

Emmanuel Fonseca (he/him/his)

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Research Areas

Radio pulsars: high-precision pulsar timing; orbital dynamics; neutron-star mass measurements; gravitational radiation and pulsar timing arrays; pulsar instruments for next-generation telescopes.

Fast radio bursts: algorithm and hardware development for detection, characterization and localization; modeling of burst morphology.

Education

Ph.D. in Astronomy, the University of British Columbia (UBC) 2012 - 2016
Advisor: Ingrid H. Stairs
Thesis: *Mass and Geometric Measurements of Binary Radio Pulsars*

M. Sc. in Astronomy, UBC 2010 - 2012
Advisor: Ingrid H. Stairs
Thesis: *Experimental Gravity with PSR B1534+12*

B. Sc in Physics, Astronomy, the Pennsylvania State University (PSU) 2006 - 2010
Minor: Mathematics
Advisors: Stephen Holland, Scott Koch, Erik Hoversten

Employment

Assistant professor (West Virginia University; WVU) 2021 - present
Postdoctoral researcher (McGill) 2016 - 2021
Graduate research assistant (UBC) 2010 - 2016
Summer research intern (NASA Goddard Space Flight Center) 2009, 2010
Undergraduate research assistant (PSU) 2008 - 2010

Teaching/Outreach Positions

Assistant professor (WVU) 2021 - present
Public outreach assistant (PSU, UBC, McGill) 2009 - present
Laboratory Instructor, Science Creative Literacy Symposium (UBC) 2014 - 2016
Graduate teaching assistant (UBC) 2010 - 2016

Recent Presentations

Colloquia and Conference Talks/Posters

- “FRB Morphology as a (Possible) Indicator of Multiple Populations.” Invited talk for the 2022 FRB Workshop at Cornell University, “There is Plenty of Room at the Bottom (FRBs).” 8-10 October 2022.
- “High-Cadence Timing of Radio Pulsars with CHIME.” Invited talk for the April 2021 Meeting of the American Physical Society. Remote presentation. 17-20 April 2021.
- “FRB Astrophysics in the Era of CHIME.” Invited colloquium for the Kavli Institute for Cosmological Physics at the University of Chicago. 6 December 2019.
- “Pulsar & FRB Astrophysics in the Era of CHIME.” Invited astronomy colloquium at Northwestern University. 3 December 2019.
- “A GPU-enabled, Pulsar-Timing Backend for the Canadian Hydrogen Intensity Mapping Experiment.” Invited talk at the Dominion Radio Astrophysical Observatory in Kaleden, British Columbia (Canada), 4 June 2019.
- “FRB Detection & Characterization at the Dawn of the CHIME Era.” Invited talk for the URSI National meeting in Boulder, Colorado (USA), 9-12 January 2019.
- “The NANOGrav Nine-Year Data Set: Mass and Geometric Measurements of Binary Millisecond Pulsars.” Invited talk for the JINA-CEE international symposium on *Neutron Stars in the Multi-Messenger Era: Prospects and Challenges* in Athens, Ohio (USA), 23-27 May 2016.

Public Outreach Talks

- “Monsters in the Darkroom: Imaging the Event Horizons of Black Holes.” Talk for Astronomy on Tap in Montreal, QC, 27 March 2018.
- “The Warped Road of Einstein’s General Relativity.” Talk for the Public Astro Night at McGill University, 14 December 2017.
- “Seeing Gravity and the (Invisible) Universe.” TEDx talk for Terry Project, UBC, 2 November 2013.

Successful Proposals:

Telescopes

- 300-m Arecibo Observatory: 1000+ hours as PI (e.g., P2945, P3183, P3228)
- 100-m Green Bank Telescope: 40+ hours as PI (e.g., 18B-280, 19A-411, 21B-259)
- Karl G. Jansky Very Large Array: 3.5 hours as PI (20A-474)

Membership

- International Pulsar Timing Array (IPTA) 2012 - present
- N. A. Nanohertz Observatory for Gravitational Waves (NANOGrav) 2012 - present
- Canadian Astronomical Society (CASCA) 2011 - present
- Canadian Hydrogen Intensity Mapping Experiment (CHIME) 2016 - present

Professional Activities & Service

Conference Organization:

- CASCA 2019: member of local organizing committee; designer of conference website.
- NANOGrav spring 2017 meeting: member of science organizing committee (SOC)
- NANOGrav spring 2015 meeting: member of the science-meeting SOC.
- CASCA 2013: co-organizer of grad-student workshop, general conference assistant.

Review Panels and Committees:

- Science Proposal Review Panel, Chandra X-ray Observatory 2022
- Science Proposal Review Panel, NRAO 2021 - present
- IPTA Diversity Committee 2016 - 2019
- hiring committee for staff scientists at the Arecibo Observatory 2018

Publication Referee:

- the Astronomical Journal
- the Astrophysical Journal (main and “Letters”)
- the Monthly Notices of the Royal Astronomical Society

Press Coverage

The Conversation:

invitation to write article(s) on CHIME/FRB backends

Scientific American:

article on first CHIME/FRB detection (13 August 2018)

CBC Radio Canada:

recorded telephone interview on first CHIME/FRB detection, in spanish (8 August 2018)

Publication List for E. Fonseca

Academic, Peer Reviewed (h-index = 48, total citations = 11,054)¹

117. A. D. Johnson, P. M. Meyers, P. T. Baker et al. “The NANOGrav 15-year Gravitational-Wave Background Analysis Pipeline.” *Submitted to the Astrophysical Journal Letters*. July 2023, arXiv:2306.16223.
116. G. Agazie, A. Anumalapudi, A. M. Archibald et al. “The NANOGrav 15 yr Data Set: Bayesian Limits on Gravitational Waves from Individual Supermassive Black Hole Binaries.” *Submitted to the Astrophysical Journal Letters*. July 2023. arXiv:2306.16222.
115. G. Agazie, A. Anumalapudi, A. M. Archibald et al. “The NANOGrav 15 yr Data Set: Search for Anisotropy in the Gravitational-Wave Background.” *Submitted to the Astrophysical Journal Letters*. July 2023. arXiv:2306.16221.
114. G. Agazie, A. Anumalapudi, A. M. Archibald et al. “The NANOGrav 15 yr Data Set: Constraints on Supermassive Black Hole Binaries from the Gravitational Wave Background.” *Submitted to the Astrophysical Journal Letters*. July 2023. arXiv:2306.16220.
113. A. Afzal, G. Agazie, A. Anumalapudi, et al. “The NANOGrav 15 yr Data Set: Search for Signals from New Physics.” *The Astrophysical Journal Letters*, 951, L11. July 2023.
112. G. Agazie, A. Anumalapudi, A. M. Archibald, et al. “The NANOGrav 15 yr Data Set: Detector Characterization and Noise Budget.” *The Astrophysical Journal Letters*, 951, L10. July 2023.
111. G. Agazie, M. F. Alam, A. Anumalapudi, et al. “The NANOGrav 15 yr Data Set: Observations and Timing of 68 Millisecond Pulsars.” *The Astrophysical Journal Letters*, 951, L9. July 2023.
110. G. Agazie, A. Anumalapudi, A. M. Archibald, et al. “The NANOGrav 15 yr Data Set: Evidence for a Gravitational-wave Background.” *The Astrophysical Journal Letters*, 951, L8. July 2023.
109. Yuan, M., Zhu, W. W., Kramer, M., et al. “High-altitude Magnetospheric Emissions from Two Pulsars.” *Submitted to the Astrophysical Journal*. June 2023. arXiv:2306.04935.
108. Falxa, M., Babak, S., Baker, P. T., et al. “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. June 2023.

¹These statistics are accurate as of 6 July 2023. For a full listing of these works and their statistics, click on the hyperlink on the CV section of my website (<https://emmanuelfonseca.github.io/sections/cv.html>) to visit the relevant page on the Astrophysics Data System.

107. Fiore, W., Levin, L., McLaughlin, M. A., et al. “The Green Bank North Celestial Cap Survey. VIII. 21 New Pulsar Timing Solutions.” *Submitted to the Astrophysical Journal*. May 2023. arXiv:2305.13624.
106. Andersen, B. C., Patel, C., Brar, C., et al. “Flux Calibration of CHIME/FRB Intensity Data.” *Submitted to the Astrophysical Journal*. May 2023. arXiv:2305.11302.
105. The CHIME/FRB Collaboration: Andersen, B. C., Bandura, K., Bjardwaj, M., et al. “CHIME/FRB Discovery of 25 Repeating Fast Radio Burst Sources.” *The Astrophysical Journal*, 947, 83. April 2023.
104. Cook, A. M., Bhardwaj, M., Gaensler, B. M., et al. “An FRB Sent Me a DM: Constraining the Electron Column of the Milky Way Halo with Fast Radio Burst Dispersion Measures from CHIME/FRB.” *The Astrophysical Journal*, 946, 58. April 2023.
103. Merryfield, M., Tendulkar, S. P., Shin, K., et al. “An Injection System for the CHIME/FRB Experiment.” *The Astronomical Journal*, 165, 152. May 2022.
102. Ding, H., Deller, A. T., Stappers, B. W., et al. “The MSPSR π catalogue: VLBA astrometry of 18 millisecond pulsars.” *Monthly Notices of the Royal Astronomical Society*, 519, 4982. March 2023.
101. Mckinven, R., Gaensler, B. M., Michilli, D., et al. “Revealing the Dynamic Magnetospheric Environments of Repeating Fast Radio Burst Sources through Multi-year Polarimetric Monitoring with CHIME/FRB.” *Submitted to the Astrophysical Journal*. February 2023. arXiv:2302.08386.
100. Swiggum, J. K., Pleunis, Z., Parent, E., et al. “The Green Bank North Celestial Cap Survey. VII. 12 New Pulsar Timing Solutions.” *The Astrophysical Journal*, 944, 154. February 2023.
99. Shin, K., Masui, K. M., Bhardwaj, M., et al. “Inferring the Energy and Distance Distributions of Fast Radio Bursts using the First CHIME/FRB Catalog.” *The Astrophysical Journal*, 944, 105. February 2023.
98. Good, D. C., Chawla, P., **Fonseca, E.**, et al. “Non-detection of CHIME/FRB sources with the Arecibo Observatory.” *The Astrophysical Journal*, 944, 70. February 2023.
97. The NANOGrav Collaboration: Arzoumanian, Z., Baker, P. T., Blecha, L., et al. “The NANOGrav 12.5-year Data Set: Bayesian Limits on Gravitational Waves from Individual Supermassive Black Hole Binaries.” *Submitted to the Astrophysical Journal*. January 2023. arXiv:2301.03608.
96. Andersen, B. C., **Fonseca, E.**, McKee, J. W., et al. “CHIME Discovery of a Binary Pulsar with a Massive Non-Degenerate Companion.” *The Astrophysical Journal*, 943, 57. January 2023.

95. Michilli, D., Bhardwaj, M., Brar, C., et al. “Sub-arcminute localization of 13 repeating fast radio bursts detected by CHIME/FRB.” *Submitted to the Astrophysical Journal*. December 2022. arXiv:2212.11941.
94. Jennings, R. J., Cordes, J. M., Chatterjee, S., et al. “An unusual pulse shape change event in PSR J1713+0747 observed with the Green Bank Telescope and CHIME.” *Submitted to the Astrophysical Journal*. October 2022. arXiv:2210.12266.
93. Dong, F. A., Crowter, K., Meyers, B. W., et al. “The second set of pulsar discoveries by CHIME/FRB/Pulsar: 14 Rotating Radio Transients and 7 pulsars.” *Submitted to the Astrophysical Journal*. October 2022. arXiv:2210.09172.
92. Curtin, A. P., Tendulkar, S. P., Josephy, A., et al. “Limits on Fast Radio Burst-like Counterparts to Gamma-ray Bursts using CHIME/FRB.” *Submitted to the Astrophysical Journal*. August 2022. arXiv:2208.00803.
91. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration, et al. “Searches for Gravitational Waves from Known Pulsars at Two Harmonics in the Second and Third LIGO-Virgo Observing Runs.” *The Astrophysical Journal*, 935, 1. August 2022.
90. The CHIME/FRB Collaboration: Andersen, B. C., Bandura, K., Bhardwaj, M., et al. “Sub-second periodicity in a fast radio burst.” *Nature*, 607, 256. July 2022.
89. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration, et al. “Narrowband searches for continuous and long-duration transient gravitational waves from known pulsars in the LIGO-Virgo third observing run.” *The Astrophysical Journal*, 932, 133. June 2022.
88. Mckinven, R., Gaensler, B. M., Michilli, D., et al. “A Large Scale Magneto-ionic Fluctuation in the Local Environment of Periodic Fast Radio Burst Source, FRB 20180916B.” *Submitted to the Astrophysical Journal*. May 2022. arXiv:2205.09221.
87. Hazboun, J. S., Simon, J., Madison, D. R., et al. “Bayesian Solar Wind Modeling with Pulsar Timing Arrays.” *The Astrophysical Journal*, 929, 39. April 2022.
86. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration, et al. “Search for Gravitational Waves Associated with Fast Radio Bursts Detected by CHIME/FRB During the LIGO–Virgo Observing Run O3a.” *Submitted to the Astrophysical Journal*. March 2022. arXiv:2203.12038.
85. Antoniadis, J., Arzoumanian, Z., Babak, S., et al. “The International Pulsar Timing Array second data release: Search for an isotropic Gravitational Wave Background.” *The Monthly Notices of the Royal Astronomical Society*, 510, 4873. March 2022.

84. Lanman, A. E., Andersen, B. C., Chawla, P., et al. “A sudden period of high activity from repeating Fast Radio Burst 20201124A.” *The Astrophysical Journal Letters*, 927, 59. March 2022.
83. Chawla, P., Kaspi, V. M., Ransom, S. M., et al. “Modeling Fast Radio Burst Dispersion and Scattering Properties in the First CHIME/FRB Catalog.” *The Astrophysical Journal*, 927, 35. March 2022.
82. Kirsten, F., Marcote, B., Nimmo, K., et al. “A repeating fast radio burst source in a globular cluster.” *Nature*, 602, 585. February 2022.
81. Nimmo, K., Hessels, J. W. T., Kirsten, F., et al. “Burst timescales and luminosities link young pulsars and fast radio bursts.” *Nature Astronomy*. February 2022.
80. Wahl, H. M., McLaughlin, M. A., Gentile, P. A., et al., “The NANOGrav 12.5-Year Data Set: Polarimetry and Faraday Rotation Measures from Observations of Millisecond Pulsars with the Green Bank Telescope.” *The Astrophysical Journal*, 926, 168. February 2022.
79. Cassanelli, T., Leung, C., Rahman, M., et al. “Localizing FRBs through VLBI with the Algonquin Radio Observatory 10-m Telescope.” *The Astronomical Journal*, 163, 65. February 2022.
78. Parent, É., Sewalls, H., Freire, P. C. C., et al. “Discovery of 72 pulsars in the PALFA survey: Timing analysis, glitch activity, emission variability, and a pulsar in an eccentric binary.” *The Astrophysical Journal*, 924, 135. January 2022.
77. The NANOGrav Collaboration: Arzoumanian, Z., Baker, P. T., Blumer, H., et al. “Searching For Gravitational Waves From Cosmological Phase Transitions With The NANOGrav 12.5-year dataset.” *The Physical Review Letters*, 127, 251302. December 2021.
76. The CHIME/FRB Collaboration: Amiri, M., Andersen, B. C., Bandura, K., et al. “The First CHIME/FRB Fast Radio Burst Catalog.” *The Astrophysical Journal Supplements*, 257, 59. December 2021.
75. The NANOGrav collaboration: Arzoumanian, Z., Baker, P. T., Blumer, H., et al. “The NANOGrav 12.5-year data set: Search for Non-Einsteinian Polarization Modes in the Gravitational-Wave Background.” *The Astrophysical Journal Letters*, 923, L22. December 2021.
74. Josephy, A., Chawla, P., Curtin, A. P., et al. “No Evidence for Galactic Latitude Dependence of the Fast Radio Burst Sky Distribution.” *The Astrophysical Journal*, 923, 2. June 2021.
73. Pleunis, Z., Good, D. C., Kaspi, V. M., et al. “Fast radio burst morphology in the first CHIME/FRB catalog.” *The Astrophysical Journal*, 923, 1. December 2021.

72. Good, D. C., Andersen, B. C., Chawla, P., et al. “First discovery of new pulsars and RRATs with CHIME/FRB.” *The Astrophysical Journal*, 922, 43. November 2021.
71. Raffei-Ravandi, M., Smith, K. M., Li, D., et al. “CHIME/FRB Catalog 1 results: statistical cross-correlations with large-scale structure.” *The Astrophysical Journal*, 922, 42. November 2021.
70. Agazie, G., Mingyar, M., McLaughlin, M. A., et al. “The Green Bank Northern Celestial Cap Pulsar Survey. VI. Timing and Discovery of PSR J1759+5036: A Double Neutron Star Binary Pulsar.” *The Astrophysical Journal*, 922, 35. November 2021.
69. Ding, H., Deller, A. T., **Fonseca, E.**, et al. “The orbital-decay test of general relativity to the 2% level with 6-year VLBA astrometry of the double neutron star J1537+1155.” *The Astrophysical Journal Letters*, 921, L19. November 2021.
68. Bhardwaj, M., Kirichenko, A. Yu., Michilli, D., et al. “A Local Universe Host for the Repeating Fast Radio Burst FRB 20181030A.” *The Astrophysical Journal Letters*, 919, L24. October 2021.
67. Miller, M. C., Lamb, F. K., Dittmann, A. J., et al. “The Radius of PSR J0740+6620 from NICER and XMM-Newton Data.” *The Astrophysical Journal Letters*, 918, L28. April 2021.
66. Riley, T. E., Watts, A. L., Ray, P. S., et al. “A NICER View of the Massive Pulsar PSR J0740+6620 Informed by Radio Timing and XMM-Newton Spectroscopy.” *The Astrophysical Journal Letters*, 918, L27. September 2021.
65. Turner, J. E., McLaughlin, M. A., Cordes, J. M., et al. “The NANOGrav 12.5 Year Data Set: Monitoring Interstellar Scattering Delays.” *The Astrophysical Journal*, 917, 10. August 2021.
64. The CHIME/Pulsar Collaboration: Amiri, M., Bandura, K., Boyle, P. J., et al. “The CHIME Pulsar Project: System Overview.” *The Astrophysical Journal Supplements*, 255, 5. August 2020.
63. **Fonseca, E.**, Cromartie, H. T., Pennucci, T. T., et al. “Refined Mass and Geometric Measurements of the High-Mass PSR J0740+6620.” *The Astrophysical Journal Letters*, 915, L12. July 2021.
62. The NANOGrav Collaboration: Arzoumanian, Z., Baker, P. T., Brazier, A., et al. “The NANOGrav 11 yr Data Set: Limits on Supermassive Black Hole Binaries in Galaxies within 500 Mpc.” *The Astrophysical Journal*, 914, 121. June 2021.
61. Pol, N. S., Taylor, S. R., Kelley, L. Z., et al. “Astrophysics Milestones For Pulsar Timing Array Gravitational Wave Detection.” *The Astrophysical Journal Letters*, 911, L34. April 2021.

60. Pleunis, Z., Michilli, D., Bassa, C. G., et al. “LOFAR Detection of 110-188 MHz Emission and Frequency-dependent Activity from FRB 20180916B.” *The Astrophysical Journal Letters*, 911, L3. April 2021.
59. Bhardwaj, M., Gaensler, B. M., Kaspi, V. M., et al. “A Nearby Repeating Fast Radio Burst in the Direction of M81.” *The Astrophysical Journal Letters*, 910, L18. April 2021.
58. Tendulkar, S. P., Gil de Paz, A., Kirichenko, A. Yu., et al. “The 60-pc Environment of FRB 20180916B.” *The Astrophysical Journal Letters*, 908, L12. February 2021.
57. The NANOGrav Collaboration: Alam, M. F., Arzoumanian, Z., Baker, P. T., et al. “The NANOGrav 12.5-year Data Set: Wideband Timing of 47 Millisecond Pulsars.” *The Astrophysical Journal Supplements*, 252, 5. January 2021.
56. The NANOGrav Collaboration: Alam, M. F., Arzoumanian, Z., Baker, P. T., et al. “The NANOGrav 12.5-year Data Set: Observations and Narrowband Timing of 47 Millisecond Pulsars.” *The Astrophysical Journal Supplements*, 252, 4. January 2021.
55. Arzoumanian, Z., Baker, P. T., Blumer, H., et al. “The NANOGrav 12.5 yr Data Set: Search for an Isotropic Stochastic Gravitational-wave Background.” *The Astrophysical Journal Letters*, 905, L34. December 2020.
54. Parent, É., Chawla, P., Kaspi, V. M., et al. “First Discovery of a Fast Radio Burst at 350 MHz by the GBNCC Survey.” *The Astrophysical Journal*, 904, 92. December 2020.
53. Ng, C., Wu, B., Ma, M. et al. “The Discovery of Nulling and Mode Switching Pulsars with CHIME/Pulsar.” *The Astrophysical Journal*, 903, 81 November 2020.
52. The CHIME/FRB Collaboration: Andersen, B. C. Bandura, K. M., Bhardwaj, M., et al. “A bright millisecond-duration radio burst from a Galactic magnetar.” *Nature*, 587, 54-58. November 2020.
51. The NANOGrav Collaboration: Arzoumanian, Z., Baker, P. T., Brazier, A., et al. “Multi-Messenger Gravitational Wave Searches with Pulsar Timing Arrays: Application to 3C66B Using the NANOGrav 11-year Data Set.” *The Astrophysical Journal*, 900, 102. September 2020.
50. The CHIME/FRB Collaboration: Amiri, M., Andersen, B. C., Bandura, K., et al. “Periodic Activity from a Fast Radio Burst Source.” *Nature*, 582, 351-354. June 2020.
49. Ng, C., Pandhi, A., Naidu, A., et al. “Faraday rotation measures of northern-hemisphere pulsars using CHIME/Pulsar.” *Monthly Notices of the Royal Astronomical Society*, 496, 2836. June 2020.

48. Chawla, P., Andersen, B. C., Bhardwaj, M., et al. “Detection of Repeating FRB 180916.J0158+65 Down to Frequencies of 300 MHz.” *The Astrophysical Journal Letters*, 896, L41. June 2020.
47. Behrens, E. A., Ransom, S. M., Madison, D. R., et al. “The NANOGrav 11 yr Data Set: Constraints on Planetary Masses Around 45 Millisecond Pulsars.” *The Astrophysical Journal Letters*, 893, L8. April 2020.
46. Vallisneri, M., Taylor, S. R., Simon, J., et al. “Modeling the Uncertainties of Solar System Ephemerides for Robust Gravitational-wave Searches with Pulsar-timing Arrays.” *The Astrophysical Journal*, 893, 112. April 2020.
45. **Fonseca, E.**, Andersen, B. C., Bhardwaj, M., et al. “Nine New Repeating Fast Radio Burst Sources from CHIME/FRB.” *The Astrophysical Journal Letters*, 891, L6. February 2020.
44. Kirichenko, A. Yu., Karpova, A. V., Zyuzin, D. A., et al. “Searching for optical companions to four binary millisecond pulsars with the Gran Telescopio Canarias.” *Monthly Notices of the Royal Astronomical Society*, 492, 3032. February 2020.
43. Hazboun, J. S., Simon, J., Taylor, S. R., et al. “The NANOGrav 11 yr Data Set: Evolution of Gravitational-wave Background Statistics.” *The Astrophysical Journal*, 890, 108. February 2020.
42. Marcote, B., Nimmo, K., Hessels, J. W. T., et al. “A repeating fast radio burst source localised to a nearby spiral galaxy.” *Nature*, 577, 190. January 2020.
41. Cromartie, H. T., **Fonseca, E.**, Ransom, S. M., et al. “A very massive neutron star: relativistic Shapiro delay measurements of PSR J0740+6620.” *Nature Astronomy*, 4, 72. January 2020.
40. The NANOGrav Collaboration: Aggarwal, K., Arzoumanian, Z., Baker, P. T., et al., “The NANOGrav 11 yr Data Set: Limits on Gravitational Wave Memory.” *The Astrophysical Journal*, 889, 38. January 2020.
39. Perera, B. B. P., DeCesar, M. E., Demorest, P. B., et al. “The International Pulsar Timing Array: second data release.” *Monthly Notices of the Royal Astronomical Society*, 490, 4666. December 2019.
38. The CHIME/FRB Collaboration: Andersen, B., Bandura, K., Bhardwaj, M., et al. “CHIME /FRB Discovery of Eight Repeating Fast Radio Burst Sources” *Astrophysical Journal Letters*, 855, L24. September 2019. (Corresponding author: **Fonseca, E.**)
37. Josephy, A., Chawla, P., **Fonseca, E.**, et al. “CHIME/FRB Detection of the Original Repeating Fast Radio Burst Source FRB 121102.” *The Astrophysical Journal Letters*, 882, L18. September 2019.

36. The NANOGrav Collaboration: Aggarwal, K., Arzoumanian, Z., Baker, P. T., et al. “The NANOGrav 11 yr Data Set: Limits on Gravitational Waves from Individual Supermassive Black Hole Binaries.” *The Astrophysical Journal*, 880, 116. August 2019.
35. Aloisi, R. J., Cruz, A., Daniels, L., et al. “The Green Bank North Celestial Cap Pulsar Survey. IV. Four New Timing Solutions.” *The Astrophysical Journal*, 875, 19. April 2019.
34. Deneva, J. S., Ray, P. S., Lommen, A., et al. “High-precision X-Ray Timing of Three Millisecond Pulsars with NICER: Stability Estimates and Comparison with Radio.” *The Astrophysical Journal*, 874, 160. April 2019.
33. Lam, M. T., McLaughlin, M. A., Arzoumanian, Z., et al. “The NANOGrav 12.5 yr Data Set: The Frequency Dependence of Pulse Jitter in Precision Millisecond Pulsars.” *The Astrophysical Journal*, 872, 193. February 2019.
32. Madison, D. R., Cordes, J. M., Arzoumanian, Z., et al. “The NANOGrav 11 yr Data Set: Solar Wind Sounding through Pulsar Timing.” *The Astrophysical Journal*, 872, 150. February 2019.
31. The CHIME/FRB Collaboration: Amiri, M., Bandura, K., Bhardwaj, M., et al. “A Second Source of Repeating Fast Radio Bursts.” *Nature*, 566, 235-238. January 2019.
30. The CHIME/FRB Collaboration: Amiri, M., Bandura, K., Bhardwaj, M., et al. “Observations of Fast Radio Bursts at Frequencies down to 400 MHz.” *Nature*, 566, 230-234. January 2019.
29. Zhu, W. W., Desvignes, G., Wex, N., et al. “Tests of gravitational symmetries with pulsar binary J1713+0747.” *Monthly Notices of the Royal Astronomical Society*, 482, 3249. January 2019.
28. Stovall, K., Freire, P. C. C., Antoniadis, J. et al. “PSR J2234+0611: A New Laboratory for Stellar Evolution.” *The Astrophysical Journal*, 870, 74. January 2019.
27. Caballero, R. N., Guo, Y. J., Lee, K. J., et al. “Studying the Solar system with the International Pulsar Timing Array.” *Monthly Notices of the Royal Astronomical Society*, 481, 5501. December 2018.
26. Brook, P. R., Karastergiou, A., McLaughlin, M. A., et al. “The NANOGrav 11-year Data Set: Pulse Profile Variability.” *The Astrophysical Journal*, 868, 122. December 2018.
25. The CHIME/FRB Collaboration: Amiri, M., Bandura, K., Berger, P., et al. “The CHIME Fast Radio Burst Project: System Overview.” *The Astrophysical Journal*, 863, 48. August 2018.

24. Gentile, P. A., McLaughlin, M. A., Demorest, P. B., et al. “The NANOGrav 11 yr Data Set: Arecibo Observatory Polarimetry and Pulse Microcomponents.” *The Astrophysical Journal*, 862, 47. July 2018.
23. Lam, M. T., Ellis, J. A., Grillo, G., et al. “A Second Chromatic Timing Event of Interstellar Origin toward PSR J1713+0747.” *The Astrophysical Journal*, 861, 132. July 2018.
22. Lynch, R. S., Swiggum, J. K., Kondratiev, V. I., et al. “The Green Bank North Celestial Cap Survey II: 45 New Pulsar Timing Solutions.” *The Astrophysical Journal*, 859, 2. June 2018.
21. The NANOGrav Collaboration: Arzoumanian, Z., Brazier, A., Burke-Spolaor, S., et al. “The NANOGrav Eleven-Year Data Set: Pulsar-timing Constraints On The Stochastic Gravitational-wave Background.” *The Astrophysical Journal*, 859, 47. May 2018.
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