

# Riccardo Buscicchio | Publication list

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## Publications:

- 20 short-author papers published in major peer-reviewed journals (out of which 5 first-authored papers).
- 12 collaboration papers, with substantial contribution, published in major peer-reviewed journals
- 5 papers in submission stage,
- 2 other publications (thesis, white papers, long-authorlist reviews)

Total number of citations: >11100. h-index: 22 (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.:

5. *Expected insights on type Ia supernovae from LISA's gravitational wave observations.*  
V. Korol, **R. Buscicchio**, Ruediger Pakmor, Javier Morán-Fraile, Christopher J. Moore, Selma E. de Mink.  
[arXiv:2407.03935 \[astro-ph.HE\]](#).
4. *Partial alignment between jets and megamasers: coherent or selective accretion?.*  
M. Dotti, **R. Buscicchio**, F. Bollati, R. Decarli, W. Del Pozzo, A. Franchini.  
[arXiv:2403.18002 \[astro-ph.GA\]](#).
3. *LISA Definition Study Report.*  
M. Colpi, K. Danzmann, M. Hewitson, K. Holley-Bockelmann, et al. (incl. **R. Buscicchio**).  
[arXiv:2402.07571 \[astro-ph.CO\]](#).
2. *The last three years: multiband gravitational-wave observations of stellar-mass binary black holes.*  
A. Klein, G. Pratten, **R. Buscicchio**, P. Schmidt, C. J. Moore, E. Finch, A. Bonino, L. M. Thomas, N. Williams, D. Gerosa, S. McGee, M. Nicholl, A. Vecchio.  
[arXiv:2204.03423 \[astro-ph.HE\]](#).
1. *Search for gravitational-lensing signatures in the full third observing run of the LIGO-Virgo network.*  
LIGO Scientific Collaboration, Virgo Collaboration, KAGRA collaboration.  
[arXiv:2304.08393 \[gr-qc\]](#).

## Papers in major peer-reviewed journals:

20. *A weakly-parametric approach to stochastic background inference in LISA.*  
F. Pozzoli, **R. Buscicchio**, C. J. Moore, A. Sesana, F. Haardt, A. Sesana.  
*Physical Review D Phys. Rev. D* 109, (2024) 083029. [arXiv:2311.12111 \[astro-ph.CO\]](#).
19. *A fast test for the identification and confirmation of massive black hole binary.*  
M. Dotti, F. Rigamonti, S. Rinaldi, W. Del Pozzo, R. Decarli, **R. Buscicchio**.  
*Astronomy & Astrophysics* 680 (2023) A69. [arXiv:2310.06896 \[astro-ph.HE\]](#).
18. *Glitch systematics on the observation of massive black-hole binaries with LISA.*  
A. Spadaro, **R. Buscicchio**, D. Vetrugno, A. Klein, D. Gerosa, S. Vitale, R. Dolesi, W. J. Weber, M. Colpi.  
*Physical Review D Phys. Rev. D* 108 (2023) 123029. [arXiv:2306.03923 \[gr-qc\]](#).
17. *Implications of pulsar timing array observations for LISA detections of massive black hole binaries.*  
N. Steinle, H. Middleton, C. J. Moore, S. Chen, A. Klein, G. Pratten, **R. Buscicchio**, E. Finch, A. Vecchio.  
*Monthly Notices of the Royal Astronomical Society* 525 2 (2023). [arXiv:2305.05955 \[astro-ph.HE\]](#).
16. *Parameter estimation of binary black holes in the endpoint of the up-down instability.*  
V. De Renzi, D. Gerosa, M. Mould, **R. Buscicchio**, L. Zanga.  
*Physical Review D* 108 (2023) 024024. [arXiv:2304.13063 \[gr-qc\]](#).
15. *Improved detection statistics for non Gaussian gravitational wave stochastic backgrounds.*  
M. Ballelli, **R. Buscicchio**, B. Patricelli, A. Ain, G. Cella.  
*Physical Review D* 107 (2023) 124044. [arXiv:2212.10038 \[gr-qc\]](#).
14. *Detecting non-Gaussian gravitational wave backgrounds: a unified framework.*  
**R. Buscicchio**, A. Ain, M. Ballelli, G. Cella, B. Patricelli.  
*Physical Review D* 107 (2023) 063027. [arXiv:2209.01400 \[gr-qc\]](#).

13. *Detectability of a spatial correlation between stellar-mass black hole mergers and Active Galactic Nuclei in the Local Universe.*  
N. Veronesi, E.M. Rossi, S. van Velzen, **R. Buscicchio**.  
[Monthly Notices of the Royal Astronomical Society 514 2 \(2023\). arXiv:2203.05907 \[astro-ph.HE\].](#)
12. *Bayesian parameter estimation of stellar-mass black-hole binaries with LISA.*  
**R. Buscicchio**, A. Klein, E. Roebber, C. J. Moore, D. Gerosa, E. Finch, A. Vecchio.  
[Physical Review D 104 \(2021\) 044065. arXiv:2106.05259 \[astro-ph.HE\].](#)
11. *An Interactive Gravitational-Wave Detector Model for Museums and Fairs.*  
S. J. Cooper, A. C. Green, H. R. Middleton, C. P. L. Berry, **R. Buscicchio**, E. Butler, C. J. Collins, C. Gettings, D. Hoyland, A. W. Jones, J. H. Lindon, I. Romero-Shaw, S. P. Stevenson, E. P. Takeva, S. Vinciguerra, A. Vecchio, C. M. Mow-Lowry, A. Freise.  
[American Journal of Physics 89 \(2021\) 702–712. arXiv:2004.03052 \[physics.ed-ph\].](#)
10. *Evidence for hierarchical black hole mergers in the second LIGO–Virgo gravitational-wave catalog.*  
C. Kimball, C. Talbot, C.P.L. Berry, M. Zevin, E. Thrane, V. Kalogera, **R. Buscicchio**, M. Carney, T. Dent, H. Middleton, E. Payne, J. Veitch, D. Williams .  
[Astrophysical Journal Letters 915 \(2021\) L35. arXiv:2011.05332 \[astro-ph.HE\].](#)
9. *Testing general relativity with gravitational-wave catalogs: the insidious nature of waveform systematics.*  
C. J. Moore, E. Finch, **R. Buscicchio**, D. Gerosa.  
[iScience 24 \(2021\) 102577. arXiv:2103.16486 \[gr-qc\].](#)
8. *LoCuSS: The splashback radius of massive galaxy clusters and its dependence on cluster merger history.*  
M. Bianconi, **R. Buscicchio**, G. P. Smith, S. L. McGee, C.P. Haines, A. Finoguenov, A. Babul.  
[Astrophysical Journal 911 \(2021\) 136. arXiv:2010.05920 \[astro-ph.GA\].](#)
7. *Search for Black Hole Merger Families.*  
D. Veske, A. G. Sullivan, Z. Marka, I. Bartos, K. R. Corley, J. Samsing, **R. Buscicchio**, S. Marka.  
[Astrophysical Journal Letters 907 \(2021\) L48. arXiv:2011.06591 \[astro-ph.HE\].](#)
6. *Constraining the lensing of binary black holes from their stochastic background.*  
**R. Buscicchio**, C. J. Moore, G. Pratten, P. Schmidt, M. Bianconi, A. Vecchio.  
[Physical Review Letters 125 \(2020\) 141102. arXiv:2006.04516 \[astro-ph.CO\].](#)
5. *Constraining the lensing of binary neutron stars from their stochastic background.*  
**R. Buscicchio**, C. J. Moore, G. Pratten, P. Schmidt, A. Vecchio.  
[Physical Review D 102 \(2020\) 081501 . arXiv:2008.12621 \[astro-ph.HE\].](#)
4. *Measuring precession in asymmetric compact binaries.*  
G. Pratten, P. Schmidt, **R. Buscicchio**, L. M. Thomas.  
[Physical Review Research 2 \(2020\) 043096. arXiv:2006.16153 \[gr-qc\].](#)
3. *Populations of double white dwarfs in Milky Way satellites and their detectability with LISA.*  
V. Korol, S. Toonen, A. Klein, V. Belokurov, F. Vincenzo, **R. Buscicchio**, D. Gerosa, C. J. Moore, E. Roebber, E. M. Rossi, A. Vecchio.  
[Astronomy & Astrophysics 638 \(2020\) A153. arXiv:2002.10462 \[astro-ph.GA\].](#)
2. *Milky Way satellites shining bright in gravitational waves.*  
E. Roebber, **R. Buscicchio**, A. Vecchio, C. J. Moore, A. Klein, V. Korol, S. Toonen, D. Gerosa, J. Goldstein, S. M. Gaebel, T. E. Woods.  
[Astrophysical Journal Letters 894 \(2020\) L15. arXiv:2002.10465 \[astro-ph.GA\].](#)
1. *Label Switching Problem in Bayesian Analysis for Gravitational Wave Astronomy.*  
**R. Buscicchio**, E. Roebber, J. M. Goldstein, C. J. Moore .  
[Physical Review D 100 \(2019\) 084041. arXiv:1907.11631 \[astro-ph.IM\].](#)

### **Collaboration papers in major peer-reviewed journals, which I have substantially contributed to.:**

12. *GWTC-2.1: Deep Extended Catalog of Compact Binary Coalescences Observed by LIGO and Virgo During the First Half of the Third Observing Run.*  
LIGO Scientific Collaboration, Virgo Collaboration, KAGRA collaboration.  
[Physical Review D Phys. Rev. D Physical Review D 109 \(2024\) 022001. arXiv:2108.01045 \[gr-qc\].](#)
11. *The population of merging compact binaries inferred using gravitational waves through GWTC-3.*  
LIGO Scientific Collaboration, Virgo Collaboration, KAGRA collaboration.  
[Physical Review X 13 \(2021\) 011048. arXiv:2111.03634 \[astro-ph.HE\].](#)
10. *Tests of General Relativity with GWTC-3.*  
LIGO Scientific Collaboration, Virgo Collaboration, KAGRA collaboration.  
[Physical Review D \(accepted\). arXiv:2112.06861 \[gr-qc\].](#)

9. *Search for lensing signatures in the gravitational-wave observations from the first half of LIGO-Virgo's third observing run.*  
LIGO Scientific Collaboration, Virgo Collaboration, KAGRA collaboration.  
[Astrophysical Journal Letters](#) (2021) 923. [arXiv:2105.06384 \[gr-qc\]](#).
8. *GWTC-3: Compact Binary Coalescences Observed by LIGO and Virgo During the Second Part of the Third Observing Run.*  
LIGO Scientific Collaboration, Virgo Collaboration, KAGRA collaboration.  
[Physical Review X](#) 13 (2023) 041039. [arXiv:2111.03606 \[gr-qc\]](#).
7. *Observation of gravitational waves from two neutron star-black hole coalescences.*  
LIGO Scientific Collaboration, Virgo Collaboration.  
[Astrophysical Journal Letters](#), 915, L5 (2021). [arXiv:2106.15163 \[astro-ph.HE\]](#).
6. *GWTC-2: Compact Binary Coalescences Observed by LIGO and Virgo During the First Half of the Third Observing Run.*  
LIGO Scientific Collaboration, Virgo Collaboration.  
[Physical Review X](#) 11 (2021) 021053. [arXiv:2010.14527 \[gr-qc\]](#).
5. *Population Properties of Compact Objects from the Second LIGO-Virgo Gravitational-Wave Transient Catalog.*  
LIGO Scientific Collaboration, Virgo Collaboration.  
[Astrophysical Journal Letters](#) 913 (2021) L7. [arXiv:2010.14533 \[astro-ph.HE\]](#).
4. *Upper Limits on the Isotropic Gravitational-Wave Background from Advanced LIGO's and Advanced Virgo's Third Observing Run.*  
LIGO Scientific Collaboration, Virgo Collaboration, KAGRA collaboration.  
[Physical Review D](#) 104 (2021) 022004. [arXiv:2101.12130 \[gr-qc\]](#).
3. *Binary Black Hole Population Properties Inferred from the First and Second Observing Runs of Advanced LIGO and Advanced Virgo .*  
LIGO Scientific Collaboration, Virgo Collaboration.  
[Astrophysical Journal](#) 882 (2019) L24. [arXiv:1811.12940 \[astro-ph.HE\]](#).
2. *Properties and astrophysical implications of the 150 Msun binary black hole merger GW190521.*  
LIGO Scientific Collaboration, Virgo Collaboration.  
[Astrophysical Journal Letters](#) 900 (2020) L13. [arXiv:2009.01190 \[astro-ph.HE\]](#).
1. *GW190521: A Binary Black Hole Merger with a Total Mass of  $150 M_{\odot}$ .*  
LIGO Scientific Collaboration, Virgo Collaboration.  
[Physical Review Letters](#) 125 (2020) 101102. [arXiv:2009.01075 \[gr-qc\]](#).

**Other publications. These include PhD thesis, and other collaboration papers.:**

2. *LISA - Laser Interferometer Space Antenna - Definition Study Report.*  
The European Space Agency.  
[ESA-SCI-DIR-RP-002](#).
1. *Topics in Bayesian population inference for gravitational wave astronomy.*  
**R. Buscicchio.**  
[PhD thesis](#).