Stephen Taylor | Curriculum Vitae

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Professional Experience

California Institute of Technology **Pasadena, USA**
Caltech Postdoctoral Scholar (TAPIR group) *2016–Present*
Visiting scholar (TAPIR group) *2014–2016*

NASA Jet Propulsion Laboratory **Pasadena, USA**
NASA Postdoctoral Fellow *2014–2016*

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

Education

Institute of Astronomy, University of Cambridge **Cambridge, UK**
PhD (Astronomy) *2010–2014*
Advisor: Dr. Jonathan R. Gair; **Thesis Title:** *Exploring the cosmos with gravitational waves*
Description: A new Bayesian hierarchical modelling scheme is introduced to use 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 single supermassive black-hole binaries are proposed.

University of Oxford **Oxford, UK**
MPhys (1^{st} Class), [ranked 1^{st} in Jesus College, 4^{th} across University] *2006–2010*
Advisor: Prof. Steven Rawlings; **Thesis Title:** *The Cosmic Evolution Of Black-hole Accretion*

Grants & Funding

"New Directions and New Opportunities for NANOGrav Astrophysics": Awarded $\$11$k for a proposal on behalf of the Astrophysics Working Group of NANOGrav. Funding will ensure undergraduate/graduate students and outside experts can attend a sprint week in March 2017 to advance several key areas of interest, and to achieve rapid progress on collaboration projects.

Awards & Prizes

2015: International Pulsar Timing Array (IPTA) Steering Committee Prize — "Honourable Mention"
2015: Gravitational Wave International Committee (GWIC) Thesis Prize — "Honourable Mention"
2014: NASA Postdoctoral Fellowship (JPL)
2014: Royal Astronomical Society Travel Award — $£750$
2013: Royal Astronomical Society Travel Award — $£700$
2012–2014: Christ's College (Cambridge) Travel Grants [various; total exceeds $£1$k]
2010: Science and Technology Facilities Council (STFC) — full PhD studentship award
2008: Examiner's Prize, Oxford Physics Speaking Competition
2007: Oxford Physics department prize for laboratory work
2007–2010: Undergraduate Scholar of Jesus College, Oxford
2006–2010: Regularly awarded Oxford undergraduate departmental and college examination prizes

Teaching Experience

Jun–Aug 2016: Co-supervisor of Caltech summer undergraduate student

May 2016: Lecturer for Caltech's TAPIR gravitational-wave class
Mar 2016: Co-organizer of student workshop at NANOGrav Spring meeting
Sep 2015: Lecturer for NANOGrav detection-group workshop at Caltech
Jun 2015: Lecturer at "CSI PTA" Aspen summer workshop
2011–2013: Supervisor for Cambridge Part II undergraduate students in RELATIVITY
2011: Prepared computing coursework for Cambridge Part II undergraduate students

Professional Service & Outreach

Reviewer for international journals

Monthly Notices of the Royal Astronomical Society (MNRAS), Physical Review D (PRD)

Conference organization

Oct 2016: Chair of SOC for NANOGrav Fall meeting at University of Illinois Urbana-Champaign
Mar 2016: SOC and LOC member for NANOGrav Spring meeting at Caltech
Mar 2016: Co-organizer of NANOGrav student workshop at Caltech
Mar 2014: SOC and LOC member for British Gravity meeting (BritGrav) at Cambridge, UK

Outreach

2016: Featured gravitational-wave expert at NASA's "Ticket to Explore JPL" event
2013: Presentation at Cambridge's Institute of Astronomy Open Day
2012–2014: Presentation to prospective students (Institute of Astronomy graduate interviews)
2012: Outreach talk at Institute of Astronomy public-observing evening
2011: Presentation at Cambridge's Institute of Astronomy Open Day

Professional Affiliations

North American Nanohertz Observatory for Gravitational-waves (NANOGrav) [Full member] • **European Pulsar Timing Array (EPTA)** [Member] • **International Pulsar Timing Array (IPTA)** [Member] • **American Physical Society (DGRAV)** [Member] • **American Astronomical Society** [Member] • **Royal Astronomical Society** [Fellow]

Publications

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

1: ***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 (2016). **[7 citations]**
2: L. Lentati, ***S. R. Taylor***, [and 34 others]. "*European Pulsar Timing Array limits on an isotropic stochastic gravitational-wave background*". MNRAS, 453:2576–2598 (2015). **[56 citations]**
3: ***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 (2015). **[13 citations]**
4: ***S. R. Taylor*** and J. R. Gair. "*Searching for anisotropic gravitational-wave backgrounds using pulsar timing arrays*". Phys. Rev. D, 88(8):084001 (2013). **[30 citations]**
5: ***S. R. Taylor***, J. R. Gair, and I. Mandel. "*Cosmology using advanced gravitational-wave detectors alone*". Phys. Rev. D, 85(2):023535 (2012). **[34 citations]**

Presentations

• 29 **oral presentations (of which** 10 **were invited), with** 4 **conference leadership roles.**
• Recent presentations are available to view at https://speakerdeck.com/stevertaylor.

References

Available upon request.