

# Enrico Barausse

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## Academic career

- 4/2019 - present : Associate professor at SISSA, Trieste, Italy (Astroparticle Physics Sector)
- 11/2012 - 3/2019: Permanent Staff Researcher (“Chargé de Recherche de classe normale”) at the Institut d’Astrophysique de Paris (CNRS/Sorbonne Universités), France
- November 2011 - October 2012: CITA National Fellow at the University of Guelph and Associate Postdoc at the Perimeter Institute for Theoretical Physics (Canada)
- November 2008 - October 2011: Postdoctoral Research Associate, Maryland Center for Fundamental Physics & Joint Space-Science Institute, Department of Physics, University of Maryland, College Park, USA

## Degrees

- October 2008: Ph.D. in Astrophysics, International School for Advanced Studies (SISSA), Trieste, Italy  
Supervisors: Prof. Luciano Rezzolla, Prof. John C. Miller  
Thesis title “Exploring gravity theories with gravitational waves and compact objects”  
(in English, available from <https://people.sissa.it/barausse/phd.pdf>)
- June 2004: Laurea degree (MSc) in Physics: 110/110 *cum Laude*, University of Padova, Italy  
Supervisors: Prof. Sabino Matarrese, Dr. Antonio Riotto  
Thesis title “The backreaction problem in cosmology”  
(in Italian, available from <https://people.sissa.it/barausse/tesi.pdf>)

## Habilitations

- December 2017: “Habilitation à diriger des recherches” (HDR; a habilitation degree to lead research teams), Université Pierre et Marie Curie, Paris, France. Essay title “LISA science in the era of first detections”.
- Italian habilitation (Abilitazione Scientifica Nazionale) to associate professor (theoretical physics in 2014, astrophysics in 2017) and to full professor (astrophysics in 2018, theoretical physics in 2022)

## Honors and Funding

- PRIN grant of the Italian Ministry of Research “Gravity tests in the UltraViolet and InfraRed with Pulsar timing (GUVIRP)” (total budget 330.000 euros)

- Marie Curie Research and Innovation Staff Exchange (RISE) grant “GRU” (total budget 280.600 euros, of which 55.200 to my group), from January 2022 to December 2025
- MIT-FVG Seed fund Collaboration on “Extreme mass-ratio inspirals”, 19.000 euros (2020-2021)
- ERC Consolidator Grant: GRavity from Astrophysical to Microscopic Scales (GRAMS); funding of 1.993.920 euros (April 2019 - March 2024); <https://grams-815673.wixsite.com/2019>
- Head of the Trieste node for the INFN initiative TEONGRAV (“Theory of Gravitational Wave Sources”), with  $\sim 10.000$  euros budget to my group
- DIM ACAV+ 2017 Equipements, PI of XTREMES project (50.000 euros for cluster hardware)
- 2016 “Young Researcher” prize of the Italian Society of General Relativity and Gravitation (SIGRAV)
- Marie Curie Research and Innovation Staff Exchange (RISE) grant “StronGrHEP” (total budget 288.000 euros, of which 49.500 to my group); from January 2016 to December 2019 [www.damtp.cam.ac.uk/user/us248/RISE2016/rise2016.html](http://www.damtp.cam.ac.uk/user/us248/RISE2016/rise2016.html)
- “Prime d’excellence scientifique” (Bonus for excellent scientific research), CNRS, 2014
- Marie Curie Career Integration Grant “Testing galaxy formation with gravitational-wave and X-ray observations of massive black holes” (100.000 euros in support of research expenses for the period 2013-2016); <https://enicobarausse.wixsite.com/galformbhs>
- CITA National Fellowship at the University of Guelph, Canada (November 2011 - October 2013)
- Humboldt Research Fellowship for Postdoctoral Researchers at the Max Planck Institute for Gravitational Physics – Albert Einstein Institute, Golm, Germany (2012-2014), declined

## Publications

1. E. Barausse, S. Matarrese and A. Riotto,  
“The Effect of Inhomogeneities on the Luminosity Distance-Redshift Relation: is Dark Energy Necessary in a Perturbed Universe?”,  
Phys. Rev. D **71** (2005) 063537 [arXiv:astro-ph/0501152].
2. T. P. Sotiriou and E. Barausse,  
“Post-Newtonian expansion for Gauss-Bonnet Gravity”,  
Phys. Rev. D **75** (2007) 084007 [arXiv:gr-qc/0612065].
3. E. Barausse, L. Rezzolla, D. Petroff and M. Ansorg,  
“Gravitational waves from extreme mass ratio inspirals in non-pure Kerr spacetimes”,  
Phys. Rev. D **75** (2007) 064026 [arXiv:gr-qc/0612123].
4. E. Barausse,  
“EMRIs in non-pure Kerr spacetimes”,  
AIP Conf. Proc. **873** (2006) 264 [<http://digitallibrary.sissa.it/handle/1963/2123>].
5. E. Barausse, T. P. Sotiriou and J. C. Miller,  
“A no-go theorem for polytropic spheres in Palatini  $f(R)$  gravity”,  
Class. Quant. Grav. **25** (2008) 062001 [arXiv:gr-qc/0703132].
6. E. Barausse, S. A. Hughes and L. Rezzolla,  
“Circular and non-circular nearly horizon-skimming orbits in Kerr spacetimes”,  
Phys. Rev. D **76** (2007) 044007 [arXiv:0704.0138 gr-qc].

7. E. Barausse,  
"Relativistic dynamical friction in a collisional fluid",  
Mon. Not. Roy. Astron. Soc. **382** (2007) 826 [arXiv:0709.0211 astro-ph].
8. E. Barausse and L. Rezzolla,  
"The influence of the hydrodynamic drag from an accretion torus on extreme mass ratio inspirals",  
Phys. Rev. D **77** (2008) 104027 [arXiv:0711.4558 gr-qc].
9. E. Barausse, T. P. Sotiriou and J. C. Miller,  
"Curvature singularities, tidal forces and the viability of Palatini  $f(R)$  gravity",  
Class. Quant. Grav. **25** (2008) 105008 [arXiv:0712.1141 gr-qc].
10. L. Rezzolla, E. Barausse, E. N. Dorband, D. Pollney, C. Reisswig, J. Seiler and S. Husa,  
"On the final spin from the coalescence of two black holes",  
Phys. Rev. D **78** (2008) 044002 [arXiv:0712.3541 gr-qc].
11. E. Barausse, T. P. Sotiriou and J. C. Miller,  
"Polytropic spheres in Palatini  $f(R)$  gravity",  
EAS Publ. Ser. **30** (2008) 189 [arXiv:0801.4852 gr-qc].
12. E. Barausse and T. P. Sotiriou,  
"Perturbed Kerr Black Holes can probe deviations from General Relativity",  
Phys. Rev. Lett. **101** (2008) 099001 [arXiv:0803.3433 gr-qc].
13. E. Barausse and L. Rezzolla,  
"Predicting the direction of the final spin from the coalescence of two black holes",  
Astrophys. J. Lett. **704** (2009) L40-L44 [arXiv:0904.2577 gr-qc].
14. M. Cook, C. Evoli, E. Barausse, G. L. Granato and A. Lapi,  
"Two phase galaxy formation: The Gas Content of Normal Galaxies",  
Mon. Not. Roy. Astron. Soc. **402** (2010) 941 [arXiv:0906.4115 astro-ph.GA].
15. M. Cook, E. Barausse, C. Evoli, G. L. Granato and A. Lapi,  
"Two phase galaxy formation: The evolutionary properties of galaxies",  
Mon. Not. Roy. Astron. Soc. **402** (2010) 2113 [arXiv:0910.3910].
16. E. Barausse, E. Racine and A. Buonanno,  
"Hamiltonian of a spinning test-particle in curved spacetime",  
Phys. Rev. D **80** (2009) 104025 [arXiv:0907.4745 gr-qc].
17. E. Barausse,  
"The importance of precession in modelling the direction of the final spin from a black-hole merger",  
J. Phys. Conf. Ser. **228** (2010) 012050 [arXiv:0911.1274 gr-qc].
18. E. Barausse and A. Buonanno,  
"An improved effective-one-body Hamiltonian for spinning black-hole binaries",  
Phys. Rev. D **81** (2010) 084024 [arXiv:0912.3517 gr-qc].
19. P. Pani, E. Barausse, E. Berti and V. Cardoso,  
"Gravitational instabilities of superspinars",  
Phys. Rev. D **82** (2010) 044009 [arXiv:1006.1863 gr-qc].
20. E. Barausse, V. Cardoso and G. Khanna,  
"Test bodies and naked singularities: is the self-force the cosmic censor?",  
Phys. Rev. Lett. **105** (2010) 261102 [arXiv:1008.5159 [gr-qc]].

21. N. Yunes, A. Buonanno, S. A. Hughes, Y. Pan, E. Barausse, M. C. Miller, and W. Throwe,  
"Extreme Mass Ratio Inspirals within the Effective-One-Body Approach: Quasi-Circular, Equatorial  
Orbits around a Spinning Black Hole"  
Phys. Rev. D **83** (2011) 044044 [arXiv:1009.6013 [gr-qc]].
22. C. Bambi and E. Barausse,  
"Constraining the quadrupole moment of stellar-mass black-hole candidates with the continuum  
fitting method",  
Astrophys. J. **731** (2011) 121 [arXiv:1012.2007 [gr-qc]].
23. E. Barausse, T. Jacobson and T. P. Sotiriou,  
"Black holes in Einstein-aether and Horava-Lifshitz gravity",  
Phys. Rev. D **83**, 124043 (2011) [arXiv:1104.2889 [gr-qc]].
24. E. Barausse, V. Cardoso and G. Khanna,  
"Testing the Cosmic Censorship Conjecture with point particles: the effect of radiation reaction and  
the self-force",  
Phys. Rev. D **84** (2011) 104006 [arXiv:1106.1692 [gr-qc]].
25. E. Barausse and A. Buonanno,  
"Extending the effective-one-body Hamiltonian of black-hole binaries to include next-to-next-to-  
leading spin-orbit couplings",  
Phys. Rev. D **84** (2011) 104027 [arXiv:1107.2904 [gr-qc]].
26. C. Bambi and E. Barausse,  
"The final stages of accretion onto non-Kerr compact objects",  
Phys. Rev. D **84**, 084034 (2011) [arXiv:1108.4740 [gr-qc]].
27. E. Barausse, A. Buonanno, S. A. Hughes, G. Khanna, S. O'Sullivan and Y. Pan,  
"Modeling multipolar gravitational-wave emission from small mass-ratio mergers",  
Phys. Rev. D **85** (2012) 024046 [arXiv:1110.3081 [gr-qc]].
28. A. Le Tiec, E. Barausse and A. Buonanno,  
"Gravitational Self-Force Correction to the Binding Energy of Compact Binary Systems",  
Phys. Rev. Lett. **108** (2012) 131103 [arXiv:1111.5609]
29. E. Barausse A. Le Tiec and A. Buonanno,  
"The complete non-spinning effective-one-body metric at linear order in the mass ratio",  
Phys. Rev. D **85** (2012) 064010 [arXiv:1111.5610]
30. E. Barausse,  
"The evolution of massive black holes and their spins in their galactic hosts",  
Mon. Not. Roy. Astron. Soc. **423** (2012) 2533 [arXiv:1201.5888]
31. A. Taracchini, Y. Pan, A. Buonanno, E. Barausse, M. Boyle, T. Chu, G. Lovelace and H. P. Pfeiffer and  
M. A. Scheel,  
"A prototype effective-one-body model for non-precessing spinning inspiral-merger-ringdown wave-  
forms",  
Phys. Rev. D **86** (2012) 024011 [arXiv:1202.0790]
32. E. Barausse, V. Morozova and L. Rezzolla  
"On the mass radiated by coalescing black-hole binaries",  
Astrophys. J. **758** (2012) 63 [arXiv:1206.3803]



33. E. Barausse and T. P. Sotiriou,  
"A no-go theorem for slowly rotating black holes in Horava-Lifshitz gravity",  
Phys. Rev. Lett. **109** (2012) 181101, Erratum-ibid. **110** (2013) 039902 [arXiv:1207.6370]
34. E. Barausse and T. P. Sotiriou,  
"Slowly rotating black holes in Horava-Lifshitz gravity",  
Phys. Rev. D **87** (2013) 087504 [arXiv:1212.1334]
35. E. Barausse, C. Palenzuela, M. Ponce and L. Lehner,  
"Neutron-star mergers in scalar-tensor theories of gravity",  
Phys. Rev. D **87** (2013) 081506(R) [arXiv:1212.5053]
36. P. A. Seoane *et al.* [eLISA Collaboration],  
"The Gravitational Universe",  
arXiv:1305.5720.
37. E. Barausse and L. Lehner,  
"A Post-Newtonian approach to black hole-fluid systems,"  
Phys. Rev. D **88** (2013) 024029 [arXiv:1306.5564]
38. E. Barausse and T. P. Sotiriou,  
"Black holes in Lorentz-violating gravity theories,"  
invited article for focus issue on astrophysical black holes,  
Class. Quant. Grav. **30** (2013) 244010 [arXiv:1307.3359]
39. K. Yagi, D. Blas, N. Yunes and E. Barausse,  
"Strong Binary Pulsar Constraints on Lorentz Violation in Gravity,"  
Phys. Rev. Lett. **112**, 161101 (2014) [arXiv:1307.6219]
40. C. Palenzuela, E. Barausse, M. Ponce, L. Lehner  
"Dynamical scalarization of neutron stars in scalar-tensor gravity theories"  
Phys. Rev. D **89**, 044024 (2014) [arXiv:1310.4481]
41. K. Yagi, D. Blas, E. Barausse, N. Yunes  
"Constraints on Einstein-aether theory and Horava gravity from binary pulsar observations"  
Phys. Rev. D **89**, 084067 (2014) [arXiv:1311.7144]
42. A. Sesana, E. Barausse, M. Dotti, E. M. Rossi  
"Linking the spin evolution of massive black holes to galaxy kinematics"  
Astrophys. J. **794**, 104 (2014) [arXiv:1402.7088]
43. E. Barausse, V. Cardoso, P. Pani  
"Can environmental effects spoil precision gravitational-wave astrophysics?"  
Phys. Rev. D **89** (2014) 104059 [arXiv:1404.7149]
44. E. Barausse, V. Cardoso, P. Pani  
"Environmental Effects for Gravitational-wave Astrophysics"  
J. Phys. Conf. Ser. **610** (2015) 1, 012044 [arXiv:1404.7140]
45. L. Sampson, N. Yunes, N. Cornish, M. Ponce, E. Barausse, A. Klein, C. Palenzuela and L. Lehner,  
"Projected Constraints on Scalarization with Gravitational Waves from Neutron Star Binaries",  
Phys. Rev. D **90** (2014) 124091 [arXiv:1407.7038]
46. M. Ponce, C. Palenzuela, E. Barausse and L. Lehner,  
"Electromagnetic outflows in scalar-tensor theories vs General Relativity: binary neutron star coalescence",  
Phys. Rev. D **91** (2015) 8, 084038 [arXiv:1410.0638]

47. E. Barausse, J. Bellovary, E. Berti, K. Holley-Bockelmann, B. Farris, B. Sathyaprakash and A. Sesana, "Massive Black Hole Science with eLISA," *J. Phys. Conf. Ser.* **610** (2015) 1, 012001 [arXiv:1410.2907]
48. E. Berti et al (including E. Barausse), "Testing General Relativity with Present and Future Astrophysical Observations" *Class. Quant. Grav.* **32** (2015) 243001 [arXiv:1501.07274]
49. M. Bonetti, E. Barausse, "Post-Newtonian constraints on Lorentz-violating gravity theories with a MOND phenomenology" *Phys. Rev. D* **91** (2015) 8, 084053 [arXiv:1502.05554]
50. F. Antonini, E. Barausse and J. Silk, "The imprint of massive black-hole mergers on the correlation between nuclear star clusters and their host galaxies" *Astrophys. J. Lett.* **806** (2015) 1, L8 [arXiv:1504.04033]
51. F. Antonini, E. Barausse and J. Silk, "Co-evolution of nuclear star clusters, massive black holes and their host galaxies", *Astrophys. J.* **812** (2015) 1, 72 [arXiv:1506.02050]
52. E. Barausse, K. Yagi, "Gravitational-wave emission in shift-symmetric Horndeski theories," *Phys. Rev. Lett.* **115** (2015) 21, 211105 [arXiv:1509.04539]
53. A. Klein, E. Barausse, A. Sesana, A. Petiteau, E. Berti, S. Babak, J. Gair, S. Aoudia, I. Hinder, F. Ohme, B. Wardell, "Science with the space-based interferometer eLISA. I: Supermassive black hole binaries," *Phys. Rev. D* **93** (2016) 2, 024003 [arXiv:1511.05581]
54. E. Barausse, T. P. Sotiriou, I. Vega, "Slowly rotating black holes in Einstein-æther theory", *Phys. Rev. D* **93** (2016) 4, 044044 [arXiv:1512.05894]
55. N. Tamanini, C. Caprini, E. Barausse, A. Sesana, A. Klein and A. Petiteau, "Science with the space-based interferometer eLISA. III: Probing the expansion of the Universe using gravitational wave standard sirens," *JCAP* **1604**, no. 04 (2016) 002 [arXiv:1601.07112]
56. E. Barausse, N. Yunes and K. Chamberlain, "Theory-Agnostic Constraints on Black-Hole Dipole Radiation with Multi-Band Gravitational-Wave Astrophysics," *Phys. Rev. Lett.* **116** (2016) no.24, 241104 [arXiv:1603.04075].
57. T. Hartwig, M. Volonteri, V. Bromm, R. S. Klessen, E. Barausse, M. Magg and A. Stacy, "Gravitational Waves from the Remnants of the First Stars," *Mon. Not. Roy. Astron. Soc. Letters* (2016), **460**, L74-L78 [arXiv:1603.05655].
58. M. Bonetti, F. Haardt, A. Sesana and E. Barausse, "Post-Newtonian Evolution of Massive Black Hole Triplets in Galactic Nuclei: I. Numerical Implementation and Tests," *Mon. Not. Roy. Astron. Soc.* **461** (2016) 4419 [arXiv:1604.08770].
59. F. Hofmann, E. Barausse and L. Rezzolla, "The final spin from binary black holes in quasi-circular orbits," *Astrophys. J. Lett.* **825** (2016) 2, L19 [arXiv:1605.01938]

60. E. Berti, A. Sesana, E. Barausse, V. Cardoso and K. Belczynski,  
“Spectroscopy of Kerr black holes with Earth- and space-based interferometers,”  
Phys. Rev. Lett. **117** (2016) no.10, 101102 [arXiv:1605.09286]
61. D. Anderson, N. Yunes and E. Barausse,  
“The Effect of Cosmological Evolution on Solar System Constraints and on the Scalarization of Neutron Stars in Massless Scalar-Tensor Theories,”  
Phys. Rev. D **94**, 104064 (2016) [arXiv:1607.08888]
62. E. Barausse, F. Shankar, M. Bernardi, Y. Dubois and R. K. Sheth,  
“Selection bias in dynamically-measured supermassive black hole samples: Scaling relations and correlations between residuals in semi-analytic galaxy formation models”,  
Mon. Not. Roy. Astron. Soc. **468** (2017) no.4, 4782 [arXiv:1702.01762]
63. H. Audley *et al.*, “Laser Interferometer Space Antenna,” arXiv:1702.00786
64. I. Dvorkin and E. Barausse,  
“The nightmare scenario: measuring the stochastic gravitational-wave background from stalling massive black-hole binaries with pulsar-timing arrays,”  
Mon. Not. Roy. Astron. Soc. **470** (2017) 4547 [arXiv:1702.06964]
65. E. Barausse, “Testing the strong equivalence principle with gravitational-wave observations of binary black holes,”  
Proceedings of the 3rd International Symposium on "Quest for the Origin of Particles and the Universe", 5-7 January 2017, Nagoya University, Japan [arXiv:1703.05699]
66. S. Babak, J. Gair, A. Sesana, E. Barausse, C. F. Sopuerta, C. P. L. Berry, E. Berti, P. Amaro-Seoane, A. Petiteau and A. Klein,  
“Science with the space-based interferometer LISA. V: Extreme mass-ratio inspirals,”  
Phys. Rev. D **95** (2017) no.10, 103012 [arXiv:1703.09722].
67. J. Gair, S. Babak, A. Sesana, P. Amaro-Seoane, E. Barausse, C. P. L. Berry, E. Berti, C. Sopuerta,  
“Prospects for observing extreme-mass-ratio inspirals with LISA,”  
Proceedings of the 11th International LISA Symposium [arXiv:1704.00009]
68. R. Brito, S. Ghosh, E. Barausse, E. Berti, V. Cardoso, I. Dvorkin, A. Klein and P. Pani,  
“Stochastic and resolvable gravitational waves from ultralight bosons,”  
Phys. Rev. Lett. **119** (2017) no.13, 131101 [arXiv:1706.05097].
69. R. Brito, S. Ghosh, E. Barausse, E. Berti, V. Cardoso, I. Dvorkin, A. Klein and P. Pani,  
“Gravitational wave searches for ultralight bosons with LIGO and LISA”,  
Phys. Rev. D **96** (2017) no.6, 064050 [arXiv:1706.06311].
70. M. Bonetti, E. Barausse, G. Faye, F. Haardt and A. Sesana,  
“About gravitational-wave generation by a three-body system”,  
Class. Quant. Grav. **34**, no. 21, 215004 (2017) [arXiv:1707.04902]
71. M. Bonetti, F. Haardt, A. Sesana and E. Barausse,  
“Post-Newtonian evolution of massive black hole triplets in galactic nuclei – II. Survey of the parameter space”,  
Mon. Not. Roy. Astron. Soc. **477**, no. 3, 3910–3926 (2018) [arXiv:1709.06088].
72. M. Bonetti, A. Sesana, E. Barausse and F. Haardt,  
“Post-Newtonian evolution of massive black hole triplets in galactic nuclei – III. A robust lower limit to the nHz stochastic background of gravitational waves”,  
Mon. Not. Roy. Astron. Soc. **477**, no. 2, 2599–2612 (2018) [arXiv:1709.06095]

73. C. Guépin, K. Kotera, E. Barausse, K. Fang and K. Murase,  
“Ultra-High Energy Cosmic Rays and Neutrinos from Tidal Disruptions by Massive Black Holes,  
*Astron. Astrophys.* **616**, A179 (2018) [arXiv:1711.11274].
74. E. Barausse, R. Brito, V. Cardoso, I. Dvorkin, P. Pani,  
“The stochastic gravitational-wave background in the absence of horizons”,  
*Class. Quant. Grav. Letters* **35**, no. 20, 20LT01 (2018) [arXiv:1805.08229]
75. V. Korol, E. M. Rossi and E. Barausse,  
“A multi-messenger study of the Milky Way’s stellar disc and bulge with LISA, Gaia and LSST,”  
*Mon. Not. Roy. Astron. Soc.* **483**, no. 4, 5518–5533 (2019) [arXiv:1806.03306].
76. L. Barack *et al.*, “Black holes, gravitational waves and fundamental physics: a roadmap”,  
*Class. Quant. Grav.* **36**, no. 14, 143001 (2019) [arXiv:1806.05195]
77. V. Korol, E. M. Rossi and E. Barausse,  
“ Constraining the Milky Way potential with Double White Dwarfs”  
Proceedings of the 21st European Workshop on White Dwarfs (Austin, TX, USA, July 2018) [arXiv:1810.03938]
78. A. Mangiagli, A. Klein, A. Sesana, E. Barausse and M. Colpi,  
“Post-Newtonian phase accuracy requirements for stellar black hole binaries with LISA,”,  
*Phys. Rev. D* **99**, no. 6, 064056 (2019) [arXiv:1811.01805]
79. O. Ramos and E. Barausse,  
“Constraints on Hořava gravity from binary black hole observations,”  
*Phys. Rev. D* **99**, 024034 (2019) [arXiv:1811.07786]
80. M. Bonetti, A. Sesana, F. Haardt, E. Barausse and M. Colpi,  
“Post-Newtonian Evolution of Massive Black Hole Triplets in Galactic Nuclei: IV. Implications for LISA,”  
*Mon. Not. Roy. Astron. Soc.* **486**, no. 3, 4044 (2019) [arXiv:1812.01011].
81. H. T. Wang *et al.*,  
“Science with TianQin: Preliminary Results on Massive Black Hole Binaries,”  
*Phys. Rev. D* **100**, 043003 (2019) [arXiv:1902.04423].
82. O. Sarbach, E. Barausse and J. A. Preciado-Lopez,  
“Well-posed Cauchy formulation for Einstein-aether theory,”  
*Class. Quant. Grav.* **36**, 165007 (2019) [arXiv:1902.05130].
83. C. Shi *et al.*,  
“Science with TianQin: Preliminary Results on Testing the No-hair Theorem with Ringdown Signals,”  
*Phys. Rev. D* **100**, 044036 (2019) [arXiv:1902.08922].
84. E. Barausse,  
“Black holes in General Relativity and beyond,”  
*MDPI Proc.* **17**, 1 (2019) [arXiv:1902.09199]
85. E. Berti *et al.*,  
“Tests of General Relativity and Fundamental Physics with Space-based Gravitational Wave Detectors,”  
White Paper submitted to 2020 Decadal Survey on Astronomy and Astrophysics  
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86. M. Colpi *et al.*,  
"Astro2020 science white paper: The gravitational wave view of massive black holes,"  
White Paper submitted to 2020 Decadal Survey on Astronomy and Astrophysics  
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"Extreme Gravity and Fundamental Physics,"  
White Paper submitted to 2020 Decadal Survey on Astronomy and Astrophysics  
arXiv:1903.09221
88. E. Belgacem *et al.* [LISA Cosmology Working Group],  
"Testing modified gravity at cosmological distances with LISA standard sirens," JCAP07(2019)024  
[arXiv:1906.01593].
89. N. Tamanini, A. Klein, C. Bonvin, E. Barausse and C. Caprini,  
"The peculiar acceleration of stellar-origin black hole binaries: measurement and biases with LISA,"  
Phys. Rev. D **101**, 063002 (2020) [arXiv:1907.02018].
90. E. Barausse,  
"Neutron star sensitivities in Hořava gravity after GW170817"  
Phys. Rev. D **100**, 084053 (2019) [arXiv:1907.05958]
91. A. Sesana *et al.*,  
"Unveiling the Gravitational Universe at  $\mu$ -Hz Frequencies,"  
Experimental Astronomy (2021) [arXiv:1908.11391]
92. E. Barausse *et al.*,  
"Prospects for Fundamental Physics with LISA,"  
General Relativity and Gravitation **52**, 81 (2020) [arXiv:2001.09793].
93. A. Caputo, L. Sberna, A. Toubiana, S. Babak, E. Barausse, S. Marsat and P. Pani,  
"Gravitational-wave detection and parameter estimation for accreting black-hole binaries and their  
electromagnetic counterpart,"  
Astrophys. J. **892**, 2 (2020) [arXiv:2001.03620]
94. A. Dima and E. Barausse,  
"Numerical investigation of plasma-driven superradiant instabilities,"  
Class. Quant. Grav. **37** 175006 (2020) [arXiv:2001.11484]
95. M. Pieroni and E. Barausse,  
"Foreground cleaning and template-free stochastic background extraction for LISA,"  
JCAP07(2020)021 [arXiv:2004.01135]
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101. M. Bezares, M. Crisostomi, C. Palenzuela and E. Barausse,  
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131. L. Sberna, *et al.*, "Observing GW190521-like binary black holes and their environment with LISA",  
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132. N. Franchini, M. Bezares, E. Barausse and L. Lehner,  
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148. M. E. Rubio, Á. D. Kovács, M. Herrero-Valea, M. Bezares and E. Barausse,  
“Well-posed evolution of field theories with anisotropic scaling: the Lifshitz scalar field in a black hole space-time,”  
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149. N. Afshordi *et al.* [LISA Consortium Waveform Working Group], “Waveform Modelling for the Laser Interferometer Space Antenna,” Submitted to Living Reviews in Relativity [arXiv:2311.01300]

## Seminars and participation in conferences

1. Invited astrophysics group seminar at Milano Bicocca (Italy) on “Environmental effects for low frequency gravitational wave astronomy”, October 26, 2023
2. Invited review talk on “Gravitational wave astronomy”, at workshop on “The Lunar Gravitational Wave Antenna”, Catania (Italy), October 9–13, 2023
3. Invited talk on “Environmental effects for low frequency gravitational wave astronomy”, at Gran Sasso Science Institute (Italy), during workshop on “Environmental effects and matter systematics for low-frequency gravitational wave astronomy”, September 20–22, 2023

4. Invited talk on “Light bosons, compact objects and gravitational waves”, at GGI workshop on “New horizons for (no-)horizon physics: from gauge to gravity and back II”, Galileo Galilei Institute (Firenze, Italy); April 17–21, 2023
5. Invited talk on “Birth and growth of massive black holes” (organized online by the TianQin Research Center for Gravitational Physics, China), April 14, 2023
6. Invited talk on “Gravitational wave generation in effective field theories of dark energy” at workshop on “Testing Aspects of General Relativity-II, 11th-13th April 2023” (organized online by the Indian Institute of Technology, Gandhinagar and the University of Lethbridge, Canada), April 11–13, 2023
7. Invited talk on “Environmental effects for low frequency gravitational wave astronomy” at the “London Gravity meeting”; London (UK), November 23, 2022
8. Invited talk on “Gravitational wave generation in effective field theories of dark energy” at Imperial College (London, UK), November 22, 2022
9. Colloquium on “Environmental effects for low frequency gravitational wave astronomy” at Leiden Observatory (Netherlands), on November 10, 2022
10. Colloquium on “Gravitational wave generation in effective field theories of dark energy” at the Central European Institute for Cosmology and Fundamental Physics (CEICO); Prague (Czech Republic), October 27, 2022
11. Invited talk on “Massive black hole astrophysics with low frequency gravitational waves” at “TianQin astronomy workshop” (online, August 22-25, 2022)
12. Invited talk on “Gravitational wave generation in effective field theories of dark energy” at workshop on “New frontiers in strong gravity”; Benasque (Spain), 4-15 July, 2022
13. Invited talk on “Environmental effects and matter systematics for LISA” at EuCAPT workshop “Gravitational wave probes of black hole environments”, Rome Sapienza (Italy), 15–17 Jun 2022
14. Invited talk on “Environmental effects and matter systematics for LISA” at LISA Fundamental Physics Working Group meeting; Solvay Institute (Brussels, Belgium), April 26-28, 2022
15. Invited talk on “Tests of General Relativity across the gravitational energy spectrum” at National Meeting of the CSN2 Committee of INFN; IFPU (Trieste, Italy), April 7, 2022
16. Chair of discussion session on “Tests of gravity with electromagnetic observations”, at online workshop on “Recent progress on gravity tests”, organized by C. Bambi (Fudan) and A. Cardenas-Avendano (Princeton), February 16-18 2022
17. Cosmology Colloquium on “The quest for low-frequency gravitational waves”, Scuola Normale Superiore, Pisa (Italy), online; November 24, 2021
18. Astrophysics colloquium on “Gravitational wave generation in effective field theories of dark energy”, University of Tubingen (Germany), online; October 25, 2021
19. Invited talk on “Black holes and Lorentz violations in gravity”, at “Black Holes Inside and Out” (online), September 29, 2021
20. Invited talk on “(Absence of) screening in gravitational wave generation”, at NEB-19 Recent Developments in Gravity, Athens (online), September 21, 2021
21. Invited presentation on “LISA catalogs” at Workshop of the LISA Data Processing Group (LDPG), July 1-2, 2021 (online)

22. Imperial College Cosmology/HEP seminar, "Gravitational-wave generation beyond General Relativity", Imperial College (UK), held online, May 21, 2021
23. HEP-GR Colloquium on "Gravitational-wave generation beyond General Relativity", University of Cambridge (UK), held online, May 5, 2021
24. Undergrad-level webinar on "The sound of the Universe: detecting gravitational waves in space with LISA", for the youtube channel [www.youtube.com/channel/UCaTkWBBDToMiYS8kYskz8VdA](http://www.youtube.com/channel/UCaTkWBBDToMiYS8kYskz8VdA), March 3rd, 2021.
25. Invited talk on "BHs beyond GR and their observational signatures", during online meeting on "The Next-generation Event Horizon Telescope", organized by the Center for Astrophysics (Harvard, USA) held online, 22-25 February 2021
26. Invited talk on "Primordial black holes with LISA", during online workshop on "Primordial Black Holes confront GW data", organized by the University of Rome-Sapienza (Italy), held online, 8-12 February 2021
27. Colloquium of the Astronomical Society of Ireland on "The quest for low-frequency gravitational waves", February 2, 2021 (online)
28. Invited online talk on "Black holes beyond General Relativity", at online workshop on "Probing Effective Theories of Gravity in Strong Fields and Cosmology", Kavli Institute for Theoretical Physics (KITP), US; August 18, 2020
29. Invited online talk on "Gravitational-wave generation beyond General Relativity", at "Testing General Relativity using Gravitational Waves" online workshop, Indian Institute of Technology, Gandhinagar (IITGN), India; August 13-14, 2020
30. Online talk on "Gravitational wave probes of light bosons", School of Physics & Astronomy, University of Southampton (UK), June 19, 2020
31. Invited talk on "Physics and astrophysics with low-frequency gravitational waves", University of Cordoba (Argentina), May 7, 2020; held remotely
32. Invited talk on "Stochastic and resolvable gravitational waves from ultralight bosons", at workshop "Gravitational wave physics and astronomy: Genesis", Kobe (Japan), February 10-12, 2020; held remotely
33. Colloquium at Leiden Observatory (Netherlands) on "Physics and astrophysics with low-frequency gravitational waves", December 12, 2019
34. Colloquium at Technion (Haifa, Israel) on "Physics and astrophysics with low-frequency gravitational waves", November 13, 2019
35. Colloquium at the Racah Institute of Physics (Jerusalem, Israel) on "Physics and astrophysics with low-frequency gravitational waves", November 12, 2019
36. Invited presentation on "LISA catalogs and GR tests", LISA Consortium Meeting, Hannover (Germany), October 14-16, 2019
37. Invited presentation on "LISA catalogs and GR tests", LISA Cosmology Working Group Meeting, Padova (Italy), September 23-27, 2019
38. Invited talk on "Theoretical and data analysis challenges raised by the LISA mission", at "Lost in gravity 2019", Saint Flour (France), 28-30 August 2019



39. Talk on “LISA catalogs” at the Italian Space Agency (ASI) in Rome, Italy, on May 17, 2019
40. Invited talk on “Stochastic and resolvable gravitational waves from ultralight bosons”, at conference on “Recent Progress in Relativistic Astrophysics”, Fudan University (Shanghai, China), 6–8 May 2019
41. Invited seminar on “LISA source catalogs” at workshop on “Enabling LISA Science Exploitation”, Lorentz Center (Leiden, Netherlands), March 4-8, 2019
42. Theory colloquium on “The quest for low-frequency gravitational waves” at CERN (Geneva, Switzerland), February 20, 2019
43. Invited talk on “Stochastic and resolvable gravitational waves from ultralight bosons”, at workshop on “Tests of General Relativity and alternative theories”, CEA Saclay (France), January 31, 2019
44. Invited talk at at GWverse COST general meeting “Gravitational Waves, Black Holes and Fundamental Physics”, Athens (Greece), 21-24 January 2019
45. Invited talk at workshop on “Tests of Gravity”, Athens (Greece), 16-18 January 2019
46. Gravity Group Talk at Perimeter Institute (Waterloo ON, Canada), on “Stochastic and resolvable gravitational waves from ultralight bosons”, 17 October 2018
47. Invited seminar at workshop “From Dark Energy to Bright Synergies” (Sesto Val Pusteria, Italy, July 23-27, 2018), on “Gravitational-wave constraints on ultralight bosons and on black-hole horizons”
48. Invited seminar on “Environmental effects for gravitational wave astrophysics”, 21st Capra meeting, Albert Einstein Institute, Potsdam, June 25-29, 2018
49. Invited colloquium on “Physics and astrophysics with mHz gravitational waves” at University of Frankfurt, Germany, June 19, 2018
50. Invited Amaldi seminar on “Physics and astrophysics with mHz gravitational waves” at University of Rome-Sapienza, Italy, May 31, 2018
51. Talk on “A robust lower limit to the nHz stochastic gravitational-wave background”, April 20, 2018, at EPTA meeting, Norwich UK.
52. Invited talk on “The quest for low-frequency gravitational waves” on April 17, 2018, at April APS meeting, Columbus OH, USA.
53. Invited talk on “Black holes beyond General Relativity” on January 25, 2018, at GWverse COST general meeting “Gravity@Malta 2018”, La Valletta, Malta.
54. Invited talk on “The quest for low-frequency gravitational waves” on January 16, 2018 at the University of Rome-Sapienza, Italy.
55. Invited talk on “The quest for low-frequency gravitational waves” on October 25, 2017 at SISSA, Trieste, Italy.
56. Talks on “Stochastic and resolvable gravitational waves from ultralight bosons” and on “Massive black-hole binaries as standard sirens” at the 4th LISA Cosmology Working Group Workshop, 16-20 October 2017 Mainz Institute for Theoretical Physics, Germany.
57. Presentations about “LISA science@IAP” and “Stochastic and resolvable gravitational waves from ultralight bosons” at the Journées LISA France2017, APC, Paris, France, 12 - 13 October 2017.
58. Invited talk at workshop “Probing the dark sector and general relativity at all scales”, CERN, Switzerland 14 - 25 August 2017.



59. Invited talk at “New Frontiers in Gravitational-Wave Astrophysics”, June 19-22, Rome, Italy. Title “Gravitational waves beyond General Relativity”
60. Invited talk at workshop on “The disc migration issue: from protoplanets to supermassive black holes”, Cambridge (UK), 22 - 24 May 2017. Title “Supermassive Black-hole binaries as gravitational wave sources”
61. Invited talk at 7th Iberian Gravitational Wave Meeting, Bilbao (Spain), May 15-17, 2017. Title “Supermassive Black-hole binaries as gravitational wave sources”
62. Cosmology seminar at the University of Geneva (Switzerland), April 21, 2017. Title “Gravitational waves beyond General Relativity”
63. Seminar at the Institut de Physique Théorique, Saclay (France), February 21, 2017. Title “Gravitational waves beyond General Relativity”
64. Talk during “One day workshop on gravitational waves”, Institut d’astrophysique de Paris, January 27, 2017. Title “Testing GR and beyond”
65. KMI theory seminar, Kobayashi-Maskawa Institute, Nagoya (Japan), January 10, 2017. Title “LISA science in the era of first detections”
66. Invited talk at “The 3rd KMI International Symposium on the Quest for the Origin of Particles and the Universe”, Kobayashi-Maskawa Institute, Nagoya (Japan), 5-7 January 2017. Title “The implications of GW detections for GR extensions”
67. Invited seminar at “GW161212: The Universe through gravitational waves, New York, USA”, Simons Center, Stony Brook NY (USA), 12-15 December 2016. Title “The implications of GW detections for GR extensions”
68. Invited seminar at “Gravitational waves and Cosmology – LISA Cosmology Working Group Workshop”, DESY, Hamburg (Germany), 17-21 October 2016. Title “Implications of GW observations for GR extensions”
69. Invited talk at workshop on “Gravitational waves in modified gravity theories”, National Technical University of Athens, Greece, 15–17 September 2016. Title “The implications of GW detections for GR extensions”
70. Invited talk at 22nd meeting of the Italian Society of General Relativity and Gravitational Physics (SIGRAV2016), Cefalù, Italy September 12–18, 2016. Title “The implications of GW detections for GR extensions”
71. Invited talk at day on the “Presentation of the L3 mission” (organized by LISA France). July 5, 2016. Title “eLISA science in the era of first detections”
72. Talk at the “19th Capra Meeting on Radiation Reaction in General Relativity”, Meudon, France. June 27 - July 1, 2016. Title “eLISA science in the era of first detections”
73. Invited talk at “2016 Gravitational Wave Physics and Astronomy Workshop (GWPAW 2016)”, Hyannis (MA), USA. June 15-18, 2016. Title “eLISA science in the era of first detections”
74. Invited talk at conference on “The first observation of a binary black hole merger: Status and future prospects”, Albert Einstein Institute, Hannover (Germany). May 23-26, 2016. Title “Theoretical implications of gravitational-wave observations”

75. Talk at the University of Padova, Italy, April 21, 2016.  
Title "Lorentz-violations in gravity and in cosmology"
76. Talk at the University of Milan-Bicocca, Italy, April 12, 2016.  
Title "eLISA science in the era of first detections"
77. Invited talk at conference on "Current Problems in Theoretical Physics, XII Edition", March 18-23, 2016, Vietri sul Mare, Italy.  
Title "eLISA science in the era of first detections"
78. "Gravity and Geometry" seminar, School of Mathematical Sciences, University of Nottingham (UK), January 20, 2016.  
Title "Gravitational-wave emission and pulsar constraints in shift-symmetric Horndeski theories"
79. Gravity and Cosmology seminar at LPT (Laboratoire Physique Theorique), Orsay, France, November 18, 2015.  
Title "Gravitational-wave emission in shift-symmetric Horndeski theories"
80. Theory group seminar at AstroParticle and Cosmology (APC) laboratory, Paris, France, October 20, 2015  
Title "Gravitational-wave emission in shift-symmetric Horndeski theories"
81. Invited talk at Miniworkshop "Gravitation and scalar fields", Observatoire de Paris - Meudon, October 6, 2015.  
Title "Gravitational-wave emission in shift-symmetric Horndeski theories"
82. Invited talk at the "Extreme Gravity Workshop", Montana State University, Bozeman, United States, August 20-22, 2015  
Title "Should we bother about strong field gravity?"
83. Invited talk at the "27th International Symposium on Lepton Photon Interactions at High Energies", Ljubljana, Slovenia, August 17-22, 2015  
Title "Exploring the Universe with Gravitational Waves"
84. Invited talk at "GPhys day", Observatoire de Paris, July 6th, 2015  
Title "Why bother about strong-field gravity? The example of Lorentz-violating gravity theories"
85. Invited seminar at the Astronomy Centre, University of Sussex, June 5th, 2015  
Title "Black-hole spins as gravitational and cosmological probes"
86. Invited seminar at the University of Aveiro, Portugal, June 2nd, 2015  
Title "Black-hole spins as gravitational and cosmological probes"
87. Invited seminar at the Max Planck Institute for Gravitational Physics (Albert Einstein Institute, Golm, Germany), May 27, 2015  
Title "Lorentz violations in gravity and cosmology"
88. Invited talk at "Fourth COSPA Meeting", Mons, Belgium, May 20, 2015,  
Title "Black-holes spins as gravitational and cosmological probes"
89. Invited talk at "eLISA Cosmology Working Group Workshop", CERN, Geneva, Switzerland, 14-17 April, 2015  
Title "Testing gravity theories with gravitational waves and compact objects: the case of Lorentz violating gravity"

90. Invited talk at “Mini-workshop on gravity and cosmology”, Institut d’Astrophysique de Paris, February 24 - 27, 2015  
Title “Lorentz violations in gravity and cosmology”
91. LPT Orsay (France), invited talk at workshop on gravity theories, November 17-18, 2014.  
Title “Astrophysical consequences of Lorentz violations in gravity”
92. Osaka University Theoretical Astrophysics Colloquium, Osaka (Japan), June 5, 2014.  
Title “Compact objects as probes of astrophysics, gravity and fundamental physics”
93. Talk at the Yukawa Institute for Theoretical Physics, Kyoto (Japan), June 2, 2014, as part of a long term workshop on “Holographic vistas on Gravity and Strings”;  
Title “Astrophysical consequences of Lorentz violations in gravity”
94. Invited talk at the 10th International LISA Symposium, Gainesville FL (USA), May 18-23, 2014,  
Title “Black-hole spins as gravitational and cosmological probes”
95. Seminar at the University of Milan Bicocca, Milan (Italy), May 8, 2014,  
Title “Astrophysical consequences of Lorentz violations in gravity”
96. Gravitational Physics Seminars at the University of Cardiff, April 11, 2014,  
Title “Astrophysical consequences of Lorentz violations in gravity”
97. Invited seminar at the 558th WE-Heraeus-Seminar on “The Strong Gravity Regime of Black Holes and Neutron Star”, Bad Honnef (Germany), March 31 to April 4, 2014,  
Title “Astrophysical consequences of Lorentz violations in gravity”
98. Physics Department Seminar at the University of Trento, Italy, March 19, 2014,  
Title “Compact objects as probes of astrophysics, gravity and fundamental physics”
99. CEA-Saclay, Astrophysics Institute Colloquium (Séminaire SA), March 11, 2014,  
Title “Compact objects as probes of astrophysics, gravity and fundamental physics”
100. IAP Seminar, Institut d’Astrophysique de Paris, March 7, 2014,  
Title “Compact objects as probes of astrophysics, gravity and fundamental physics”
101. Invited talk at workshop on “The structure of gravity and spacetime”, University of Oxford (UK), February 6-7, 2014,  
Title “Astrophysical consequences of Lorentz violations in gravity”
102. Invited talk at workshop on “Testing General Relativity with Astrophysical Observations”, University of Mississippi, Oxford MS (USA), January 6-10, 2014  
Title “Astrophysical consequences of Lorentz violations in gravity”
103. Invited talk at Virtual Institute of Astroparticle Physics (Online seminar platform hosted at the CNRS AstroParticle and Cosmology (APC) laboratory, Paris, France; <http://viavca.in2p3.fr>), November 8, 2013,  
Title “Strong Binary Pulsar Constraints on Lorentz Violation in Gravity”
104. Invited talk at the National Conference of the Italian Physical Society, Trieste (Italy), September 27, 2013  
Title “Neutron-star mergers in scalar-tensor theories of gravity”
105. Invited Quantum gravity seminar at Perimeter Institute, Waterloo (Canada), August 22, 2013  
Title “Strong Binary Pulsar Constraints on Lorentz Violation in Gravity”



106. Colloquium at Perimeter Institute, Waterloo (Canada), June 7, 2013  
Title "Spinning black-hole binaries as gravitational and cosmological probes"
107. Colloquium at the University of Guelph (Canada), June 5, 2013.  
Title "The sound of the Universe: probing astrophysics, cosmology and fundamental physics with gravitational waves"
108. Invited talk at the CNRS AstroParticle and Cosmology (APC) laboratory, Paris, France, May 7, 2013  
Talk title "Neutron-star mergers in scalar-tensor theories of gravity"
109. Talk at NASA's Goddard Space Flight Center (US), April 19, 2013  
Talk title "Spinning black-hole binaries as gravitational and cosmological probes"
110. Invited Strong Gravity Seminar at Perimeter Institute, Waterloo (Canada), April 11, 2013  
Title "Spinning black-hole binaries as gravitational and cosmological probes"
111. Gravity seminar, University of Southampton (UK), March 14, 2013  
Talk title "Neutron-star mergers in scalar-tensor theories of gravity"
112. Invited talk at the "Strong Gravity beyond GR" workshop, Lisbon, Portugal, March 5 - 8, 2013  
Talk title "Neutron-star mergers in scalar-tensor theories of gravity"
113. 13th Marcel Grossmann Meeting, Stockholm, Sweden, July 1 - 7, 2012.  
Talk titles "The complete non-spinning effective-one-body metric at linear order in the mass ratio"  
"Test bodies and naked singularities: is the self-force the cosmic censor?"  
"The effective-one-body model for spinning black-hole binaries"
114. Relativity and Gravitation, 100 Years after Einstein in Prague, June 25 - 29, 2012, Prague, Czech Republic.  
Talk title "The complete non-spinning effective-one-body metric at linear order in the mass ratio"
115. Astrophysics Colloquium at SISSA, Trieste, Italy, May 15, 2012.  
Title "The evolution of the spins of massive black holes"
116. Invited seminar at the Multidisciplinary Center of Astrophysics (CENTRA), Lisbon, Portugal, May 8, 2012.  
Title "The evolution of the spins of massive black holes"
117. Invited seminar at the Multidisciplinary Center of Astrophysics (CENTRA), Lisbon, Portugal, May 3, 2012.  
Title "Gravitational Self-Force Correction to the Binding Energy of Compact Binary Systems"
118. Invited seminar at the Canadian Institute for Theoretical Astrophysics (CITA), Toronto, April 12, 2012.  
Title "The evolution of the spins of massive black holes"
119. Capra meeting, Southampton (UK), July 5, 2011.  
Talk title "Test bodies and naked singularities: is the self-force the cosmic censor?"
120. Gravity Theory Seminar at the University of Maryland, April 13, 2011.  
Title "Test bodies and naked singularities: is the self-force the cosmic censor?"
121. GReCO seminar at the Institut d'Astrophysique de Paris, April 6, 2011.  
Title "Test bodies and naked singularities: is the self-force the cosmic censor?"
122. Invited talk at "IPMU Workshop on Black Holes", Kashiwa, Japan, 21 - 25 February 2011.  
Title "Test bodies and naked singularities: is the self-force the cosmic censor?"



123. Capra-NRDA, Perimeter Institute, Waterloo, Canada, June 26, 2010.  
Talk title "A new effective-one-body model for spinning black-hole binaries"
124. Seminar at the Astronomy Department, University of Maryland, June 14, 2010.  
Title "Gravitational instabilities of superspinars"
125. Invited seminar at the Institute for the Physics and Mathematics of the Universe (IPMU), Kashiwa, Japan, May 28, 2010.  
Title "Understanding black-hole binaries: a phenomenological approach"
126. Physics colloquium at the University of Mississippi, Oxford, MS, April 6, 2010.  
Title "Hamiltonian of a spinning test-particle in curved spacetime"
127. "April" APS Meeting, Washington DC, February 14, 2010.  
Talk title "Hamiltonian of a spinning test-particle in curved spacetime"
128. Astrophysics seminar at the University of Tuebingen, Germany, January 14, 2010.  
Title "Understanding black-hole binaries: a phenomenological approach"
129. Gravity Theory Seminar at the University of Maryland, November 16, 2009.  
Title "Hamiltonian of a spinning test-particle in curved spacetime"
130. 8th Amaldi Conference on Gravitational Waves, June 21-26, 2009, New York (USA).  
Talk title "Predicting the final spin from the coalescence of two black holes"
131. LISA Astro-GR at Como-Milano, 6-8 February 2008, Como (Italy).  
Talk title "Can we see an accretion torus with EMRIs?"
132. Invited seminar at the Relativity Group at the University of Southampton (United Kingdom), 15 November 2007.  
Title "The effect of the hydrodynamic drag from an accretion torus on extreme mass-ratio inspirals"
133. 30th Spanish relativity Meeting, 10 - 14 September 2007, Tenerife (Spain).  
Talk title "A no-go theorem for polytropic spheres in Palatini  $f(R)$  gravity"
134. 18th International Conference on General Relativity & Gravitation and 7th Edoardo Amaldi Conference on Gravitational Waves, 8 - 14 July 2007, Sydney (Australia).  
Talk title "A no-go theorem for polytropic spheres in Palatini  $f(R)$  gravity"
135. 13th Conference on present problems in theoretical physics, 30 March - 4 April 2007, Vietri Sul Mare (Italy).  
Talk title "Extreme mass ratio inspirals in non-Kerr spacetimes"
136. LISA Astro-GR at the Albert Einstein Institute, 18 - 22 September 2007, Potsdam (Germany).  
Talk title "Extreme mass ratio inspirals in non-Kerr spacetimes"
137. 6th International LISA Symposium, 19 - 23 June 2006, Greenbelt (USA).  
Poster title "Extreme mass ratio inspirals in non-Kerr spacetimes"
138. Seminar at the Numerical Relativity Group at the Albert Einstein Institute, 3 February 2006, Potsdam (Germany).  
Title "Extreme Mass Ratio Inspirals in Quasi-Kerr Spacetimes"
139. 8th Capra Meeting on radiation reaction, 11 - 14 July 2005, Abingdon (United Kingdom).
140. ICTP Summer School on Particle Physics, 13 - 24 June 2005, Trieste (Italy).
141. Italian National School of Astrophysics (7th cycle, 4th course) on Cosmology - Extrasolar planets, 5 - 11 September 2004, Asiago (Italy).

## Teaching

- Coordinator of the PhD course in Astroparticle Physics at SISSA (from 2022)
- Lectures (4 hours) on “Gravitational waves from compact binaries” at Domoschool 23; 17–21 July 2023 (Domodossola, Italy)
- Lectures (6 hours) on “Gravitational waves from compact binaries” at Second Training School of COST Action CA18108 on “Quantum gravity phenomenology in the multi-messenger approach”; Belgrade (Serbia), 3–10 September 2022
- Lectures (4 hours) on “Gravitational waves from compact binaries” at Lake Como School Multi-Messenger Astrophysics, Como (Italy), June 28th - July 2nd, 2021
- Annual graduate-level lectures on gravitational waves at SISSA (18 hours), Italy (from 2017 on)
- Lectures (4 hours) on “Gravitational waves from compact binaries” at School on “Theory of Gravitation and Variation in Cosmology”, online, 12 - 16 April 2021 (<https://conferences.cirm-math.fr/2651.html>)
- Lectures (4 hours) on “Gravitational waves from compact binaries” at Winter School on “Multi-Messenger Astrophysics”, Asiago (Italy), January 14–23, 2020
- Lectures (10 hours) on “Gravitational waves” at school on “Theoretical Aspects of Astroparticle Physics, Cosmology and Gravitation”; Galileo Galilei Institute, Florence (Italy); March 11–22, 2019; available on youtube at [www.youtube.com/watch?v=AMSG5gyhWjM](http://www.youtube.com/watch?v=AMSG5gyhWjM); [www.youtube.com/watch?v=CiRxeEpxpII](http://www.youtube.com/watch?v=CiRxeEpxpII); [www.youtube.com/watch?v=PY16sAuICFE](http://www.youtube.com/watch?v=PY16sAuICFE); [www.youtube.com/watch?v=2v27eJZCroQ](http://www.youtube.com/watch?v=2v27eJZCroQ); [www.youtube.com/watch?v=4UQAC-meFCc](http://www.youtube.com/watch?v=4UQAC-meFCc)
- Lectures (4 hours) at the 12th Tonale Winter School on Cosmology (December 2018), on “Black hole evolution and mergers”
- IAP course on “Gravitational waves” (8 hours, March 2018)
- Lectures on “Gravitational waves” at the 4th CNRS School of Astroparticle Physics, Observatoire de Haute-Provence, Saint Michel l’Observatoire, France, May 27– June 1, 2013 [www.cpt.univ-mrs.fr/~cosmo/WEB\\_EAP\\_13/EcoleAP-0HP13.html](http://www.cpt.univ-mrs.fr/~cosmo/WEB_EAP_13/EcoleAP-0HP13.html)
- Graduate-level lectures on black holes at SISSA (8 hours), Italy, 2–5 December 2013

## Student/Postdoc supervision

- July–September 2014: internship project with a Master student (Z. Belkhadria) from the University of Paris VI, on “Cosmological evolution equations in Lorentz-violating gravity”
- December 2013–October 2014: Master thesis project with M. Bonetti (University of Milan Bicocca, Italy) on “Modified Newtonian dynamics from boost-invariance violations in gravity: the strong coupling problem and its implications for observational tests”
- January 2015 - March 2015: internship project with a Master student (T. Torres) from the University of Paris VII, on “Cosmology in Lorentz-violating gravity”
- September 2015 - January 2016: internship project on “Visualization of hierarchical structure formation”, with 3rd year Maths student at the University of Manchester (L. Ward), visiting Paris under the Erasmus program

- January 2016 - June 2016: supervision of W. Gharbi (undergraduate student at Centrale-Supelec, Paris, enrolled in an excellence curriculum combining study and research)
- January 2015-July 2016: project with D. Anderson (PhD student at Montana State University) on “Cosmological constraints on scalar-tensor theories”
- From January 2015 to December 2017: co-supervision (with F. Haardt and A. Sesana) of M. Bonetti (PhD student at the University of Como, Italy) on “The dynamics of triple massive black-hole systems”
- From October 2015 to October 2018: PhD supervision of O. Ramos, with project on “Effects of Lorentz violations in gravity and cosmology”
- From August 2016 to August 2018: supervision of A. Klein, CNES postdoctoral fellow at IAP
- May-July 2017: supervision of N. Gupta (student at Indian Institute of Technology Kharagpur) during summer project on “Multi-band gravitational-wave astronomy with LIGO and LISA”
- September 2018- September 2021: PhD supervision of A. Dima (SISSA, Italy) on “Black hole super-radiance”
- From October 2018: PhD co-supervision (with S. Babak) of A. Toubiana (APC, France) on “Astrophysical inference with LISA”
- From January 2019: PhD co-supervision (with S. Basak) of K. Dey (IISER TVM, India)
- From September 2019 to September 2022: PhD supervision of G. Lara (SISSA, Italy)
- From September 2019 to May 2022: PhD supervision of L. Ter Haar (SISSA, Italy)
- From May 2019 to December 2019: co-supervision of C. Pacilio (student in Master of High Performance Computing at SISSA), on “Machine learning of gravitational wave data analysis”
- Postdoctoral supervision of M. Bezares (2019-22), N. Franchini (2019-22), M. Crisostomi (2019-23), M. Herrero-Valea (2019-21), S. Voelkel (2019-22), A. Kovacs (2021-23), S. Nampalliwar (2022), M. Rubio (2022 -), J. Sadiq (2023 -), R. Cayuso (2023 -), A. Kuntz (2023 -)
- From September 2020: PhD supervision of Mateja Bošković (SISSA, Italy)
- From September 2022: PhD supervision of Lodovico Capuano and Clemente Smarra (SISSA, Italy)
- From September 2023: PhD supervision of Lorenzo Copparoni (SISSA, Italy)
- From March 2022: Master thesis project with V. Torres (University of Trento, Italy) on “Tests of General Relativity with the LIGO/Virgo o3 data”
- My students and postdocs proceed to take on prestigious positions in the private sector and in academia. For instance, O. Ramos is currently dynamical engineer at the French Space Agency (CNES); N. Gupta works at Facebook; A. Dima is postdoc at the University of Urbana-Illinois (US) and received the prestigious Amaldi Research Center Thesis Prize; A. Toubiana, G. Lara and S. Voelkel are postdocs at the Albert Einstein Institute (Germany); M. Bonetti is postdoc at the university of Milan-Bicocca (Italy); C. Pacilio is postdoc at the University of Rome-Sapienza (Italy); A. Klein is Price Fellow at the University of Birmingham; N. Franchini has a joint postdoc position between APC (Paris) and Stanford; M. Bezares has obtained a permanent lecturer position at the University of Nottingham (UK), etc



## Organization of seminars and conferences

- XXV SIGRAV Conference on General Relativity and Gravitation; Trieste (Italy), Sep 4 – 8, 2023
- Workshop on “GWs meet EFTs”; Benasque (Spain), August 21–25, 2023
- LISA in Copenhagen meeting; Copenhagen (Denmark), August 9–11, 2023
- Workshop on “Lorentz violations in gravity”; Trieste (Italy), July 10–15, 2023
- “1st Trieste meeting on the physics of gravitational waves”; Trieste (Italy), June 5–9, 2023
- Workshop on “Quantum Effective Field Theory and Black Hole Tests of Einstein Gravity”; IFPU (Trieste, Italy), September 12–16 2022
- Online workshop on “Current challenges in gravitational physics”, April 21–28, 2021; <https://grams-815673.wixsite.com/gravityworkshop>
- 3rd meeting of the GWVerse COST action on “Gravitational Waves, Black Holes and Fundamental Physics”, IFPU (Trieste, Italy), January 13–16, 2020
- Workshop on “Fundamental Physics with LISA”, Galileo Galilei Institute, Firenze, Italy, November 12 – 14 2018.
- 34th IAP Conference on “Massive black holes in evolving galaxies: from quasars to quiescence”, Institut d’Astrophysique de Paris, June 25 – 29, 2018
- The “Strong Gravity Universe” workshop, Sao Miguel (Azoras), July 3 – 7, 2017.
- The Era of Gravitational-Wave Astronomy, XXXIIIth International Colloquium of the Institut d’Astrophysique de Paris, June 2017
- Workshop on “Gravity and Experiment”. Paris, December 5 – 9, 2016.
- GRAMPA (GRavitational-wave Astronomy Meeting in PARIS), August 29 – September 2, 2016
- February 2 – 6, 2015: 55-participant workshop at the Lorentz Center (Leiden, Netherlands) on “Compact Objects as Astrophysical and Gravitational Probes”
- February 2013 – October 2014: Organization of the weekly “General Relativity and Cosmology” seminars at the Institut d’Astrophysique de Paris

**Journal refereeing:** Physical Review D, Physical Review X, Physical Review Letters, Nature Astronomy, Classical and Quantum Gravity, Monthly Notices of the Royal Astronomical Society, Astrophysical Journal, Nature Communications, Physics Letters A, Physics Letters B, Astronomy and Astrophysics, Journal of Cosmology and Astroparticle Physics, Foundations of Physics, General Relativity and Gravitation, European Physical Journal C, European Journal of Physics, International Journal of Modern Physics D, Physics of the Dark Universe

**Editorial Board:** Classical and Quantum Gravity

**Referee for supercomputing proposals:** Ohio Supercomputer Center

**Reviewer/committee member for funding agencies/universities:** Netherlands Organisation for Scientific Research (NWO), Natural Sciences and Engineering Research Council of Canada (NSERC), PRIN program of the MIUR (Ministry of Education and Research, Italy), Rita Levi Montalcini fellowships (Italy), FNRS (Belgium), Royal Society (UK), Research Grants Council (RGC, Hong Kong), KU Leuven (Belgium),



Université Franco-Italienne (UFI), National Science Center (Poland; referee and panel), Science and Technology Facilities Council (UK), Amaldi Research Center (Italy), United States-Israel Binational Science Foundation, Agence Nationale de la Recherche (ANR, France; panel), National Science Foundation (USA), GWIC-Braccini Thesis Prize; SNSF Starting Grants (Switzerland; panel)

**External Referee/Examiner for PhD Defenses/Vivas:** M. C. Guzzetti (University of Padova, Italy, 2017); J. Goldstein (University of Birmingham, UK, 2020); Danny Laghi (University of Pisa, Italy, 2021); Kevin Zambello and Michele Pasquali (University of Parma, Italy, 2021); Elisa Maggio, Andrea Di Biagio, Salvatore Mancani, Gabriel Piovano (University of Rome Sapienza, Italy), Konstantin Leyde (APC Paris, 2023)

**Consultancy:** The Implementation Group, Inc.

**Collaborations:** Member of the LISA consortium (full member; chair of workpackage on “Catalog design” till 2021; co-chair of Fundamental Physics Working Group from 2023); member of the European Pulsar Timing Array (EPTA) collaboration; chair of the “Gravitational input” Working Group of the Event Horizon Telescope (Jan-Dec 2020); invited member of the Astrophysics Working Group at the Italian Space Agency

## Public lectures and outreach movies

- Public lecture on “Cosa sono i buchi neri?” (“What are black holes?”, in Italian), Stazione di Topolò (Italy), 2022
- Public lecture on “The sound of the Universe: detecting gravitational waves in space with LISA”, during the “Irish Quantum Foundations 2017 meeting”, Dublin (Ireland), 25-26 May 2017.
- Outreach movie (25 min) on “The quest for Dark Gravity”, <https://vimeo.com/806756269>

## Citations in blogs and press, outreach articles

- Blog on my work on dark matter and pulsar timing arrays: <https://astrobites.org/2023/10/25/dm-surfin-pta/>
- News story on my work on using EPTA data to test dark matter paradigms and massive black hole population models: <https://www.media.inaf.it/2023/06/29/1e-pulsar-ci-svelano-il-respiro-dello-spazio>  
[https://ilpiccolo.gelocal.it/trieste/cronaca/2023/07/08/news/ecco\\_come\\_respira\\_universo\\_onde\\_gravitazionali\\_sissa\\_triESTE-12930263/](https://ilpiccolo.gelocal.it/trieste/cronaca/2023/07/08/news/ecco_come_respira_universo_onde_gravitazionali_sissa_triESTE-12930263/)
- News stories about my work on environmental effects on gravitational waveforms: <https://physics.aps.org/articles/v16/s82>
- Various news stories on my work on binary neutron stars beyond general relativity, e.g. [www.sciencedaily.com/releases/2022/03/220303112014.htm](http://www.sciencedaily.com/releases/2022/03/220303112014.htm), [www.techexplorist.com/dark-energy-illusion/45107/](http://www.techexplorist.com/dark-energy-illusion/45107/), and many more
- Radio interviews (in Italian) for RAI FVG:  
[www.rai.it/dl/portali/site/articolo/ContentItem-7270551c-a2e6-40d3-8f20-e6c93d865a25.html](http://www.rai.it/dl/portali/site/articolo/ContentItem-7270551c-a2e6-40d3-8f20-e6c93d865a25.html)  
[www.sedefvg.rai.it/dl/portali/site/articolo/ContentItem-7270551c-a2e6-40d3-8f20-e6c93d865a25.html](http://www.sedefvg.rai.it/dl/portali/site/articolo/ContentItem-7270551c-a2e6-40d3-8f20-e6c93d865a25.html)
- Interview on TV Koper (in Italian): [www.rtvsl0.si/4d/arhiv/174739324?s=tv\\_ita](http://www.rtvsl0.si/4d/arhiv/174739324?s=tv_ita)

- Various news stories (in English, French and Italian) on my work on black-hole hairs: [www.media.inaf.it/2020/12/09/buchi-neri-la-ricrescita-si-vede/](http://www.media.inaf.it/2020/12/09/buchi-neri-la-ricrescita-si-vede/), [aboutmanchester.co.uk/research-shows-black-holes-can-grow-hair-when-spinning/](http://aboutmanchester.co.uk/research-shows-black-holes-can-grow-hair-when-spinning/), [www.miragenews.com/research-shows-black-holes-can-grow-hair-when-spinning/](http://www.miragenews.com/research-shows-black-holes-can-grow-hair-when-spinning/), [news-24.fr/les-trous-noirs-peuvent-faire-pousser-des-cheveux-lorsqu'ils-tournent-assez-vite-dans-une-rotation-rapide/](http://news-24.fr/les-trous-noirs-peuvent-faire-pousser-des-cheveux-lorsqu'ils-tournent-assez-vite-dans-une-rotation-rapide/), [www.rt.com/news/509115-black-holes-grow-hair-spinning/](http://www.rt.com/news/509115-black-holes-grow-hair-spinning/), [www.editorials360.com/2020/12/10/black-holes-can-develop-hair-when-spinning-quick-sufficient-in-dimension/](http://www.editorials360.com/2020/12/10/black-holes-can-develop-hair-when-spinning-quick-sufficient-in-dimension/), [www.globalscience.it/24359/alcuni-buchi-neri-hanno-i-capelli/](http://www.globalscience.it/24359/alcuni-buchi-neri-hanno-i-capelli/), [www.triestecafe.it/it/news/cronaca/i-buchi-neri-non-sono-tutti-uguali-nuovo-studio-su-physical-rev.html](http://www.triestecafe.it/it/news/cronaca/i-buchi-neri-non-sono-tutti-uguali-nuovo-studio-su-physical-rev.html), <https://scitechdaily.com/black-holes-gain-new-powers-when-they-spin-fast-enough/>)
- Interview for ANSA (the leading Italian news organization), [www.ansa.it/friuliveneziagiulia/notizie/2020/06/20/einstein-aveva-ragione-dai-buchi-neri-la-risposta-e522aa6e-9405-4385-ad39-2741136226f2.html](http://www.ansa.it/friuliveneziagiulia/notizie/2020/06/20/einstein-aveva-ragione-dai-buchi-neri-la-risposta-e522aa6e-9405-4385-ad39-2741136226f2.html)
- Article (in Italian) on the challenges of gravitational wave astrophysics, on local newspaper “Il Piccolo”, <http://gssi.telpress.it/news/2020/03/17/2020031700790515555.PDF>
- Youtube video on ERC Consolidator Grant GRAMS (GRAvity from Astrophysical to Microscopic Scales), [www.youtube.com/watch?v=4sfq53n42MI](http://www.youtube.com/watch?v=4sfq53n42MI)
- CGQ+ article “Gravitational waves measure colour of black holes”, <https://cqgplus.com/2018/10/03/gravitational-waves-measure-colour-of-black-holes/>
- At least twelve news stories about my work on ultralight bosons: <https://aps.altmetric.com/details/26661330/news>
- BBC radio program on the GRAMPA 2016 meeting I organized in Paris [www.bbc.co.uk/programmes/b07q2dg8#play](http://www.bbc.co.uk/programmes/b07q2dg8#play), [www.bbc.co.uk/programmes/p0460fgv](http://www.bbc.co.uk/programmes/p0460fgv)
- Discovery of Gravitational Waves – What Comes Next [www.spacedaily.com/reports/Discovery\\_of\\_Gravitational\\_Waves\\_\\_\\_What\\_Comes\\_Next\\_999.html](http://www.spacedaily.com/reports/Discovery_of_Gravitational_Waves___What_Comes_Next_999.html)
- Gravitational physics poised for new era of discovery, <http://phys.org/news/2016-06-gravitational-physics-poised-era-discovery.html>, [www.montana.edu/news/16242/gravitational-physics-poised-for-new-era-of-discovery](http://www.montana.edu/news/16242/gravitational-physics-poised-for-new-era-of-discovery)
- MSU Physicist Advances Our Understanding of Nature, <http://kmmsam.com/msu-physicist-advances-our-understanding-of-nature>
- Binary pulsars vs absolute time : the final battle, April 2014, [www.iap.fr/actualites/avoir/2014/Avril/EnricoBarausse.html](http://www.iap.fr/actualites/avoir/2014/Avril/EnricoBarausse.html)
- Black holes hold their breath... and dodge the bullet, “The photon – UMD Physics Newsletter”, February 2011, [www.umdphysics.umd.edu/images/photon/2011/februaryphoton.pdf](http://www.umdphysics.umd.edu/images/photon/2011/februaryphoton.pdf)
- Rachel Courtland, Superhero move may save black holes from nakedness, New Scientist (2010), [www.newscientist.com/article/dn19899-superhero-move-may-save-black-holes-from-nakedness.html](http://www.newscientist.com/article/dn19899-superhero-move-may-save-black-holes-from-nakedness.html)
- Naked singularities have permanent clothes, <http://physicsbuzz.physicscentral.com/2010/12/naked-singularities-have-permanent.html>