. Taylor, J. R. Gair, and L. Lentati (2012), "Using Swarm Intelligence To Accelerate Pulsar Timing Analysis", arXiv:1210.3489.

Invited Talks - International Conferences

**Note that many talks from 03/2020 to 12/2021 are virtual as a result of the COVID-19 pandemic.*

1. *Plenary Lecture, IEEE Aerospace Conference, Big Sky MT, Mar 2024*
2. *Fred Kavli Plenary Lecture, American Astronomical Society Meeting, New Orleans LA, Jan 2024*
3. *Plenary Lecture, Texas Symposium for Relativistic Astrophysics, Shanghai, China, Dec 2023*
4. *NANOGrav Searches for a SGWB: Near-future Prospects & Milestones*
   Gravitational Wave Orchestra, Université Catholique de Louvain, Louvain-la-Neuve, Belgium, Sep 2022.
5. *Supermassive Black-hole Binary Demographics & Dynamics From PTA Gravitational Waves*
   Building Bridges: Towards a Unified Picture of Stellar and Black Hole Binary Accretion and Evolution, KITP, Santa Barbara CA, USA, Mar 2022
6. *What's Next?: The Upcoming Decade of PTA Science*
   European Pulsar Timing Array Meeting, (virtual), Mar 2022.

7. *NANOGrav: Cutting-edge Results From Pulsar Timing*
   Anomalies 2021, Indian Institute of Technology (IIT Hyderabad; virtual), Nov 2021. *[Plenary]*
8. *Charting The Next Frontier Of Gravitational Wave Astronomy With Pulsar Timing Arrays*
   Deutsche Forschungsgemeinshaft Research Training Group "Models Of Gravity" Colloquium, University of Bielefeld (virtual), Bielefeld, Germany, Jun 2020.
9. *Charting The Next Frontier Of Nanohertz Gravitational Wave Astronomy With The IPTA*
   Invited seminar, l'Observatoire de Paris, Paris, France, Dec 2019.
10. *Pulsar Timing Arrays: The Next Frontier Of Gravitational Wave Astronomy*
    22nd International Conference on General Relativity and Gravitation (GR22) & 13th Edoardo Amaldi Conference on Gravitational Waves (Amaldi13), Valencia, Spain, Jul 2019. *[Plenary]*
11. *Nanohertz-frequency gravitational-wave astrophysics with pulsar-timing arrays*
    COSPAR 2018, Pasadena CA, USA, Jul 2018.
12. *Non-Black-Hole science with pulsar-timing arrays*
    Black Holes Across The GW Spectrum, International Institute of Physics, Natal, Brazil, Aug 2017.
13. *Bayesian inference for pulsar-timing arrays*
    Black Holes Across The GW Spectrum, International Institute of Physics, Natal, Brazil, Aug 2017.
14. *Supermassive black-hole binary astrophysics with pulsar-timing arrays*
    Black Holes Across The GW Spectrum, International Institute of Physics, Natal, Brazil, Aug 2017.
15. *Probing the nanohertz GW landscape with PTAs: a status report*
    Gravitational Wave Physics & Astronomy Workshop (GWPAW), Annecy, France, May 2017.
16. *GW constraints on disc migration via pulsar timing*
    The Disc Migration Issue (Kavli workshop), Institute of Astronomy, Cambridge, UK, May 2017.
17. *Gravitational-wave Data-analysis Techniques for Pulsar Timing Arrays*
    International Pulsar Timing Array conference, Stellenbosch, South Africa, Jun 2016.

Invited Talks - Major National Conferences & Symposia

18. *Pulsar Timing Arrays: Unveiling the Nanohertz-frequency Gravitational Wave Landscape*
    SESAPS 2022 (South Eastern Section of the APS), Oxford MS, USA, Nov 2022.
19. *Supermassive Black Hole Demographics In The Era Of Multimessenger PTA Detection*
    SESAPS 2019 (South Eastern Section of the APS), Wilmington NC, USA, Nov 2019.
20. *Supermassive Black-hole Demographics In The Era of Nanohertz Multi-messenger Astronomy*
    American Astronomical Society, Seattle WA, USA, Jan 2019.
21. *Pulsar Timing Arrays: new advances toward detecting low-frequency gravitational waves*
    American Physical Society, Columbus OH, USA, Apr 2018.

Invited Departmental Colloquia & Program-wide Seminars

22. *Colloquium, University of Alabama—Huntsville, Huntsville AL, Feb 2024*
23. *Colloquium, The University of Pennsylvania, Philadelphia PA, Jan 2024*
24. *Colloquium, University of Tennessee—Knoxville, Knoxville TN, Nov 2023*
25. *Colloquium, University of Maryland, College Park MD, Nov 2023*
26. *Colloquium, The Pennsylvania State University, State College PA, Oct 2023*
27. *Colloquium, Vanderbilt University, Nashville TN, Sep 2023*

28. *The Dawn of PTA Gravitational-wave Astronomy*, APS DGRAV Virtual Seminar, Mar 2023
29. *Exploring the nanohertz-frequency gravitational-wave landscape with pulsar timing arrays*, Colloquium, Max Planck Institut für Radioastronomie, Bonn, Germany, Feb 2023
30. *Near-future Prospects for Astrophysics & Cosmology with a Galaxy-scale Gravitational Wave Detector*, Particle Theory Seminar, Johns Hopkins University, Baltimore MD, Nov 2022
31. *Pulsar Timing Arrays: The Next Window Onto The Warped Cosmos*
Department of Physics & Astronomy, University of Wyoming, Laramie WY, May 2022
32. *New Results From The Pulsar Timing Array Hunt For Nanohertz-frequency Gravitational Waves*
Joint DAA-DTP-InPTA Seminar, Tata Institute of Fundamental Research (virtual), Mar 2021
33. *New Results From The Pulsar Timing Array Hunt For Nanohertz-frequency Gravitational Waves*
Department of Physics & Astronomy Colloquium, Western Kentucky University (virtual), Feb 2021
34. *New Results From The Pulsar Timing Array Hunt For Nanohertz-frequency Gravitational Waves*
Department of Physics Seminar, Southern Methodist University (virtual), Nov 2020
35. *Pulsar Timing Arrays: The Next Frontier of Gravitational Wave Astronomy*
Department of Physics Colloquium, Franklin & Marshall College, Lancaster PA, USA, Nov 2019.
36. *Pulsar Timing Arrays: The Next Frontier of Gravitational Wave Astronomy*
Astrophysics Division Seminar, NASA Goddard Space Flight Center, MD, USA, Nov 2019.
37. *Pulsar Timing Arrays: The Next Frontier of Gravitational Wave Astronomy*
The Josephine Lawrence Hopkins Foundation Colloquium, Cornell University, Ithaca NY, USA, Oct 2019.
38. *Frontiers Of Pan-Spectral Gravitational-Wave Astrophysics*
Department colloquium, Institute of Astronomy, University of Cambridge, Cambridge, UK, Mar 2019.
39. *Frontiers Of Pan-Spectral Gravitational-Wave Astrophysics*
CGCA Seminar, University of Wisconsin–Milwaukee, Milwaukee WI, USA, Mar 2019.
40. *Frontiers Of Pan-Spectral Gravitational-Wave Astrophysics*
Invited seminar, Flatiron Center for Computational Astrophysics, New York NY, USA, Feb 2019.
41. *Frontiers Of Pan-Spectral Gravitational-Wave Astrophysics*
Department of Physics & Astronomy colloquium, University of Mississippi, Oxford MS, USA, Feb 2019.
42. *Frontiers Of Pan-Spectral Gravitational-Wave Astrophysics*
Department of Physics & Astronomy colloquium, Vanderbilt University, Nashville TN, USA, Jan 2019.
43. *Frontiers Of Pan-Spectral Gravitational-Wave Astrophysics*
Department of Physics & Astronomy colloquium, Carnegie Mellon University, Pittsburgh PA, USA, Jan 2019.
44. *Frontiers Of Pan-Spectral Gravitational-Wave Astrophysics*
Department of Physics & Astronomy colloquium, University of Minnesota, Minneapolis MN, USA, Jan 2019.
45. *Frontiers Of Pan-Spectral Gravitational-Wave Astrophysics*
Department of Physics colloquium, University of Virginia, Charlottesville VA, USA, Jan 2019.

46. *Compact Object Genealogy Across The Gravitational Wave Spectrum*
USC Colloquium, University of Southern California, Los Angeles CA, USA, Sep 2018.

47. *Beyond Black Holes With Pulsar Timing Arrays*
University of Virginia colloquium, Charlottesville VA, USA, Mar 2018.

48. *Constraining the physics of the final parsec of supermassive black-hole binary evolution*
Astronomy Colloquium, Swinburne University of Technology, Melbourne, Australia, Feb 2017.

Invited Talks - Other Conferences & Workshops

49. Invited Talk, RESCEU-NBI Workshop on Gravitational-Wave Sources, Tokyo, Japan, Dec 2023

50. *Gravitational Wave Observations Using Pulsar Timing Arrays,* NCfA Symposium, Harvard University, Las Vegas NV, Feb 2023.

51. *Pulsar Timing Arrays: The Next Window onto the Low-frequency Gravitational Wave Universe*
Cambridge High Energy Workshop (CHEW 2022): Phase Transitions & Topological Defects in the Early Universe, Harvard University, Cambridge MA, Aug 2022.

52. *Unveiling The Warped Side Of The Cosmos With Gravitational Waves*
Tennessee Section of the American Association of Physics Teachers, Austin Peay State University, Clarksville TN, Apr 2022.

53. *Pulsar Timing Arrays*
Summer School on Gravitational Wave Astrophysics, Niels Bohr International Academy (virtual), Copenhagen, Denmark, Aug 2021.

54. *Solar System Ephemeris Noise*
OzGrav Pulsar Timing Workshop, Swinburne University of Technology (virtual), Melbourne, Australia, May 2019

55. *Sources of nanohertz gravitational-waves for pulsar-timing array searches*
NANOGrav student workshop, Caltech, Pasadena CA, USA, Mar 2016.

Other Invited Seminars

56. *A Parallelized Bayesian Approach to Accelerated Gravitational Wave Background Characterization*
IPTA Gravitational Wave Group telecon, Mar 2022

57. *New Results From The Pulsar Timing Array Hunt For Nanohertz-frequency Gravitational Waves*
Theoretical Astrophysics Seminar, University of Florida (virtual), Mar 2021

58. *New Results From The Pulsar Timing Array Hunt For Nanohertz-frequency Gravitational Waves*
Bahcall Lunch, Princeton University (virtual), Oct 2020

59. *New Results From The Pulsar Timing Array Hunt For Nanohertz-frequency Gravitational Waves*
SITP Seminar, Stanford University (virtual), Oct 2020

60. *New Results From The Pulsar Timing Array Hunt For Nanohertz-frequency Gravitational Waves*
Birmingham Astrophysics Seminar, University of Birmingham (virtual), Birmingham, UK, Oct 2020

61. *Charting The Next Frontier Of Gravitational Wave Astronomy With Pulsar Timing Arrays*
CIERA Astrophysics Seminar, CIERA, Northwestern University (virtual), Sep 2020

62. *Charting The Next Frontier Of Gravitational Wave Astronomy With Pulsar Timing Arrays*
Astrophysical and Cosmological Relativity Seminar, Albert Einstein Institute (virtual), Potsdam, Germany, Jul 2020

63. *Pulsar Timing Arrays: The Next Window On The Warped Universe*
NSF QuarkNet Seminar, Vanderbilt University (virtual), Nashville TN, USA, Jun 2020

64. *Compact Object Genealogy Across The Gravitational Wave Spectrum*
UVa+NRAO WUNA Lunch Talk, University of Virginia, Charlottesville VA, USA, Oct 2018.

65. *Frontiers Of Pan-Spectral Gravitational-Wave Astrophysics*
Invited departmental seminar, Radboud University (virtual), Nijmegen, Netherlands, Oct 2018

66. *Compact Object Genealogy Across The Gravitational Wave Spectrum*
CGCA Seminar, University of Wisconsin–Milwaukee, Milwaukee WI, USA, Sep 2018.

67. *Compact Object Genealogy Across The Gravitational Wave Spectrum*
TAPIR Seminar, California Institute of Technology, Pasadena CA, USA, Sep 2018.

68. *Astrophysical inference of supermassive black-hole binaries with pulsar-timing arrays*
Leonard E. Parker Center seminar, University of Wisconsin–Milwaukee, Milwaukee WI, USA, Oct 2016.

69. *Astrophysical inference of supermassive black-hole binaries with pulsar-timing arrays*
CIERA seminar, Northwestern University, Evanston IL, USA, Oct 2016.

70. *New data-analysis approaches for gravitational-wave searches with pulsar-timing arrays*
Montana State University seminar, Bozeman MT, USA, Oct 2016.

71. *New horizons in gravitational-wave astronomy with pulsar-timing arrays*
Armagh Observatory seminar, Armagh, UK, Jul 2016.

72. *Probing the final-parsec problem with pulsar-timing arrays*
Anton Pannekoek Institutt seminar, University of Amsterdam, Amsterdam, Netherlands, Jul 2016.

73. *Probing the final-parsec problem with pulsar-timing arrays*
Radboud University astrophysics seminar, Radboud, Netherlands, Jul 2016.

74. *Prospects for near future detection and astrophysical inference with PTAs*
Gravitational-wave Group seminar, University of Birmingham, UK, Dec 2015.

75. *Prospects for near future detection and astrophysical inference with PTAs*
Statistics Group seminar (School of Mathematics), University of Edinburgh, UK, Dec 2015.

76. *Prospects for near future detection and astrophysical inference with PTAs*
CaJAGWR seminar, California Institute of Technology, Pasadena, USA, Dec 2015.

77. *Searching For Anisotropic Gravitational-wave Backgrounds Using Pulsar Timing Arrays*
Albert Einstein Institute (AEI) GW seminar, Hanover, Germany, May 2013.

78. *Weighing the evidence for a gravitational-wave background*
Institute of Astronomy seminar, University of Cambridge, UK, Feb 2013.

79. *Weighing the evidence for a gravitational-wave background*
Gravitational-wave group seminar, University of Birmingham, UK, Dec 2012.

80. *Milestones in Spacetime: Double Neutron-Star Binaries as Gravitational-Wave Standard Sirens*
Institute of Astronomy seminar, University of Cambridge, UK, Jun 2012.

Contributed Conference Presentations

81. *Multimessenger time-domain signature of supermassive black-hole binaries*
AAS Summer Meeting, Pasadena CA, Jun 2022

82. *A Parallelized Gravitational Wave Detection Pipeline for Pulsar Timing Arrays*
APS April Meeting, New York City NY, Apr 2022

83. *Mapping The Ultra Low-Frequency Gravitational-Wave Sky With A Network Of Pulsars*
14th Amaldi Meeting (virtual), Jul 2021

84. *Fast Bayesian GWB Amplitude Estimation Through Parallelized Methods*
IPTA Meeting (virtual), Jun 2021

85. *Fast Bayesian GWB Amplitude Estimation Through Parallelized Methods*
NANOGrav Spring Meeting (virtual), May 2021

86. *Mapping The Supermassive Binary Black-Hole Sky With Pulsar Timing Arrays*
AAS Winter Meeting (virtual), Jan 2021

87. *Spatiotemporal Inference Strategies In The Quest For Gravitational Wave Detection With PTAs*
ICERM: Statistical Methods for the Detection, Classification, and Inference of Relativistic Objects (virtual), Brown University, Nov 2020

88. *The First 10 Years Of PTA Nanohertz GW Astronomy*
APS April Meeting (virtual), Apr 2020

89. *Supermassive Black Hole Demographics In The Era Of Multimessenger PTA Detection*
30th Texas Symposium on Relativistic Astrophysics, Portsmouth, UK, Dec 2019

90. *From Bright Binaries To Bumpy Backgrounds: Mapping Realistic Gravitational Wave Skies With PTAs*
NANOGrav Fall Meeting, Cornell University, Ithaca NY, Oct 2019

91. *Constraining the environments & progenitors of binary black holes across the GW spectrum*
12th International LISA Symposium, Chicago IL, Jul 2018

92. *The first 10 years of nanohertz gravitational-wave astronomy*
International Pulsar Timing Array meeting, Albuquerque NM, Jun 2018

93. *Progress updates in the NANOGrav gravitational-wave detection working group*
NANOGrav Spring 2018 meeting, University of Virginia, Charlottesville VA, Mar 2018

94. *The First Bayesian Solar-System Ephemeris*
NANOGrav Fall 2017 meeting, Lafayette College, Easton PA, Nov 2017

95. *GW constraints in the presence of solar-system ephemeris uncertainties*
International Pulsar Timing Array meeting, Sèvres, France, Jul 2017

96. *Solar-system ephemeris uncertainties & GW constraints*
NANOGrav Spring Meeting, West Virginia University, Morgantown WV, Apr 2017

97. *Modeling solar-system ephemeris uncertainties & the impact on GW constraints*
European Pulsar Timing Array meeting, Amsterdam, Netherlands, Apr 2017

98. *Bayesian model emulation of GW spectra for probes of the final parsec problem with PTAs*
American Astronomical Society meeting, Grapevine TX, USA, Jan 2017

99. *Bayesian model emulation of GW spectra for probes of the final parsec problem with PTAs*
American Physical Society April meeting, Washington DC, USA, Jan 2017

100. *Optimized gravitational-wave sky mapping with pulsar-timing arrays*
NANOGrav Fall Meeting 2016, NCSA, Urbana-Champaign IL, USA, Oct 2016

101. *Carrying the physics of supermassive black-hole binary evolution into pulsar-timing array searches*
European Pulsar Timing Array meeting, Bielefeld, Germany, May 2016

102. *Are we there yet? Time to detection of nanohertz gravitational waves*
American Physical Society meeting, Salt Lake City UT, USA, Apr 2016

103. *Carrying the physics of supermassive black-hole binary evolution into pulsar-timing array searches*
NANOGrav Spring Meeting, Caltech, Pasadena CA, USA, Mar 2016

104. *Are we there yet? Time to detection of nanohertz gravitational waves*
NANOGrav Fall Meeting, McGill University, Montreal, Canada, Oct 2015

105. *Eccentric supermassive black-hole binary signals in pulsar-timing data*
European Pulsar Timing Array meeting, Bonn, Germany, Jun 2015

106. *Eccentric supermassive black-hole binary signals in pulsar-timing data*
American Physical Society meeting, Baltimore MD, USA, Apr 2015

107. *Eccentric supermassive black-hole binary signals in pulsar-timing data*
NANOGrav Spring Meeting, Arecibo, Puerto Rico, Feb 2015

108. *Exploring the cosmos with gravitational waves*
American Astronomical Society meeting, Seattle WA, USA, Jan 2015

109. *EPTA constraints on gravitational-wave anisotropy*
European Pulsar Timing Array meeting, Cambridge, UK, Nov 2014

110. *EPTA and IPTA searches for gravitational-wave background anisotropy*
International Pulsar Timing Array meeting, Banff, Canada, Jun 2014

111. *EPTA limits on gravitational-wave anisotropy*
European Pulsar Timing Array meeting, Astron, Netherlands, May 2014

112. *The pulsar-term in PTA continuous-wave searches: a blessing and a curse*
European Pulsar Timing Array meeting, Pula, Sardinia, Oct 2013

113. *Probing anisotropy of the GW background with pulsar timing arrays*
20th International Conference on GR and Gravitation, 10th Amaldi Conference, Warsaw, Jul 2013

114. *The first PTA search pipeline for anisotropy in the GW background*
International Pulsar Timing Array meeting, Krabi, Thailand, Jun 2013

115. *Searching For Anisotropic Gravitational-wave Backgrounds Using Pulsar Timing Arrays*
European Pulsar Timing Array meeting, l'Observatoire de Paris, Paris, France, Apr 2013

116. *Weighing the evidence for a gravitational-wave background*
European Pulsar Timing Array meeting, Albert Einstein Institute (AEI), Potsdam, Germany, Nov 2012

117. *Hubble without the Hubble: Cosmology using advanced gravitational-wave detectors alone*
1st Iberian Gravitational-Wave Meeting, Institut de Ciències de l'Espai, Barcelona, Spain, Feb 2012

TEACHING

Courses Taught

Vanderbilt University

ASTR 3900 / 8090	**GENERAL RELATIVITY & COSMOLOGY**	S2020, F2020-2023
	Cross-listed class for upper-division undergraduate and graduates. Primarily P&A, Math, CS students.	
ASTR 8070	**ASTROSTATISTICS**	S2021-2022
	Graduate class for P&A students. Statistical and computational techniques for data-mining and inference in an astronomical context.	
ASTR 8001	**ORDER OF MAGNITUDE ASTROPHYSICS**	F2019

Graduate class for Astrophysics PhD students. Students work in teams to develop physical intuition for solving problems.

GUEST LECTURER **ASTR 8001** F2021

As above. Developed new problem that guides students through gravitational-wave binary orbital evolution.

GUEST LECTURER **PHYS 1911: PRINCIPLES OF PHYSICS I** F2019-2020

Calculus-based introduction to physics for prospective physics majors. Delivered seminar on gravitational-waves and pulsar-timing arrays.

GUEST LECTURER **ASTR 1010: INTRODUCTION TO ASTRONOMY** S2021

General introductory astronomy course intended primarily for non-science majors. Delivered seminar on gravitational-waves.

California Institute of Technology

GUEST LECTURER **PH237: GRAVITATIONAL WAVES** S2016

Graduate class delivering a focused overview of gravitational-wave science. Guest lecture on gravitational-wave data analysis.

Niels Bohr International Academy

GUEST LECTURER **GRAVITATIONAL-WAVE ASTROPHYSICS** SUMMER 2021

Intensive week-long graduate-level summer school. Remotely delivered 3 lectures and 1 hands-on data-analysis tutorial.

Curriculum Development

Redeveloped ASTR 3900 — General Relativity & Cosmology

- This course had gone untaught for many years, with no resources to draw from.
- Completely redeveloped course from the ground up, incorporating a physics-first approach to General Relativity, and adding cutting-edge astrophysical context to course content.
- Cross-listed course for graduates (ASTR 8090), allowing research-driven discussions to interleave with, and provide context to, course material.
- Pivoted to completely virtual learning halfway through first semester of teaching course in Spring 2020 due to COVID-19 pandemic. All classes over Zoom, with iPad used as virtual whiteboard, and homeworks/midterms/final uploaded and returned via Brightspace.
- Incorporated principles from Vanderbilt Center For Teaching's "Introduction to Online and Hybrid Teaching" course.
- Implemented asynchronous discussions and polls via Slack to foster continued engagement and feedback.
- All lecture slides and recordings uploaded for later review on Brightspace.
- Provided students with visual course concept map to aid in study and recitation.

Developed ASTR 8070 — Astrostatistics

- New graduate course designed to equip students with computational and statistical inference skills that will allow them to meet the challenges of a data-intensive research future.
- Course centers around active learning principles, with an initial 15 minute lecture portion followed by team-driven Jupyter/Python notebook exercises.
- First delivered in Spring 2021 under virtual conditions, with all classes via Zoom, and students divided into teams in breakout rooms. Slack was used for discussions and polls.
- Incorporated principles from Vanderbilt Center For Teaching's "Introduction to Online and Hybrid Teaching" course.

- All lecture exercises were in the form of Jupyter/Python notebooks that students were required to complete and submit to a git repository for full class participation credit.
- Homework and assessments also used Jupyter/Python notebooks.
- All lecture slides and recordings uploaded for later review on Brightspace.
- Provided students with visual course concept map to aid in study and recitation.

Supervisory Research Training

Postdoctoral Fellows

Nima Laal	2023-present
Nihan Pol	2020-2023
Maria Charisi	2020-2023

Graduate students— directing thesis/dissertation research

Levi Schult	2022-present
Polina Petrov	2021-present
Kyle Gersbach	2021-present
William Lamb	2020-present

Undergraduate students

Holly Krynicki	S2022-S2023
Ryan Wu	S2022
Brian Campe	F2021-S2022
Levi Schult [UVa]	2020-2021
Katherine Cella *(VU DSI SRP 2021)*	2020-2022
Qiahong Wang *(VU DSI SRP 2020)*	2020-2022
Sophia Singh [USC]	2018-2019
Haochen Wang [USC]	2018-2019
Jacob Turner [Oberlin]	Summer 2016
Maya Fuller [Caltech]	2016-2017

PhD Committee Member (excludes students under my direct supervision)

William Smith, Astrophysics
David Storm, Physics
Carolyn Drake, Astrophysics
Collin Dabbieri, Astrophysics
Krystal Ruiz-Rocha, Astrophysics
Nicholas Chason, Astrophysics (2022)
Jessica Stasik, Astrophysics
Joni Marie Cunningham, Astrophysics (2022)

Master's Committee Member (excludes students under my direct supervision)

Shaniya Jarrett (VU-Fisk Bridge)
Niana Mohammed (VU-Fisk Bridge)
KeShawn Ivory (VU-Fisk Bridge), 2021
William Smith (VU-Fisk Bridge), 2021

Undergraduate Honors Thesis Committee Member (excludes students under my direct supervision)

Cameron Norton	S2021
Chenhang Huang	F2021
Elijah Sheridan	S2022

SERVICE

Department of Physics & Astronomy

Chair, Departmental Colloquium Committee	F2023-present
Member, High Energy Nuclear Physics Search Committee	F2021-S2022
Member, Climate Committee	F2020–S2022
Member, Physics Undergraduate Program Committee	F2019-S2020
Member, Astrophysics Graduate Program Committee	F2019–present
Co-Chair, VU P&A node of APS Inclusion, Diversity, & Equity Alliance	F2020–S2022

Professional

Research Leadership

Chair, NANOGrav Collaboration	2023-present
Representative, Gravitational Wave International Committee	2023-present
Member, NANOGrav Management Team	2020-present
Member, International Pulsar Timing Steering Committee	2020-2021
Chair, NANOGrav Gravitational Wave Detection Working Group	2018-2022
Co-Chair, IPTA Gravitational Wave Analysis Group	2018-2019

Conference Organization

SOC member, Amaldi Virtual Conference	Jul 2023
Organizer, EMIT Summer School (2 weeks)	Jul 2023
Organizer, VIPER Pulsar Timing Array Summer School (2 weeks)	Jul 2022
LOC Chair, NANOGrav Fall Meeting, Vanderbilt University	Oct 2021
Session Organizer, American Astronomical Society	
Special Session *"The Next Decade Of nHz GW Astrophysics with PTAs"*	Jan 2021
Special Session *"New Results from NANOGrav"* in Honolulu HI	Jan 2020
SOC member for International Pulsar Timing Array meeting in Pune, India	Jun 2019
Organizer of NANOGrav Deep Learning workshop at Caltech	May 2019
Organizer of International Pulsar Timing Array workshop at Caltech	Feb 2019
Co-organizer of NANOGrav Detection workshop at Caltech	Feb 2018
SOC member for International Pulsar Timing Array meeting in Sèvres, France	Jul 2017
Organizer of NANOGrav Astrophysics sprint week at West Virginia University	Apr 2017
Co-organizer of NANOGrav Detection workshop at Caltech	Mar 2017
Co-organizer of NANOGrav Hackathon at NCSA	Oct 2016
SOC Chair, NANOGrav Fall meeting, University of Illinois Urbana Champaign	Oct 2016
SOC and LOC member for NANOGrav Spring meeting at Caltech	Mar 2016
Co-organizer of NANOGrav student workshop at Caltech	Mar 2016
SOC and LOC member for British Gravity meeting (BritGrav) at Cambridge, UK	Mar 2014

Seminar Organization

Vanderbilt Astrophysics Seminar Series (committee)	2020-present
Caltech TAPIR Seminar Series (committee)	2019
Caltech/JPL Association for Gravitational Wave Research (executive committee)	2017-2019
Caltech TAPIR & LIGO Postdoctoral Lunch Seminar Series (organizer)	2015-2016

Reviewer of International Journals

Nature

Science
The Astrophysical Journal (and Letters)
Monthly Notices of the Royal Astronomical Society
Physical Review D
Physical Review Letters

Reviewer of Grant Proposals

NASA Graduate Fellowship Program (NESSF, FINESST)
UK Science & Technology Facilities Council
National Science Foundation Division of Graduate Education (NRT Program)
Swiss National Science Foundation