

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 (IAP and LUTH)

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
Mathématiques approfondies (LU1MA003) 01/2022 – 05/2022
(40 hours)
- **Teaching Assistant** at Sorbonne Université
Mathématiques pour les études scientifiques II (LU1MA002) 01/2022 – 05/2022
(38 hours)
- **Teaching Assistant** at Sorbonne Université
Mécanique-Physique 1 - projets numériques (LU1MEPY3) 09/2021 – 12/2021
(52 hours)

PHD STUDENT SUPERVISION

Informal co-supervision of:

- Davide Usseglio (officially supervised by Salvatore Capozziello at Università di Napoli, now a postdoc at IHÉS)
- Herry Lalus (officially supervised by Thomas Sotiriou at the University of Nottingham)

RESPONSIBILITIES IN LARGE COLLABORATIONS

LISA Consortium

- core member
- coordinator of the “Verified datasets” project in the Waveform Working Group (PNpedia subproject)
- member of “Waveform Coordination Unit” (CU-WAV) in the the Distributed Data Processing Center (DDPC)
 - review of the code associated to Morrás, Pratten and Schmidt, Phys. Rev. D 111 (2025) 8, 084052

Einstein Telescope

- member

ORGANIZATION OF SCIENTIFIC MEETINGS

Member of the Local Organization Committee of:

- 28th Capra Meeting on Radiation Reaction in General Relativity — Southampton (UK) July 2025

PEER-REVIEW ACTIVITY

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|--|----------|
| • Physical Review Letters | 2 papers |
| • Physical Review D | 8 papers |
| • Journal of Cosmology and Astroparticle Physics | 1 paper |
| • Journal of High Energy Astrophysics | 1 paper |

OUTREACH ACTIVITIES

- FZU Science Fair 1 June 2024
At the Institute of Physics of the Czech Academy of Sciences, I participated in a yearly science fair where children and parents came to discover our research topics around pedagogical games and posters.
- Outreach concert “Astrosymphony” Spring 2026
With the orchestra l’Échappée belle, we are preparing an outreach concert, funded by the SF2A and the ERC. The musical piece is the Astrosymphony by Pierre Baldy-Moulinier: each movement has an astrophysical theme and is preceded by a mini-conference. I will be playing the violin and leading the mini-conference on gravitational waves.

PUBLIC REPOSITORIES

PNpedia

Verified database of post-Newtonian results.

<https://github.com/davidtrestini/PNpedia>

Since 2024

FUNDING

- AMX doctoral scholarship 09/2020 – 10/2023
- *Shortlisted and interviewed for the EPSRC “Stephen Hawking” postdoctoral fellowship* 09/2024

LANGUAGES

- **English:** native
- **French:** native
- **German:** proficient (C1)
- **Spanish:** conversational (B2)
- **Chinese:** conversational (B2)

TALKS

Invited talks at international conferences and workshops

- Meeting of the LISA Consortium Fundamental Physics & Waveform Working Groups (Trieste, IT) 03/02/2026
- “Loop-the-loop” workshop, second edition (online) 11/11/2025
- The Future of Gravitational-Wave Astronomy (Bangalore, IN) 28/10/2025
- 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 API “Ondes gravitationnelles et objets compacts” de l’Observatoire de Paris (Meudon, FR) 11/12/2024
- 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

Invited talks at seminars

- Seminar of the Department of Physics — National University of Singapore (SG) 05/11/2025
- Seminar of the Department of Physics — Indian Institute Of Technology Madras (Chennai, IN) 23/10/2025
- Gravity and astrophysics seminar — University of Mississippi (Oxford, MS, USA) [remote] 11/06/2025
- Particle Cosmology and Gravity Seminar — University of Nottingham (UK) 13/05/2025
- Theory group seminar — AstroParticules et Cosmologie (FR) 28/01/2025
- 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

Contributed talks at international conferences and workshops

- 28th Capra Meeting on Radiation Reaction in General Relativity (Southampton, UK) 25/07/2025
- 24th International Conference on General Relativity and Gravitation & 16th Edoardo Amaldi Conference on Gravitational Waves (Glasgow, UK) 17/07/2025
- GEMMA2 workshop (Rome, IT) 19/09/2024
- 1st TEONGRAV international workshop on theory of gravitational waves (Rome, IT) 16/09/2024
- 27th Capra Meeting on Radiation Reaction in General Relativity (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

- 9^{ème} assemblée générale du GdR “Ondes gravitationnelles” (Paris, FR) 13/10/2025
- 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 (Meudon, FR) 17/11/2023
- Journée Einstein Telescope Paris-Caen (Meudon, FR) 16/03/2023
- 5^{ème} assemblée générale du GdR “Ondes gravitationnelles” (Annecy, FR) 11/10/2021

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

- [16] L. Blanchet, G. Faye, E. Seraille and **D. Trestini**, “Gravitational radiation reaction for compact binary systems at the fourth-and-a-half post-Newtonian order in harmonic coordinates”, *submitted to Class. Quant. Grav.*, arXiv:2601.06743
- * [15] **D. Trestini**, Z. Nasipak and A. Pound, “Constants of motion in gravitational self-force theory,” *submitted to Phys. Rev. D*, arXiv:2601.05223
- [14] **D. Trestini**, “Constants of motion and fundamental frequencies for elliptic orbits at fourth post-Newtonian order,” *submitted to Class. Quant. Grav.*, arXiv:2511.10735
- [13] 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

- [12] D. Usseglio, **D. Trestini** and A. Chowdhuri, “Quasi-Keplerian parametrization for compact binaries on hyperbolic orbits in scalar-tensor theories at second post-Newtonian order,” Phys. Rev. D **112**, 044048 (2025), arXiv:2504.13829
- * [11] **D. Trestini**, “Schott term in the binding energy for compact binaries on circular orbits at fourth post-Newtonian order,” Phys. Rev. D **112**, 024076 (2025), arXiv:2504.13245
- [10] K. Cunningham, C. Kavanagh, A. Pound, **D. Trestini**, N. Warburton, J. Neef, “Gravitational memory: new results from post-Newtonian and self-force theory,” Class. Quant. Grav. **42**, 135009 (2025) [Addendum: Class. Quant. Grav. **42**, 199401 (2025)] in *Focus on Gravitational-Wave Memory Effects: From Theory to Observation*, arXiv:2410.23950
- * [9] **D. Trestini**, “Gravitational waves from quasielliptic compact binaries in scalar-tensor theory to one-and-a-half post-Newtonian order,” Class. Quant. Grav. **42**, 155016 (2025) in *Focus on Gravitational-Wave Memory Effects: From Theory to Observation*, arXiv:2410.12898
- [8] L. Blanchet, G. Faye and **D. Trestini**, “Gravitational radiation reaction for compact binary systems at the fourth-and-a-half post-Newtonian order,” Class. Quant. Grav. **42**, 065015 (2025) in *Focus on the LISA Mission at the Time of Adoption*, arXiv:2407.18295
- [7] **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. Larrouturou 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) in *Editors’ Suggestion*, arXiv:2304.11185.
- [5] L. Blanchet, G. Faye, Q. Henry, F. Larrouturou 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), in *Editors’ Suggestion*, arXiv:2304.11186.
- * [4] **D. Trestini** and L. Blanchet, “Gravitational-wave tails of memory,” Phys. Rev. D **107**, 104048 (2023), arXiv:2301.09395
- [3] **D. Trestini**, F. Larrouturou 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
- [2] 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

Theses

- [1] **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

Conference proceedings

- [19] **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 Thành Vân, pp. 235-239, arXiv:2306.00546

- [18] L. Blanchet, G. Faye, Q. Henry, F. Larroutuou 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
- [17] **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

Publications with large collaborations

- [20] N. Afshordi *et al.* [LISA Consortium Waveform Working Group], “Waveform Modelling for the Laser Interferometer Space Antenna,” *Living Rev. Rel.* **28**, 9 (2025), arXiv:2311.01300.