

# Stephen Taylor | Publication List

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- 22 peer-reviewed publications (of which 8 are first-author) with 317 citations, h-index 10.
- Up-to-date 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](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*, 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.