

Stephen R. Taylor | Curriculum Vitae

TAPIR Group, MC 350-17, California Institute of Technology
1200 E. California Blvd, Pasadena, CA 91125

📞 +1 (626) 689-5832 • ✉ srtaylor@caltech.edu • 🌐 stevertaylor.github.io
🌐 stevertaylor • 🌐 stephen-taylor • 📅 December 18, 2018

Professional Appointments

California Institute of Technology **Pasadena, USA**
NANOGrav PFC Senior Postdoctoral Fellow *2017–Present*
Caltech Senior Postdoctoral Scholar (TAPIR group)

- *Support:* NANOGrav Senior Postdoctoral Fellowship funded by an NSF Physics Frontier Center. This fellowship has funding and research-independence commensurate with NASA prize fellowships, and is the only senior fellowship that the NANOGrav PFC has ever awarded.

NASA Jet Propulsion Laboratory **Pasadena, USA**
Caltech Postdoctoral Scholar at JPL *2016–2017*
NASA Postdoctoral Fellow *2014–2016*

- *Support:* NASA Postdoctoral Program. This program provides promising early-career scientists the opportunity to carry out an independent research program that aligns with NASA's missions. Funding and research-independence commensurate with Einstein & Hubble prize fellowships.

University of Cambridge **Cambridge, UK**
PhD candidate *2010–2014*

- *Support:* Fully funded PhD studentship at the Institute of Astronomy, awarded by the UK Science & Technology Facilities Council (STFC). Resulted in 7 peer-reviewed publications.

Education

University of Cambridge **Cambridge, UK**
PhD in Astronomy *2010–2014*

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

Description: A new Bayesian hierarchical population inference scheme is introduced to use LIGO compact-binary gravitational-wave standard sirens to infer the mass-distribution of the binary population, the progenitor star-formation rate, and cosmological parameters. Advanced pulsar-timing array techniques are developed to map the nanohertz gravitational-wave sky through a parametrized overlap-reduction function, and large accelerations to the Bayesian searches for resolvable supermassive black-hole binaries are implemented.

Resulted in 7 publications, and listed for GWIC Thesis Prize "Honorable Mention"

University of Oxford **Oxford, UK**
MPhys (1st Class), [ranked 1st in Jesus College, 4th across University] *2006–2010*

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

Observing Proposals

"High impact MSPs for the International Pulsar Timing Array" *Nov 2016*

- Green Bank Telescope, proposal GBT17A-353
- Status: awarded 21.0 hours

"High impact MSPs for the International Pulsar Timing Array" *Sep 2016*

- Arecibo Radio Telescope, proposal P3133
- Status: awarded 32.5 hours

Grants, Funding & Awards

Marie Skłodowska-Curie Incoming Fellowship, University of Birmingham	2017
○ [Declined] Proposal “GravPANTHER”. Grant exceeds €150k.	
OzGrav ARC Centre of Excellence, Level B Fellowship, Swinburne & Monash	2017
○ [Declined] 7-year senior research fellowship at Australian lecturer-level salary	
Proposal (Co-I): “Exploring the frontiers of the nHz GW spectrum with PTAs”	2017
○ Awarded 1M CPU hours (\$600k grant) on the Blue Waters supercomputer at NCSA, University of Illinois at Urbana Champaign.	
○ The project developed a remote interactive interface for pulsar-timing GW searches on the Blue Waters HPC architecture, using a custom-built Docker software container.	
Proposal (PI): “New Directions and New Opportunities for NANOGrav Astrophysics”	2016
○ Awarded \$11k by the NANOGrav Physics Frontier Center for a proposal on behalf of the collaboration’s Astrophysics Working Group.	
○ Funding ensured undergraduate/graduate students and outside experts could attend a sprint week at West Virginia University in April 2017 to advance several key areas of interest, and to achieve rapid progress on collaboration projects.	
International Pulsar Timing Array Steering Committee Prize — “Honorable Mention”	2016
Gravitational Wave International Committee Thesis Prize — “Honorable Mention”	2016
NASA Postdoctoral Fellowship at Jet Propulsion Laboratory	2014
Royal Astronomical Society Travel Awards [various; total £1450]	2013–2014
Christ’s College (Cambridge) Travel Grants [various; total exceeds £1k]	2012–2014
Science and Technology Facilities Council (STFC) — full PhD studentship award	2010
Examiner’s Prize, Oxford Physics Speaking Competition	2008
Oxford Physics department prize for outstanding laboratory work	2007
Undergraduate Scholarship in Jesus College, Oxford	2007–2010
Oxford Physics Dept. and Jesus College examination prizes [total exceeds £1k]	2006–2010

Publications

Counts: 33 papers published in major peer-reviewed journals
(out of which 11 are first-authored papers, and 3 papers were covered by press releases).

- **Total number of citations:** 1147 (using Google Scholar), **h-index:** 19, **i10-index:** 25
- **Metrics** available at Google Scholar: <http://bit.ly/2hgVCzb>.
- **Full list of publications** can be found at <http://bit.ly/2fF3yGl>.

Selected publications.....

- “*The NANOGrav 11-year Data Set: Pulsar-timing Constraints On The Stochastic Gravitational-wave Background*”. Z. Arzoumanian, P. T. Baker, A. Brazier, [and 57 others. **Corresponding author: S. R. Taylor**] *Astrophys. J.*, 859:1 (2018). • Led on behalf of full collaboration.
- “*Are we there yet? Time to detection of nanohertz gravitational waves based on pulsar-timing array limits*”. **S. R. Taylor**, M. Vallisneri, J. A. Ellis, C. M. F. Mingarelli, T. J. W. Lazio, and R. van Haasteren. *Astrophys. J. Lett*, 819:L6 (2016). • Press release, media coverage, and cited in popular-science book.
- “*Cosmology using advanced gravitational-wave detectors alone*”. **S. R. Taylor**, J. R. Gair, and I. Mandel. *Phys. Rev. D*, 85(2):023535 (2012). • 53 peer-reviewed citations.

Presentations

- 55 **oral presentations (of which 26 were invited)**, with 8 **conference leadership roles**.
- Recent presentations are available to view at <https://speakerdeck.com/stevertaylor>.
- **Full list of presentations** can be found at <http://bit.ly/2fqo9BA>.

Selected presentations.....

- **(Invited)**: *Pulsar Timing Arrays: new advances toward detecting low-frequency gravitational waves*, American Physical Society, Columbus OH, USA, Apr 2018
- **(Invited)**: *Probing the nanohertz GW landscape with PTAs: a status report* Gravitational Wave Physics & Astronomy Workshop (GWPAW), Annecy, France, May 2017.
- **(Invited)**: *Gravitational-wave data-analysis techniques for pulsar-timing arrays* IPTA conference, Stellenbosch, South Africa, Jun 2016.

Teaching & Mentoring

Undergraduate student mentoring.....

- *Sophia Singh*, University of Southern California Fall 2018–
Advisor for research project: *“The Optimal PTA Geometry for Gravitational Wave Detection”*.
- *Haochen Wang*, University of Southern California Summer 2018–
Advisor for research project: *“Advanced pulsar noise modeling and cross-validation”*.
- *Jacob Turner*, Oberlin College Summer 2018, 2016
Co-mentor for summer research project: *“Correcting for interstellar scattering delays in pulsar-timing”*.
- *Maya Fuller*, Caltech Summer 2016
Co-supervisor for summer research project: *“Bayesian estimates of pulsar-timing array sensitivity to nanohertz gravitational-waves”*.
- *Maya Fuller*, Caltech 2016–2017
Mentor for learning Bayesian statistical inference methods and scientific computing.

Lecturing.....

- Instructor at NANOGrav GW Detection workshop at Caltech Mar 2017
- Lecturer at NANOGrav Fall 2016 student workshop at UIUC Oct 2016
- Guest Lecturer for Caltech Ph237 class “Gravitational Waves” May 2016
- Lecturer and co-organizer at NANOGrav Spring 2016 student workshop at Caltech Mar 2016
- Instructor at NANOGrav GW Detection workshop at Caltech Sep 2016
- Lecturer at “CSI PTA” Aspen Center for Physics workshop Jun 2015

Teaching assistant.....

- University of Cambridge, Part II Relativity (3rd-year undergraduate class) 2011–2013
Set and graded homework problems, mentored students, led recitation classes.
- University of Cambridge, Part II Astronomy (computing coursework) 2011
Prepared materials for 3rd-year undergraduate class.

Leadership & Professional Service

Research leadership.....

- **Chair**, NANOGrav Gravitational-wave Detection Working Group Jan 2018–
- **Co-chair**, International Pulsar Timing Array Gravitational-wave Analysis Group Mar 2018–

Reviewer for international journals.....

The Astrophysical Journal, Monthly Notices of the Royal Astronomical Society, Physical Review D, Physical Review Letters

Grant proposal reviewer.....

- o NASA Graduate Fellowship Program (NESSF)

Conference organization.....

- o Co-organizer of NANOGrav Detection workshop at Caltech *Feb 2018*
- o SOC member for International Pulsar Timing Array meeting in Sèvres, France *Jul 2017*
- o Organizer of NANOGrav Astrophysics sprint week at West Virginia University *Apr 2017*
- o Co-organizer of NANOGrav Detection workshop at Caltech *Mar 2017*
- o Co-organizer of NANOGrav Hackathon at NCSA *Oct 2017*
- o Chair of SOC for NANOGrav Fall meeting at University of Illinois Urbana Champaign *Oct 2016*
- o SOC and LOC member for NANOGrav Spring meeting at Caltech *Mar 2016*
- o Co-organizer of NANOGrav student workshop at Caltech *Mar 2016*
- o SOC and LOC member for British Gravity meeting (BritGrav) at Cambridge, UK *Mar 2014*

Seminar organization.....

- o Caltech/JPL Association for Gravitational-Wave Research (*executive committee*) *2017–Present*
- o Caltech TAPIR and LIGO postdoctoral lunch seminar series *2015–2016*

Code & data sharing.....

- o Code release for compact-binary population model interpolation *2018*
Associated with Taylor & Gerosa, arXiv:1806.08365 (2018)
https://github.com/stevertaylor/gw_catalog_mining
- o Developer of python open-source GW analysis software enterprise *2017–Present*
<https://github.com/nanograv/enterprise>
- o Release of code and library of simulated stochastic gravitational-wave spectra *2017*
Associated with Taylor et al., PRL, 118, 181102 (2017)
https://github.com/stevertaylor/gw_pta_emulator
- o Developer of python open-source GW analysis software NX01 *2015–Present*
<https://github.com/stevertaylor/NX01>

Professional affiliations.....

- o LISA Consortium, *Member*
- o OzGrav ARC Centre of Excellence for Gravitational-wave Discovery, *Partner Investigator*
- o North American Nanohertz Observatory for Gravitational-waves (NANOGrav), *Full member*
- o European Pulsar Timing Array (EPTA), *Member*
- o International Pulsar Timing Array (IPTA), *Member*
- o American Physical Society (DGRAV), *Member*
- o Royal Astronomical Society, *Fellow*

Outreach, Diversity, & Media Engagement

Outreach.....

- o Featured gravitational-wave expert at NASA's "Ticket to Explore JPL" event *2018*
- o Featured speaker at Los Angeles "Astronomy On Tap" evening *2018*
- o Astronomy expert at Caltech's "Solar Eclipse Viewing Party" *2017*
- o Featured speaker at West Virginia University's "Celebrating Einstein" public-lecture series *2017*
- o Featured gravitational-wave expert at NASA's "Ticket to Explore JPL" event *2016*

- Presentation to prospective students (Institute of Astronomy graduate interviews) 2012–2014
- Outreach talk at Institute of Astronomy public-observing evening: “The Space Race” 2012
- Interactive presentation at Cambridge’s Institute of Astronomy Open Day 2011, 2013

Diversity & equity.....

- As an SOC member for the Spring 2016 NANOGrav collaboration meeting at Caltech, I coordinated with the Caltech Center for Diversity on a seminar to promote allyship, inclusiveness, and equity within the NANOGrav collaboration.

Press releases.....

- *“Listening for Gravitational Waves Using Pulsars”* Nov 2017
Short-author collaboration research (JPL press release)
- *“Gravitational Waves from Merging Supermassive Black Holes Will Be Spotted within 10 Years, New Study Predicts”* Nov 2017
Short-author collaboration research (Simons Foundation press release)
- *“Pulsar Web Could Detect Low-Frequency Gravitational Waves”* Feb 2016
First-author research (JPL press release)
- *“Gravitational Wave Search Provides Insights into Galaxy Evolution and Mergers”* Apr 2016
Collaboration research (NRAO press release)

Media coverage.....

- Research profiled in the popular-science book *“Ripples in Spacetime: Einstein, Gravitational Waves, and the Future of Astronomy”* by Govert Schilling (forward by Martin Rees), Harvard University Press (2017)
- Interviewed and quoted by *Science* magazine: *“In Search of Spacetime Megawaves”* by Daniel Clery, *Science* 11 Mar 2016: Vol. 351, Issue 6278, pp. 1124–1125
- Quoted, with research featured in *Gizmodo*, *Engadget*, *Phys.org*, *Astronomy magazine*, *Universe Today*
- Collaboration research featured in *Science Daily*, *Astronomy Now* (online)

Skills

- **OS:** Linux/UNIX, Windows
- **Programming:** PYTHON (advanced), C/C++, UNIX shell scripting, HTML, High-performance cluster computing, GPU programming (CUDA C, PyCUDA)
- **Typography:** L^AT_EX, Bibtex, Microsoft Office, Pages, OpenOffice
- **Scientific:** Mathematica, Matlab, PYTHON

References (*more available upon request*)

Dr Jonathan R. Gair [*PhD advisor*]

Reader, School of Mathematics
James Clerk Maxwell Building
Peter Guthrie Tait Road
University of Edinburgh
Edinburgh UK, EH9 3FD

✉ J.Gair@ed.ac.uk

☎ +44 (0) 131 650 4899

Prof. Xavier Siemens

Director, NANOGrav Physics Frontier Center
Associate Professor
Department of Physics
University of Wisconsin–Milwaukee
Milwaukee, WI 53201

✉ siemens@gravity.phys.uwm.edu

☎ +1 (414) 229 6439

Prof. Neil J. Cornish

Professor of Physics
eXtreme Gravity Institute
Department of Physics
Montana State University
Bozeman, MT 59717

✉ ncornish@montana.edu

☎ +1 (406) 994 7986

Full Publication List

Publications in major peer-reviewed journals.....

33. “Mining Gravitational-wave Catalogs To Understand Binary Stellar Evolution: A New Hierarchical Bayesian Framework”
S. R. Taylor and D. Gerosa
 Accepted and in press. *Phys. Rev. D*, arXiv:1806.08365 (2018)
32. “Studying the solar system with the International Pulsar Timing Array”
 R. N. Caballero, Y. J. Guo, K. J. Lee, [and 77 others, including **S. R. Taylor**]
MNRAS (in press), arXiv:1809.10744 (2018)
31. “The noise-marginalized optimal statistic: A robust hybrid frequentist-Bayesian statistic for the stochastic gravitational-wave background in pulsar timing arrays”
 S. J. Vigeland, K. P. Iso, **S. R. Taylor**, J. A. Ellis
Physical Review D 98, 044003 (2018)
30. “Improving timing sensitivity in the microhertz frequency regime: limits from PSR J1713+0747 on gravitational waves produced by super-massive black-hole binaries”
 B. B. P. Perera, B. W. Stappers, S. Babak, [and 25 others, including **S. R. Taylor**]
MNRAS, 478:1, (2018)
29. “The NANOGrav 11-year Data Set: Pulsar-timing Constraints On The Stochastic Gravitational-wave Background”
 Z. Arzoumanian, P. T. Baker, A. Brazier, [and 57 others. **Corresponding author: S. R. Taylor**]
Astrophys. J., 859:1 (2018)
28. “The NANOGrav 11-year Data Set: High-precision timing of 45 Millisecond Pulsars”
 Z. Arzoumanian, A. Brazier, S. Burke-Spolaor, [and 53 others, including **S. R. Taylor**]
Astrophys. J. Supp., 235:37 (2018)
27. “Constraining alternative theories of gravity using pulsar timing arrays”
 N. J. Cornish, L. O’Beirne, **S. R. Taylor**, N. Yunes
Physical Review Letters, 120, 181101 (2018)
26. “Single Sources in the Low-Frequency Gravitational Wave Sky: properties and time to detection by pulsar timing arrays”
 L. Z. Kelley, L. Blecha, L. Hernquist, A. Sesana, **S. R. Taylor**
MNRAS 477, 1964 (2018)
25. “The Local Nanohertz Gravitational-Wave Landscape From Supermassive Black Hole Binaries”
 C. Mingarelli, J. Lazio, A. Sesana, J. E. Greene, J. A. Ellis, C. P. Ma, S. Croft, S. Burke-Spolaor, **S. R. Taylor**
Nature Astronomy (2017) doi:10.1038/s41550-017-0299-6
 • Press release.
24. “The gravitational wave background from massive black hole binaries in Illustris: spectral features and time to detection with pulsar timing arrays”
 L. Z. Kelley, L. Blecha, L. Hernquist, A. Sesana, **S. R. Taylor**
MNRAS 471, 4508 (2017)
23. “Constraints on the dynamical environments of supermassive black-hole binaries using pulsar-timing arrays”
S. R. Taylor, J. Simon, L. Sampson.
Physical Review Letters, 118, 181102 (2017)
22. “All correlations must die: assessing the significance of a stochastic gravitational-wave background in pulsar timing arrays”
S. R. Taylor, L. Lentati, S. Babak, S. P. Brem, J. .R. Gair, A. Sesana, A. Vecchio
Physical Review D, 95, 042002 (2017)
21. “High-precision timing of 42 millisecond pulsars with the European Pulsar Timing Array”
 G. Desvignes, R. N. Caballero, L. Lentati, [and 40 others, including **S. R. Taylor**]
MNRAS, 458:3341–3380 (2016)

20. “*From spin noise to systematics: stochastic processes in the first International Pulsar Timing Array data release*”
L. Lentati, R. M. Shannon, W. A. Coles, [and 80 others, including **S. R. Taylor**]
[MNRAS, 458:2161–2187 \(2016\)](#)
19. “*The International Pulsar Timing Array: first data release*”
J. P. W. Verbiest, L. Lentati, G. Hobbs, [and 89 others, including **S. R. Taylor**]
[MNRAS, 458:1267–1288 \(2016\)](#)
18. “*The NANOGrav nine-year data set: limits on the isotropic stochastic gravitational wave background*”
Z. Arzoumanian, A. Brazier, S. Burke-Spolaor, [and 48 others, including **S. R. Taylor**]
[Astrophys. J., 821:13 \(2016\)](#)
• Press release.
17. “*The noise properties of 42 millisecond pulsars from the European Pulsar Timing Array and their impact on gravitational-wave searches*”
R. N. Caballero, K. J. Lee, L. Lentati, [and 36 others, including **S. R. Taylor**]
[MNRAS, 457:4421–4440 \(2016\)](#)
16. “*Are we there yet? Time to detection of nanohertz gravitational waves based on pulsar-timing array limits*”
S. R. Taylor, M. Vallisneri, J. A. Ellis, C. M. F. Mingarelli, T. J. W. Lazio, and R. van Haasteren
[Astrophys. J. Lett, 819:L6 \(2016\)](#)
• Press release, and cited in popular-science book.
15. “*Detecting eccentric supermassive black hole binaries with pulsar timing arrays: resolvable source strategies*”
S. R. Taylor, E. A. Huerta, J. R. Gair, and S. T. McWilliams
[Astrophys. J., 817:70 \(2016\)](#)
14. “*European Pulsar Timing Array limits on continuous gravitational waves from individual supermassive black hole binaries*”
S. Babak, A. Petiteau, A. Sesana, P. Brem, P. A. Rosado, **S. R. Taylor**, [and 30 others]
[MNRAS, 455:1665–1679 \(2016\)](#)
13. “*Mapping gravitational-wave backgrounds of arbitrary polarisation using pulsar timing arrays*”
J. R. Gair, J. D. Romano, and **S. R. Taylor**
[Phys. Rev. D, 92\(10\):102003 \(2015\)](#)
12. “*European Pulsar Timing Array limits on an isotropic stochastic gravitational-wave background*”
L. Lentati, **S. R. Taylor**, C. M. F. Mingarelli, [and 33 others]
[MNRAS, 453:2576–2598 \(2015\)](#)
11. “*Detection of eccentric supermassive black hole binaries with pulsar timing arrays: signal-to-noise ratio calculations*”
E. A. Huerta, S. T. McWilliams, J. R. Gair, and **S. R. Taylor**
[Phys. Rev. D, 92\(6\):063010 \(2015\)](#)
10. “*Phase-coherent mapping of gravitational-wave backgrounds using ground-based laser interferometers*”
J. D. Romano, **S. R. Taylor**, N. J. Cornish, J. Gair, C. M. F. Mingarelli, and R. van Haasteren
[Phys. Rev. D, 92\(4\):042003 \(2015\)](#)
9. “*Limits on anisotropy in the nanohertz stochastic gravitational wave background*”
S. R. Taylor, C. M. F. Mingarelli, J. R. Gair, [and 32 others]
[Phys.Rev. Lett, 115\(4\):041101 \(2015\)](#)
8. “*Estimating the sensitivity of pulsar timing arrays*”
C. J. Moore, **S. R. Taylor**, and J. R. Gair
[Classical and Quantum Gravity, 32\(5\):055004 \(2015\)](#)
7. “*Accelerated Bayesian model-selection and parameter-estimation in continuous gravitational-wave searches with pulsar-timing arrays*”
S. R. Taylor, J. Ellis, and J. Gair
[Phys. Rev. D, 90\(10\):104028 \(2014\)](#)
6. “*Mapping gravitational-wave backgrounds using methods from CMB analysis: Application to pulsar timing arrays*”

- J. Gair, J. D. Romano, **S. R. Taylor**, and C. M. F. Mingarelli
[Phys. Rev. D, 90\(8\):082001 \(2014\)](#)
 • PRD Editors' Suggestion.
5. "Searching for anisotropic gravitational-wave backgrounds using pulsar timing arrays"
S. R. Taylor and J. R. Gair
[Phys. Rev. D, 88\(8\):084001 \(2013\)](#)
 4. "Hyper-efficient model-independent Bayesian method for the analysis of pulsar timing data"
 L. Lentati, P. Alexander, M. P. Hobson, **S. R. Taylor**, J. Gair, S. T. Balan, and R. van Haasteren
[Phys. Rev. D, 87\(10\):104021 \(2013\)](#)
 3. "Weighing the evidence for a gravitational-wave background in the first International Pulsar Timing Array data challenge"
S. R. Taylor, J. R. Gair, and L. Lentati
[Phys. Rev. D, 87\(4\):044035 \(2013\)](#)
 2. "Cosmology with the lights off: standard sirens in the Einstein Telescope era"
S. R. Taylor and J. R. Gair
[Phys. Rev. D, 86\(2\):023502 \(2012\)](#)
 1. "Cosmology using advanced gravitational-wave detectors alone"
S. R. Taylor, J. R. Gair, and I. Mandel
[Phys. Rev. D, 85\(2\):023535 \(2012\)](#)

Book chapters and conference proceedings.....

3. "From Megaparsecs To Milliparsecs: Galaxy Evolution & Supermassive Black Holes with NANOGrav and the ngVLA"
S. R. Taylor and J. Simon
[Science With A Next-Generation Very Large Array \[ngVLA science book\] \(2018\)](#)
2. "Solar System Ephemerides, Pulsar Timing, Gravitational Waves, & Navigation"
 T. J. W. Lazio, S. Bhaskaran, C. Cutler, W. M. Folkner, R. S. Park, J. A. Ellis, T. Ely, **S. R. Taylor**, M. Vallisneri
[Pulsar Astrophysics the Next Fifty Years, Proceedings of the International Astronomical Union, IAU Symposium, Volume 337, pp. 150-153 \(2018\)](#)
1. "Summary of Session C1: pulsar timing arrays"
 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]
[General Relativity and Gravitation, 46:1765 \(2014\)](#)

Full Presentation List

Invited talks.....

25. *Compact Object Genealogy Across The Gravitational Wave Spectrum*
CGCA Seminar, University of Wisconsin–Milwaukee, Milwaukee WI, USA, **Sep 2018**
24. *Compact Object Genealogy Across The Gravitational Wave Spectrum*
USC Colloquium, University of Southern California, Los Angeles CA, USA, **Sep 2018**
23. *Compact Object Genealogy Across The Gravitational Wave Spectrum*
TAPIR Seminar, California Institute of Technology, Pasadena CA, USA, **Sep 2018**
22. *Nanohertz-frequency gravitational-wave astrophysics with pulsar-timing arrays*
COSPAR 2018, Pasadena CA, USA, **Jul 2018**
21. *Pulsar Timing Arrays: new advances toward detecting low-frequency gravitational waves*
American Physical Society, Columbus OH, USA, **Apr 2018**
20. *Beyond black holes with pulsar-timing arrays*
University of Virginia colloquium, Charlottesville VA, USA, **Mar 2018**
19. *Non-BH science with pulsar-timing arrays*
Black Holes Across The GW Spectrum, International Institute of Physics, Natal, Brazil, **Aug 2017**
18. *Bayesian inference for pulsar-timing arrays*
Black Holes Across The GW Spectrum, International Institute of Physics, Natal, Brazil, **Aug 2017**
17. *Supermassive black-hole binary astrophysics with pulsar-timing arrays*
Black Holes Across The GW Spectrum, International Institute of Physics, Natal, Brazil, **Aug 2017**
16. *Probing the nanohertz GW landscape with PTAs: a status report*
Gravitational Wave Physics & Astronomy Workshop (GWPAW), Annecy, France, **May 2017**
15. *GW constraints on disc migration via pulsar timing*
The disc migration issue (Kavli workshop), Institute of Astronomy, Cambridge, UK, **May 2017**
14. *Constraining the physics of the final parsec of supermassive black-hole binary evolution*
Astronomy Colloquium, Swinburne University of Technology, Melbourne, Australia, **Feb 2017**
13. *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**
12. *Astrophysical inference of supermassive black-hole binaries with pulsar-timing arrays*
CIERA seminar, Northwestern University, Evanston IL, USA, **Oct 2016**
11. *New data-analysis approaches for gravitational-wave searches with pulsar-timing arrays*
Montana State University seminar, Bozeman MT, USA, **Oct 2016**
10. *New horizons in gravitational-wave astronomy with pulsar-timing arrays*
Armagh Observatory seminar, Armagh, UK, **Jul 2016**
9. *Probing the final-parsec problem with pulsar-timing arrays*
Anton Pannekoek Instituut seminar, University of Amsterdam, Amsterdam, Netherlands, **Jul 2016**
8. *Probing the final-parsec problem with pulsar-timing arrays*
Radboud University astrophysics seminar, Radboud, Netherlands, **Jul 2016**
7. *Gravitational-wave data-analysis techniques for pulsar-timing arrays*
IPTA conference, Stellenbosch, South Africa, **Jun 2016**
6. *Sources of nanohertz gravitational-waves for pulsar-timing array searches*
NANOGrav student workshop, Caltech, Pasadena CA, USA, **Mar 2016**
5. *Prospects for near future detection and astrophysical inference with PTAs*
Gravitational-wave group seminar, University of Birmingham, UK, **Dec 2015**
4. *Prospects for near future detection and astrophysical inference with PTAs*
Statistics group seminar (School of Mathematics), University of Edinburgh, UK, **Dec 2015**
3. *Prospects for near future detection and astrophysical inference with PTAs*
CaJAGWR seminar, California Institute of Technology, Pasadena, USA, **Dec 2015**

2. *Searching For Anisotropic Gravitational-wave Backgrounds Using Pulsar Timing Arrays*
Albert Einstein Institute (AEI) GW seminar, Hanover, Germany, **May 2013**
1. *Weighing the evidence for a gravitational-wave background*
Gravitational-wave group seminar, University of Birmingham, UK, **Dec 2012**

Contributed presentations.....

29. *Constraining the environments & progenitors of binary black holes across the gravitational-wave spectrum*
12th International LISA Symposium, Chicago IL, **Jul 2018**
28. *The first 10 years of nanohertz gravitational-wave astronomy*
International Pulsar Timing Array meeting, Albuquerque NM, **Jun 2018**
27. *Progress updates in the NANOGrav gravitational-wave detection working group*
NANOGrav Spring 2018 meeting, University of Virginia, Charlottesville VA, **Mar 2018**
26. *The First Bayesian Solar-System Ephemeris*
NANOGrav Fall 2017 meeting, Lafayette College, Easton PA, **Nov 2017**
25. *GW constraints in the presence of solar-system ephemeris uncertainties*
International Pulsar Timing Array meeting, Sèvres, France, **Jul 2017**
24. *Solar-system ephemeris uncertainties & GW constraints*
NANOGrav Spring meeting, West Virginia University, Morgantown WV, **Apr 2017**
23. *Modeling solar-system ephemeris uncertainties & the impact on GW constraints*
EPTA meeting, Amsterdam, Netherlands, **Apr 2017**
22. *Bayesian model emulation of GW spectra for probes of the final parsec problem with pulsar-timing arrays*
American Astronomical Society meeting, Grapevine TX, USA, **Jan 2017**
21. *Bayesian model emulation of GW spectra for probes of the final parsec problem with pulsar-timing arrays*
American Physical Society April meeting, Washington DC, USA, **Jan 2017**
20. *Optimized gravitational-wave sky mapping with pulsar-timing arrays*
NANOGrav Fall Meeting 2016, NCSA, Urbana-Champaign IL, USA, **Oct 2016**
19. *Carrying the physics of supermassive black-hole binary evolution into pulsar-timing array searches*
EPTA meeting, Bielefeld, Germany, **May 2016**
18. *Are we there yet? Time to detection of nanohertz gravitational waves*
American Physical Society meeting, Salt Lake City UT, USA, **Apr 2016**
17. *Carrying the physics of supermassive black-hole binary evolution into pulsar-timing array searches*
NANOGrav meeting, Caltech, Pasadena CA, USA, **Mar 2016**
16. *Are we there yet? Time to detection of nanohertz gravitational waves*
NANOGrav meeting, McGill University, Montreal, Canada, **Oct 2015**
15. *Eccentric supermassive black-hole binary signals in pulsar-timing data*
European Pulsar Timing Array meeting, Bonn, Germany, **Jun 2015**
14. *Eccentric supermassive black-hole binary signals in pulsar-timing data*
American Physical Society meeting, Baltimore MD, USA, **Apr 2015**
13. *Eccentric supermassive black-hole binary signals in pulsar-timing data*
NANOGrav meeting, Arecibo, Puerto Rico, **Feb 2015**
12. *Exploring the cosmos with gravitational waves*
American Astronomical Society meeting, Seattle WA, USA, **Jan 2015**
11. *EPTA constraints on gravitational-wave anisotropy*
European Pulsar Timing Array meeting, Cambridge, UK, **Nov 2014**
10. *EPTA and IPTA searches for gravitational-wave background anisotropy*
International Pulsar Timing Array meeting, Banff, Canada, **Jun 2014**
9. *EPTA limits on gravitational-wave anisotropy*
European Pulsar Timing Array meeting, Astron, Netherlands, **May 2014**

8. *The pulsar-term in PTA continuous-wave searches: a blessing and a curse*
European Pulsar Timing Array meeting, Pula, Sardinia, **Oct 2013**
7. *Probing anisotropy of the GW background with pulsar timing arrays*
20th International Conference on GR and Gravitation, 10th Amaldi Conference on GWs, Warsaw, **Jul 2013**
6. *The first PTA search pipeline for anisotropy in the GW background*
International Pulsar Timing Array meeting, Krabi, Thailand, **Jun 2013**
5. *Searching For Anisotropic Gravitational-wave Backgrounds Using Pulsar Timing Arrays*
European Pulsar Timing Array meeting, l'Observatoire de Paris, Paris, France, **Apr 2013**
4. *Weighing the evidence for a gravitational-wave background*
Institute of Astronomy seminar, University of Cambridge, UK, **Feb 2013**
3. *Weighing the evidence for a gravitational-wave background*
European Pulsar Timing Array meeting, Albert Einstein Institute (AEI), Potsdam, Germany, **Nov 2012**
2. *Milestones in Spacetime: Double Neutron-Star Binaries as Gravitational-Wave Standard Sirens*
Institute of Astronomy seminar, University of Cambridge, UK, **Jun 2012**
1. *Hubble without the Hubble: Cosmology using advanced gravitational-wave detectors alone*
Gravitational-Wave Meeting, Institut de Ciències de l'Espai, Barcelona, Spain, **Feb 2012**

Posters.....

3. *Galactic environment effects on gravitational wave signals in pulsar timing arrays*
Postdoc Research Day, NASA Jet Propulsion Laboratory, **Aug 2015**
2. *Cosmology without EM counterparts: Standard sirens in the advanced era and beyond*
Rattle and Shine, KITP Santa Barbara, USA, **Aug 2012**
1. *Cosmology using advanced gravitational-wave detectors alone*
Graduate Student Conference 2011, Cavendish Laboratory, University of Cambridge, UK, **Dec 2011**