

David Trestini

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ACADEMIC POSITIONS

University of Southampton Postdoctoral researcher at the School of Mathematical Sciences and STAG Research Centre	Southampton, UK 10/2024 – 09/2027
Institute of Physics of the Czech Academy of Sciences Postdoctoral researcher at CEICO	Prague, Czechia 10/2023 – 09/2024

EDUCATION

Sorbonne Université (Institut d'Astrophysique de Paris) Ph.D. in Physics (supervised by Luc Blanchet and Laura Bernard)	Paris, France 09/2020 – 08/2023
University of Cambridge MASt in Applied Mathematics (a.k.a. Part III)	Cambridge, UK 10/2019 – 07/2020
École polytechnique Diplôme d'ingénieur	Palaiseau, France 09/2016 – 07/2019
Lycée Louis-le-Grand Classes préparatoires MPSI-MP*	Paris, France 09/2014 – 07/2016
Lycée international des Pontonniers Baccalauréat scientifique (British international option)	Strasbourg, France 09/2011 – 07/2014

TEACHING EXPERIENCE

• Teaching Assistant at Sorbonne Université <i>Mathématiques approfondies (LU1MA003)</i>	01/2022 – 05/2022
• Teaching Assistant at Sorbonne Université <i>Mathématiques pour les études scientifiques II (LU1MA002)</i>	01/2022 – 05/2022
• Teaching Assistant at Sorbonne Université <i>Mécanique-Physique 1 - projets numériques (LU1MEPY3)</i>	09/2021 – 12/2021

OTHER WORK EXPERIENCE

Deriv Group Quantitative Analyst	Paris, France September 2023
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University of California, Davis
Research intern at the Department of Electrical Engineering

Davis, CA, USA
09/2019

CNRS-Thalès research unit
Research project

Palaiseau, France
2018 – 2019

MT Aerospace
Intern

Augsburg, Germany
Summer 2018

French Navy
Junior officer

Toulon, France
2016-2017

PEER-REVIEW ACTIVITY

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| • Physical Review Letters | 1 paper |
| • Physical Review D | 4 papers |
| • Journal of Cosmology and Astroparticle Physics | 1 paper |
| • Journal of High Energy Astrophysics | 1 paper |

SCHOLARSHIPS AND AWARDS

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| • AMX doctoral scholarship | 09/2020 – 10/2023 |
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SKILLS

- **Computer algebra:** Mathematica (xAct library)
- **Programming languages:** Python, experience in Java, C, Visual Basic, ...
- **Other:** L^AT_EX, GitHub

LANGUAGES

- **English:** native
- **French:** native
- **German:** proficient (C1)
- **Spanish:** conversational (B2)
- **Mandarin:** basic (B1)

PUBLICATIONS

Note: In my research community, authors are ordered by alphabetical order by default. Non-alphabetical ordering indicates that the authors have contributed unequally.

Preprints currently under peer-review

- [1] K. Cunningham, C. Kavanagh, A. Pound, **D. Trestini**, N. Warburton, J. Neef, “Gravitational memory: new results from post-Newtonian and self-force theory,” *submitted to Class. Quant. Grav.*, arXiv:2410.23950
- [2] **D. Trestini**, “Gravitational waves from quasielliptic compact binaries in scalar-tensor theory to one-and-a-half post-Newtonian order,” *submitted to Class. Quant. Grav.*, arXiv:2410.12898
- [3] L. Blanchet, G. Faye and **D. Trestini**, “Gravitational radiation reaction for compact binary systems at the fourth-and-a-half post-Newtonian order,” *submitted to Class. Quant. Grav.*, arXiv:2407.18295
- [4] N. Warburton, B. Wardell, **D. Trestini**, Q. Henry, A. Pound, L. Blanchet, L. Durkan, G. Faye and J. Miller, “Comparison of 4.5PN and 2SF gravitational energy fluxes from quasicircular compact binaries,” *submitted to Phys. Rev. D*, arXiv:2407.00366

Publications in peer-reviewed journals

- [5] **D. Trestini**, “Quasi-Keplerian parametrization for eccentric compact binaries in scalar-tensor theories at second post-Newtonian order and applications,” *Phys. Rev. D* **109**, 104003 (2024), arXiv:2401.06844
- [6] L. Blanchet, G. Faye, Q. Henry, F. Larrouturnou and **D. Trestini**, “Gravitational-Wave Phasing of Quasicircular Compact Binary Systems to the Fourth-and-a-Half Post-Newtonian Order,” *Phys. Rev. Lett.* **131**, 121402 (2023) [Editors’ Suggestion], arXiv:2304.11185.
- [7] L. Blanchet, G. Faye, Q. Henry, F. Larrouturnou and **D. Trestini**, “Gravitational-Wave Phasing of Quasicircular Compact Binary Systems to the Fourth-and-a-Half Post-Newtonian Order,” *Phys. Rev. D* **108**, 064041 (2023) [Editors’ Suggestion], arXiv:2304.11186.
- [8] **D. Trestini** and L. Blanchet, “Gravitational-wave tails of memory”, *Phys. Rev. D* **107**, 104048 (2023), arXiv:2301.09395
- [9] **D. Trestini**, F. Larrouturnou and L. Blanchet, “The quadrupole moment of compact binaries to the fourth post-Newtonian order: relating the harmonic and radiative metrics”, *Class. Quant. Grav.* **40**, 055006 (2023), arXiv:2209.02719
- [10] L. Bernard, L. Blanchet and **D. Trestini**, “Gravitational waves in scalar-tensor theory to one-and-a-half post-Newtonian order”, *JCAP* **08** (2022) 008, arXiv:2201.10924

Conference proceedings

- [11] **D. Trestini** and L. Blanchet, “ Gravitational-wave tails of memory at 4PN order,” in *Proceedings of the 57th Rencontres de Moriond on Gravitation, La Thuile, Italy, 18-25 March 2023*, edited by E. Augé, J. Dumarchez and J. Trần Thanh Vân, pp. 235-239, arXiv:2306.00546
- [12] L. Blanchet, G. Faye, Q. Henry, F. Larrouturnou and **D. Trestini**, “Gravitational waves from compact binaries to the fourth post-Newtonian order,” in *Proceedings of the 57th Rencontres de Moriond on Gravitation, La Thuile, Italy, 18-25 March 2023*, edited by E. Augé, J. Dumarchez and J. Trần Thanh Vân, pp. 231-234, arXiv:2304.13647
- [13] **D. Trestini**, “Gravitational waves in scalar-tensor theory to one-and-a-half post-Newtonian order,” in *Proceedings of the 56th Rencontres de Moriond on Gravitation, La Thuile, Italy, 30 January - 6 February 2022*, edited by E. Augé, J. Dumarchez and J. Trần Thanh Vân, pp. 269-272, arXiv:2306.00540

Theses

- [14] **D. Trestini**, “Gravitational radiation of compact binary systems in general relativity and in scalar-tensor theories,” Ph.D. thesis (Sorbonne Université, Paris, 2023), hal:tel-04224762

Publications with large collaborations

- [15] N. Afshordi *et al.* [LISA Consortium Waveform Working Group], “Waveform Modelling for the Laser Interferometer Space Antenna,” arXiv:2311.01300.

TALKS

Invited talks at international conferences and workshops

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| • Fundamental Physics Meets Waveforms With LISA (Potsdam, DE) | 05/09/2024 |
| • New Frontiers in Strong Gravity III (Benasque, ES) | 12/07/2024 |

Invited talks at French national conferences and workshops

- Atelier Théorie, Univers et Gravitation (Annecy, FR) 07/11/2024
- Journée des groupes de travail “Cosmologie” et “Tests de la relativité générale et théories alternatives” du GdR Ondes Gravitationnelles (Paris, FR) 13/10/2023

Contributed talks at international conferences and workshops

- GEMMA2 workshop (Rome, IT) 19/09/2024
- 1st TEONGRAV international workshop on theory of gravitational waves (Rome, IT) 16/09/2024
- Capra 27 (Singapore, SG) 17/06/2024
- 57th Rencontres de Moriond – Gravitation (La Thuile, IT) 24/03/2023
- 31st Texas Symposium on Relativistic Astrophysics (Prague, CZ) 14/09/2022
- 23rd international conference on General Relativity and Gravitation (Beijing, CN) [remote] 05/07/2022
- 56th Rencontres de Moriond – Gravitation (La Thuile, IT) 05/02/2022
- AstroParticle Symposium 2023 (Orsay, FR) 23/11/2021
- XIV Black Holes Workshop (Aveiro, PT) 21/12/2021

Contributed talks at French national conferences and workshops

- 8^{ème} assemblée générale du GdR “Ondes gravitationnelles” (Marseille, FR) 14/10/2024
- Atelier API “Ondes gravitationnelles et objets compacts” de l’Observatoire de Paris 17/11/2023
- 5^{ème} assemblée générale du GdR “Ondes gravitationnelles” 11/10/2021

Talks at seminars

- Gr@v seminar — Universidade de Aveiro (PT) [remote] 12/11/2024
- CENTRA seminar — Instituto Superior Técnico (Lisbon, PT) 31/10/2024
- Theoretical physics seminar — IJCLab (Orsay, FR) 22/05/2024
- Gravity seminar — University of Southampton (GB) 15/02/2024
- Gravitational self-force seminar — University of Southampton (GB) 14/02/2024
- ICAP seminar — Institut d’Astrophysique de Paris (FR) 07/12/2023
- Relativity Seminar — Univerzita Karlova (Prague, CZ) 10/10/2023
- GReCO seminar — Institut d’Astrophysique de Paris (FR) 30/05/2023
- Cosmology and Astroparticle Physics seminar — Université de Genève (CH) 17/03/2023
- General Relativity Friday Seminar — DAMTP, University of Cambridge (GB) 17/02/2023
- Group meeting of the Theoretical Astrophysics group — Universität Tübingen (DE) [remote] 24/03/2022

PARTICIPATION TO THEMATIC SCHOOLS

- Numerical Relativity Community Summer School — ICERM (Providence, US-RI) August 2022
- High-Precision Gravitational Waves — KITP (Santa Barbara, US) May-June 2022
- Gravitational waves: a new messenger to explore the Universe — IHP (Paris, FR) [remote] March 2021
- Summer school on gravitational waves — ISAPP (Florence, IT) [remote] June 2021