

# Lorenzo Speri | Publication list

lorenzo.speri@esa.int • <https://lorenzsp.github.io/> • January 9, 2025

## Publications:

29 short-author papers published in major peer-reviewed journals  
(out of which 7 first-authored papers).

8 papers in submission stage,

Total number of citations: >3500. h-index: 21 (using ADS and iNSPIRE).

Web links to list services: [ADS](#); [iNSPIRE](#); [arXiv](#); [orcid](#).

## Submitted short-author and collaboration papers which I have substantially contributed to.:

8. *Is your stochastic signal really detectable?*.  
Pozzoli, Federico; Gair, Jonathan; Buscicchio, Riccardo; **Speri, Lorenzo**.  
[10.48550/arXiv.2412.10468](https://arxiv.org/abs/10.48550/arXiv.2412.10468).
7. *Constraining accretion physics with gravitational waves from eccentric extreme-mass-ratio inspirals*.  
Duque, Francisco; Kejriwal, Shubham; Sberna, Laura; **Speri, Lorenzo**; Gair, Jonathan.  
[10.48550/arXiv.2411.03436](https://arxiv.org/abs/10.48550/arXiv.2411.03436).
6. *Impact of relativistic waveforms in LISA's science objectives with extreme-mass-ratio inspirals*.  
Khalvati, Hassan; Santini, Alessandro; Duque, Francisco; **Speri, Lorenzo**; Gair, Jonathan; Yang, Huan; Brito, Richard.  
[10.48550/arXiv.2410.17310](https://arxiv.org/abs/10.48550/arXiv.2410.17310).
5. *Fewer supermassive binary black holes in pulsar timing array observations*.  
Goncharov, Boris et al. (include **Speri, L.**).  
[10.48550/arXiv.2409.03627](https://arxiv.org/abs/10.48550/arXiv.2409.03627).
4. *Probing fundamental physics with Extreme Mass Ratio Inspirals: a full Bayesian inference for scalar charge*.  
**Speri, Lorenzo**; Barsanti, Susanna; Maselli, Andrea; Sotiriou, Thomas P.; Warburton, Niels; van de Meent, Maarten; Chua, Alvin J. K.; Burke, Ollie; Gair, Jonathan.  
[10.48550/arXiv.2406.07607](https://arxiv.org/abs/10.48550/arXiv.2406.07607).
3. *GWnext 2024: Meeting Summary*.  
Torres-Orjuela, Alejandro et al. (include **Speri, L.**).  
[10.48550/arXiv.2406.03498](https://arxiv.org/abs/10.48550/arXiv.2406.03498).
2. *LISA Definition Study Report*.  
Colpi, Monica et al. (include **Speri, L.**).  
[10.48550/arXiv.2402.07571](https://arxiv.org/abs/10.48550/arXiv.2402.07571).
1. *Massive black hole binaries in LISA: constraining cosmological parameters at high redshifts*.  
Mangiagli, Alberto; Caprini, Chiara; Marsat, Sylvain; **Speri, Lorenzo**; Caldwell, Robert R.; Tamanini, Nicola.  
[10.48550/arXiv.2312.04632](https://arxiv.org/abs/10.48550/arXiv.2312.04632).

## Papers in major peer-reviewed journals:

29. *Systematics in tests of general relativity using LISA massive black hole binaries*.  
Garg, Mudit; Sberna, Laura; **Speri, Lorenzo**; Duque, Francisco; Gair, Jonathan.  
[10.1093/mnras/stae2605](https://arxiv.org/abs/10.1093/mnras/stae2605). Published in Monthly Notices of the Royal Astronomical Society.
28. *Impact of correlations on the modeling and inference of beyond vacuum-general relativistic effects in extreme-mass-ratio inspirals*.  
Kejriwal, Shubham; **Speri, Lorenzo**; Chua, Alvin J. K.  
[10.1103/PhysRevD.110.084060](https://arxiv.org/abs/10.1103/PhysRevD.110.084060). Published in Physical Review D.
27. *The second data release from the European Pulsar Timing Array. V. Search for continuous gravitational wave signals*.  
EPTA Collaboration et al. (include **Speri, L.**).  
[10.1051/0004-6361/202348568](https://arxiv.org/abs/10.1051/0004-6361/202348568). Published in Astronomy and Astrophysics.
26. *Assessing the importance of first postadiabatic terms for small-mass-ratio binaries*.  
Burke, Ollie; Piovano, Gabriel Andres; Warburton, Niels; Lynch, Philip; **Speri, Lorenzo**; Kavanagh, Chris; Wardell, Barry; Pound, Adam; Durkan, Leanne; Miller, Jeremy.  
[10.1103/PhysRevD.109.124048](https://arxiv.org/abs/10.1103/PhysRevD.109.124048). Published in Physical Review D.

25. *Comparing Recent Pulsar Timing Array Results on the Nanohertz Stochastic Gravitational-wave Background.*  
Agazie, G. et al. (include **Speri, L.**).  
[10.3847/1538-4357/ad36be](https://doi.org/10.3847/1538-4357/ad36be). Published in The Astrophysical Journal.
24. *The second data release from the European Pulsar Timing Array. IV. Implications for massive black holes, dark matter, and the early Universe.*  
EPTA Collaboration et al. (include **Speri, L.**).  
[10.1051/0004-6361/202347433](https://doi.org/10.1051/0004-6361/202347433). Published in Astronomy and Astrophysics.
23. *Impact of the noise knowledge uncertainty for the science exploitation of cosmological and astrophysical stochastic gravitational wave background with LISA.*  
Muratore, Martina; Gair, Jonathan; **Speri, Lorenzo**.  
[10.1103/PhysRevD.109.042001](https://doi.org/10.1103/PhysRevD.109.042001). Published in Physical Review D.
22. *Cosmology with the Laser Interferometer Space Antenna.*  
Auclair, Pierre et al. (include **Speri, L.**).  
[10.1007/s41114-023-00045-2](https://doi.org/10.1007/s41114-023-00045-2). Published in Living Reviews in Relativity.
21. *The second data release from the European Pulsar Timing Array. I. The dataset and timing analysis.*  
EPTA Collaboration et al. (include **Speri, L.**).  
[10.1051/0004-6361/202346841](https://doi.org/10.1051/0004-6361/202346841). Published in Astronomy and Astrophysics.
20. *The second data release from the European Pulsar Timing Array. II. Customised pulsar noise models for spatially correlated gravitational waves.*  
EPTA Collaboration et al. (include **Speri, L.**).  
[10.1051/0004-6361/202346842](https://doi.org/10.1051/0004-6361/202346842). Published in Astronomy and Astrophysics.
19. *The second data release from the European Pulsar Timing Array. III. Search for gravitational wave signals.*  
EPTA Collaboration et al. (include **Speri, L.**).  
[10.1051/0004-6361/202346844](https://doi.org/10.1051/0004-6361/202346844). Published in Astronomy and Astrophysics.
18. *Second Data Release from the European Pulsar Timing Array: Challenging the Ultralight Dark Matter Paradigm.*  
Smarra, Clemente et al. (include **Speri, L.**).  
[10.1103/PhysRevLett.131.171001](https://doi.org/10.1103/PhysRevLett.131.171001). Published in Physical Review Letters.
17. *BlackHolePerturbationToolkit/FastEMRIWaveforms: Frequency Domain Waveform Added!*  
Katz, Michael L.; **Speri, Lorenzo**; Chua, Alvin J. K.; Chapman-Bird, Christian E. A.; Warburton, Niels; Hughes, Scott A.  
[10.5281/zenodo.8190418](https://doi.org/10.5281/zenodo.8190418). Published in Zenodo.
16. *Cosmology with massive black hole binary mergers in the LISA era.*  
Mangiagli, A.; Caprini, C.; Volonteri, M.; Marsat, S.; Vergani, S.; Tamanini, N.; **Speri, L.**  
Published in 41st International Conference on High Energy Physics.
15. *Searching for continuous Gravitational Waves in the second data release of the International Pulsar Timing Array.*  
Falxa, M. et al. (include **Speri, L.**).  
[10.1093/mnras/stad812](https://doi.org/10.1093/mnras/stad812). Published in Monthly Notices of the Royal Astronomical Society.
14. *Probing Accretion Physics with Gravitational Waves.*  
**Speri, Lorenzo**; Antonelli, Andrea; Sberna, Laura; Babak, Stanislav; Barausse, Enrico; Gair, Jonathan R.; Katz, Michael L.  
[10.1103/PhysRevX.13.021035](https://doi.org/10.1103/PhysRevX.13.021035). Published in Physical Review X.
13. *Constraining the evolution of Newton's constant with slow inspirals observed from spaceborne gravitational-wave detectors.*  
Barbieri, Riccardo; Savastano, Stefano; **Speri, Lorenzo**; Antonelli, Andrea; Sberna, Laura; Burke, Ollie; Gair, Jonathan; Tamanini, Nicola.  
[10.1103/PhysRevD.107.064073](https://doi.org/10.1103/PhysRevD.107.064073). Published in Physical Review D.
12. *Quality over quantity: Optimizing pulsar timing array analysis for stochastic and continuous gravitational wave signals.*  
**Speri, Lorenzo**; Porayko, Nataliya K.; Falxa, Mikel; Chen, Siyuan; Gair, Jonathan R.; Sesana, Alberto; Taylor, Stephen R.  
[10.1093/mnras/stac3237](https://doi.org/10.1093/mnras/stac3237). Published in Monthly Notices of the Royal Astronomical Society.
11. *A roadmap of gravitational wave data analysis.*  
**Speri, Lorenzo**; Karnesis, Nikolaos; Renzini, Arianna I.; Gair, Jonathan R.  
[10.1038/s41550-022-01849-y](https://doi.org/10.1038/s41550-022-01849-y). Published in Nature Astronomy.
10. *Modeling transient resonances in extreme-mass-ratio inspirals.*  
Gupta, Priti; **Speri, Lorenzo**; Bonga, Beátrice; Chua, Alvin J. K.; Tanaka, Takahiro.  
[10.1103/PhysRevD.106.104001](https://doi.org/10.1103/PhysRevD.106.104001). Published in Physical Review D.

9. *Assessing the impact of instrumental calibration uncertainty on LISA science.*  
Savalle, Etienne; Gair, Jonathan; **Speri, Lorenzo**; Babak, Stanislav.  
[10.1103/PhysRevD.106.022003](#). Published in Physical Review D.
8. *Workshop on Gravitational-Wave Astrophysics for Early Career Scientists.*  
Bayle, Jean-Baptiste et al. (include **Speri, L.**).  
[10.1038/s41550-022-01629-8](#). Published in Nature Astronomy.
7. *The International Pulsar Timing Array second data release: Search for an isotropic gravitational wave background.*  
Antoniadis, J. et al. (include **Speri, L.**).  
[10.1093/mnras/stab3418](#). Published in Monthly Notices of the Royal Astronomical Society.
6. *Noise analysis in the European Pulsar Timing Array data release 2 and its implications on the gravitational-wave background search.*  
Chalumeau, A. et al. (include **Speri, L.**).  
[10.1093/mnras/stab3283](#). Published in Monthly Notices of the Royal Astronomical Society.
5. *Common-red-signal analysis with 24-yr high-precision timing of the European Pulsar Timing Array: inferences in the stochastic gravitational-wave background search.*  
Chen, S. et al. (include **Speri, L.**).  
[10.1093/mnras/stab2833](#). Published in Monthly Notices of the Royal Astronomical Society.
4. *Fast extreme-mass-ratio-inspiral waveforms: New tools for millihertz gravitational-wave data analysis.*  
Katz, Michael L.; Chua, Alvin J. K.; **Speri, Lorenzo**; Warburton, Niels; Hughes, Scott A.  
[10.1103/PhysRevD.104.064047](#). Published in Physical Review D.
3. *Assessing the impact of transient orbital resonances.*  
**Speri, Lorenzo**; Gair, Jonathan R.  
[10.1103/PhysRevD.103.124032](#). Published in Physical Review D.
2. *Testing the quasar Hubble diagram with LISA standard sirens.*  
**Speri, Lorenzo**; Tamanini, Nicola; Caldwell, Robert R.; Gair, Jonathan R.; Wang, Benjamin.  
[10.1103/PhysRevD.103.083526](#). Published in Physical Review D.
1. *Fast and Fourier: Extreme Mass Ratio Inspiral Waveforms in the Frequency Domain.*  
**Speri, Lorenzo**; Katz, Michael L.; Chua, Alvin J. K.; Hughes, Scott A.; Warburton, Niels; Thompson, Jonathan E.; Chapman-Bird, Christian E. A.; Gair, Jonathan R.  
[10.48550/arXiv.2307.12585](#). Published in Frontiers in Applied Mathematics and Statistics.