

Stephen Taylor | Publication List

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=iN2djBMAAA&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](https://arxiv.org/abs/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](https://arxiv.org/abs/1605.00250), 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](https://arxiv.org/abs/1605.00250), 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](https://arxiv.org/abs/1605.00250), 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.](https://arxiv.org/abs/1604.00959), 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](https://arxiv.org/abs/1604.00959), 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](https://arxiv.org/abs/1603.04473), 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.](https://arxiv.org/abs/1601.00004), 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](https://arxiv.org/abs/1601.00004), 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](https://arxiv.org/abs/1511.05700), 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.](#)