Stephen Taylor | Publication List

TAPIR Group, MC 350-17, California Institute of Technology
1200 E. California Blvd, Pasadena, CA 91125
+1 (626) 689-5832 • Stephen.R.Taylor@jpl.nasa.gov
stevertaylor.github.io • stevertaylor • stephen-taylor

- 22 **peer-reviewed publications (of which** 8 **are first-author) with** 317 **citations, h-index** 10.
- Metrics available at https://scholar.google.com/citations?user=iN2djBMAAAAJ&hl=en.
- 5 key publications are indicated below with preceding asterisks.

Submitted & In Preparation

S. R. Taylor, L. Lentati, S. Babak, P. Brem, J. R. Gair, A. Sesana, A. Vecchio. "*All correlations must die: Assessing the significance of a stochastic gravitational-wave background in pulsar-timing arrays*". Submitted to Physical Review D. arXiv:1606.09180.

S. R. Taylor, R. van Haasteren. "*Optimized anisotropic modelling of the nanohertz gravitational-wave sky with pulsar-timing arrays*". (In Prep.)

S. R. Taylor, J. Simon, L. Sampson. "*Bayesian model emulation for astrophysical inference of supermassive black-hole binaries with pulsar-timing arrays*". (In Prep.)

Publications In Peer-reviewed International Journals

May 2016: G. Desvignes, R. N. Caballero, L. Lentati, [and 40 others, including ***S. R. Taylor***]. "*High-precision timing of 42 millisecond pulsars with the European Pulsar Timing Array*". MNRAS, 458:3341–3380.

May 2016: L. Lentati, R. M. Shannon, W. A. Coles, [and 80 others, including ***S. R. Taylor***]. "*From spin noise to systematics: stochastic processes in the first International Pulsar Timing Array data release*". MNRAS, 458:2161–2187.

May 2016 : J. P. W. Verbiest, L. Lentati, G. Hobbs, [and 89 others, including ***S. R. Taylor***]. "*The International Pulsar Timing Array: First data release*". MNRAS, 458:1267–1288.

Apr 2016 : Z. Arzoumanian, A. Brazier, S. Burke-Spolaor, [and 48 others, including ***S. R. Taylor***]. "*The NANOGrav Nine-year Data Set: Limits on the Isotropic Stochastic Gravitational Wave Background*". Astrophys. J., 821:13.

Apr 2016 : R. N. Caballero, K. J. Lee, L. Lentati, [and 36 others, including ***S. R. Taylor***]. "*The noise properties of 42 millisecond pulsars from the European Pulsar Timing Array and their impact on gravitational-wave searches*". MNRAS, 457:4421–4440.

*__Mar 2016__ : ***S. R. Taylor***, M. Vallisneri, J. A. Ellis, C. M. F. Mingarelli, T. J. W. Lazio, and R. van Haasteren. "*Are We There Yet? Time to Detection of Nanohertz Gravitational Waves Based on Pulsar-timing Array Limits*". Astrophys. J. Lett, 819:L6.

Jan 2016 : ***S. R. Taylor***, E. A. Huerta, J. R. Gair, and S. T. McWilliams. "*Detecting Eccentric Supermassive*

Black Hole Binaries with Pulsar Timing Arrays: Resolvable Source Strategies". Astrophys. J., 817:70.

Jan 2016 : S. Babak, A. Petiteau, A. Sesana, P. Brem, P. A. Rosado, ***S. R. Taylor***, [and 30 others]. "*European Pulsar Timing Array limits on continuous gravitational waves from individual supermassive black hole binaries*". MNRAS, 455:1665–1679.

Nov 2015 : J. R. Gair, J. D. Romano, and ***S. R. Taylor***. "*Mapping gravitational-wave backgrounds of arbitrary polarisation using pulsar timing arrays*". Phys. Rev. D, 92(10):102003.

*__Nov 2015__ : L. Lentati, ***S. R. Taylor***, C. M. F. Mingarelli, [and 33 others]. "*European Pulsar Timing Array limits on an isotropic stochastic gravitational-wave background*". MNRAS, 453:2576–2598.

Sep 2015 : E. A. Huerta, S. T. McWilliams, J. R. Gair, and ***S. R. Taylor***. "*Detection of eccentric supermassive black hole binaries with pulsar timing arrays: Signal-to-noise ratio calculations*". Phys. Rev. D, 92(6):063010.

Aug 2015 : J. D. Romano, ***S. R. Taylor***, N. J. Cornish, J. Gair, C. M. F. Mingarelli, and R. van Haasteren. "*Phase-coherent mapping of gravitational-wave backgrounds using ground-based laser interferometers*", Phys. Rev. D, 92(4):042003.

*__Jul 2015__: ***S. R. Taylor***, C. M. F. Mingarelli, J. R. Gair, [and 32 others]. "*Limits on Anisotropy in the Nanohertz Stochastic Gravitational Wave Background*". Phys.Rev. Lett, 115(4):041101.

Mar 2015: C. J. Moore, ***S. R. Taylor***, and J. R. Gair. "*Estimating the sensitivity of pulsar timing arrays*", Classical and Quantum Gravity, 32(5):055004.

Nov 2014: ***S. R. Taylor***, J. Ellis, and J. Gair. "*Accelerated Bayesian model-selection and parameter-estimation in continuous gravitational-wave searches with pulsar-timing arrays*". Phys. Rev. D, 90(10):104028.

Oct 2014: J. Gair, J. D. Romano, ***S. R. Taylor***, and C. M. F. Mingarelli. "*Mapping gravitational-wave backgrounds using methods from CMB analysis: Application to pulsar timing arrays*". Phys. Rev. D, 90(8):082001.

Aug 2014: R. M. Shannon, S. Chamberlin, N. J. Cornish, J. A. Ellis, C. M. F. Mingarelli, D. Perrodin, P. Rosado, A. Sesana, ***S. R. Taylor***, [and 14 others]. "*Summary of Session C1: pulsar timing arrays*". General Relativity and Gravitation, 46:1765.

*__Oct 2013__: ***S. R. Taylor*** and J. R. Gair. "*Searching for anisotropic gravitational-wave backgrounds using pulsar timing arrays*". Phys. Rev. D, 88(8):084001.

May 2013: L. Lentati, P. Alexander, M. P. Hobson, ***S. R. Taylor***, J. Gair, S. T. Balan, and R. van Haasteren. "*Hyper-efficient model-independent Bayesian method for the analysis of pulsar timing data*". Phys. Rev. D, 87(10):104021.

Feb 2013 : ***S. R. Taylor***, J. R. Gair, and L. Lentati. "*Weighing the evidence for a gravitational-wave background in the first International Pulsar Timing Array data challenge*". Phys. Rev. D, 87(4):044035.

Jul 2012: ***S. R. Taylor*** and J. R. Gair. "*Cosmology with the lights off: Standard sirens in the Einstein Telescope era*". Phys. Rev. D, 86(2):023502.

*__Jan 2012__: ***S. R. Taylor***, J. R. Gair, and I. Mandel. "*Cosmology using advanced gravitational-wave detectors alone*". Phys. Rev. D, 85(2):023535.