Publications list – Sunny Vagnozzi

This list includes both published papers and preprints, last updated January 5, 2024
Bibliometric metrics: 67 papers (64 published/accepted for publication), 8501 citations, 133.5 average citations/published paper, h-index=50, m-index≃5.5 (computed from INSPIRE). For a continuously up-to-date bibliography and more bibliometric information, please refer to my INSPIRE, ADS, and Google Scholar profiles

Important note on authorship practices
Author ordering in high-energy physics and gravitation is conventionally alphabetical, whereas in astrophysics it is conventionally based on contribution. Cosmology is at the boundary of these two fields, meaning that the two authorship practices are often mixed in my works. In rare cases, all authors contributed equally to the work, which is thus signed alphabetically. In addition, several of my works (especially earlier in my career) are purely in the fields of high-energy physics and gravitation, and hence adhere to strict alphabetical ordering.

In the following, papers marked with an asterisk* are signed alphabetically

1. L. Giani, C. Howlett, K. Said, T. Davis & **S. Vagnozzi**, "*An effective description of Laniakea and its backreaction: Impact on Cosmology and the local determination of the Hubble constant*", accepted for publication in JCAP [`arXiv:2311.00215`]
   0 citations

2. Y.-D. Tsai, D. Farnocchia, M. Micheli, **S. Vagnozzi** & L. Visinelli, "*Constraints on fifth forces and ultralight dark matter from OSIRIS-REx target asteroid Bennu*", under review in Nat. Commun. [`arXiv:2309.13106`]
   3 citations

3. **S. Vagnozzi**, "*Seven hints that early-time new physics alone is not sufficient to solve the Hubble tension*, Universe **9** (2023) 393 [`arXiv:2308.16628`], invited feature paper
   32 citations

4. L. A. Escamilla, W. Giarè, E. Di Valentino, R. C. Nunes & **S. Vagnozzi**, "*The state of the dark energy equation of state circa 2023*, under review in JCAP [`arXiv:2307.14802`]
   17 citations

5.* S. A. Adil, U. Mukhopadhyay, A. A. Sen & **S. Vagnozzi**, "*Dark energy in light of the early JWST observations: case for a negative cosmological constant?*, JCAP **2310** (2023) 072 [`arXiv:2307.12763`]
   12 citations

6. **S. Vagnozzi**, "*Inflationary interpretation of the stochastic gravitational wave background signal detected by pulsar timing array experiments*", JHEAp **39** (2023) 81 [`arXiv:2306.16912`]
   92 citations

7. M. Afrin, **S. Vagnozzi** & S. G. Ghosh, "*Tests of Loop Quantum Gravity from the Event Horizon Telescope results of Sgr A**", Astrophys. J. **944** (2023) 149 [`arXiv:2209.12584`]
   33 citations

8. **S. Vagnozzi** & A. Loeb, "*The challenge of ruling out inflation via the primordial graviton background*", Astrophys. J. Lett. **939** (2022) L22 [`arXiv:2208.14088`]
   23 citations

9. I. Tanseri, S. Hagstotz, **S. Vagnozzi**, E. Giusarma & K. Freese, "*Updated neutrino mass constraints from galaxy clustering and CMB lensing-galaxy cross-correlation measurements*", JHEAp **36** (2022) 1 [arXiv:2207.01913]
26 citations

10. A. Reeves, L. Herold, **S. Vagnozzi**, B. D. Sherwin & E. G. M. Ferreira, "*Restoring cosmological concordance with early dark energy and massive neutrinos?*", Mon. Not. Roy. Astron. Soc. **520** (2023) 3688 [arXiv:2207.01501]
57 citations

11.* **S. Vagnozzi** & L. Visinelli, "*Note on fundamental physics tests from black hole imaging: Comment on "Hunting for extra dimensions in the shadow of Sagittarius $A^\star$"*", Res. Notes AAS **6** (2022) 106 [arXiv:2205.11314]
6 citations

12. **S. Vagnozzi**, R. Roy, Y.-D. Tsai, L. Visinelli, M. Afrin, A. Allahyari, P. Bambhaniya, D. Dey, S. G. Ghosh, P. S. Joshi, K. Jusufi, M. Khodadi, R. Kumar Walia, A. Övgün & C. Bambi "*Horizon-scale tests of gravity theories and fundamental physics from the Event Horizon Telescope image of Sagittarius A^**", Class. Quant. Grav. **40** (2023) 165007 [arXiv:2205.07787]
248 citations

13.* Y. Chen, R. Roy, **S. Vagnozzi**, & L. Visinelli, "*Superradiant evolution of the shadow and photon ring of Sgr $A^\star$*", Phys. Rev. D **106** (2022) 043021 [arXiv:2205.06238]
72 citations

14. R. C. Nunes, **S. Vagnozzi**, S. Kumar, E. Di Valentino & O. Mena, "*New tests of dark sector interactions from the full-shape galaxy power spectrum*", Phys. Rev. D **105** (2022) 123506 [arXiv:2203.08093]
54 citations

15. F. Ferlito, **S. Vagnozzi**, D. F. Mota & M. Baldi, "*Cosmological direct detection of dark energy: non-linear structure formation signatures of dark energy scattering with visible matter*", Mon. Not. Roy. Astron. Soc. **512** (2022) 1885 [arXiv:2201.04528]
28 citations

16.* R. Roy, **S. Vagnozzi** & L. Visinelli, "*Superradiance evolution of black hole shadows revisited*", Phys. Rev. D **105** (2022) 083002 [arXiv:2112.06932]
77 citations

17.* M. Benetti, L. L. Graef & **S. Vagnozzi**, "*Primordial gravitational waves from NANOGrav: a broken power-law approach*", Phys. Rev. D **105** (2022) 043520 [arXiv:2111.04758]
86 citations

18. Y.-D. Tsai, Y. Wu, **S. Vagnozzi** & L. Visinelli, "*Novel constraints on fifth forces and ultralight dark sector with asteroidal data*", JCAP **2304** (2023) 031 [arXiv:2107.04038]
27 citations

19.* R. C. Nunes & **S. Vagnozzi**, "*Arbitrating the S_8 discrepancy with growth rate measurements from Redshift-Space Distortions*", Mon. Not. Roy. Astron. Soc. **505** (2021) 5427 [arXiv:2106.01208]
107 citations

20. **S. Vagnozzi**, "*Consistency tests of ΛCDM from the early integrated Sachs-Wolfe effect: implications for early-time new physics and the Hubble tension*", Phys. Rev. D **104** (2021) 063524 [arXiv:2105.10425]
135 citations

21. **S. Vagnozzi**, F. Pacucci & A. Loeb, "*Implications for the Hubble tension from the ages of the oldest astrophysical objects*", JHEAp **36** (2022) 27 [arXiv:2105.10421]
76 citations

22. S. Dhawan, J. Alsing & **S. Vagnozzi**, "*Non-parametric spatial curvature inference using late-Universe cosmological probes*", Mon. Not. Roy. Astron. Soc. Lett. **506** (2021) L1 [arXiv:2104.02485]
83 citations

23. **S. Vagnozzi**, L. Visinelli, P. Brax, A.-C. Davis & J. Sakstein "*Direct detection of dark energy: the XENON1T excess and future prospects*", Phys. Rev. D **104** (2021) 063023 [arXiv:2103.15834], winner of the 2021 *Buchalter Cosmology Prize* (3° prize)
44 citations

24. **S. Vagnozzi**, A. Loeb & M. Moresco, "*Eppur è piatto? The cosmic chronometers take on spatial curvature and cosmic concordance*", Astrophys. J. **908** (2021) 84 [arXiv:2011.11645]
133 citations

25. **S. Vagnozzi**, E. Di Valentino, S. Gariazzo, A. Melchiorri, O. Mena & J. Silk "*The galaxy power spectrum take on spatial curvature and cosmic concordance*", Phys. Dark Univ. **33** (2021) 100851 [arXiv:2010.02230]
107 citations

26. **S. Vagnozzi**, "*Implications of the NANOGrav results for inflation*", Mon. Not. Roy. Astron. Soc. Lett. **502** (2021) L11 [arXiv:2009.13432]
153 citations

27. M. Khodadi, A. Allahyari, **S. Vagnozzi** & D. F. Mota, "*Black holes with scalar hair in light of the Event Horizon Telescope*", JCAP **2009** (2020) 026 [arXiv:2005.05992]
186 citations

28.* E. Di Valentino, S. Gariazzo, O. Mena & **S. Vagnozzi**, "*Soundness of Dark Energy properties*", JCAP **2007** (2020) 045 [arXiv:2005.02062]
41 citations

29. S. Hagstotz, P. F. de Salas, S. Gariazzo, S. Pastor, M. Gerbino, M. Lattanzi, **S. Vagnozzi** & K. Freese, "*Bounds on light sterile neutrino mass and mixing from cosmology and laboratory searches*", Phys. Rev. D **104** (2021) 123524 [arXiv:2003.02289]
75 citations

30. **S. Vagnozzi**, C. Bambi & L. Visinelli, "*Concerns regarding the use of black hole shadows as standard rulers*", Class. Quant. Grav. **37** (2020) 087001 [arXiv:2001.02986]
89 citations

31. A. Allahyari, M. Khodadi, **S. Vagnozzi** & D. F. Mota, "*Magnetically charged black holes from non-linear electrodynamics and the Event Horizon Telescope*", JCAP **2002** (2020) 003 [arXiv:1912.08231]
194 citations

32. **S. Vagnozzi**, L. Visinelli, O. Mena & D. F. Mota, "*Do we have any hope of detecting scattering between dark energy and baryons through cosmology?*", Mon. Not. Roy. Astron. Soc. **493** (2020) 1139 [arXiv:1911.12374]
65 citations

33.* E. Di Valentino, A. Melchiorri, O. Mena & **S. Vagnozzi**, "*Nonminimal dark sector physics and cosmological tensions*", Phys. Rev. D **101** (2020) 063502 [arXiv:1910.09853]
276 citations

34.* E. Di Valentino, A. Melchiorri, O. Mena & **S. Vagnozzi**, "*Interacting dark energy in the early 2020s: a promising solution to the H_0 and cosmic shear tensions*", Phys. Dark Univ. **30** (2020) 100666 [arXiv:1908.04281]
298 citations

35. M. H. Abitbol *et al.* (incl. **S. Vagnozzi**, *Simons Observatory* collaboration), "*The Simons Observatory: Astro2020 Decadal Project Whitepaper*", Bull. Am. Astron. Soc. **51** (2019) 147 [arXiv:1907.08284], in response to the Astro2020 APC White Papers call
133 citations

36. L. Visinelli, **S. Vagnozzi** & U. Danielsson, "*Revisiting a negative cosmological constant in light of low-redshift data*", Symmetry **11** (2019) 1035 [arXiv:1907.07953], invited feature paper, selected as an *Editors' Suggestion*
111 citations

37. **S. Vagnozzi**, "*New physics in light of the H_0 tension: an alternative view*", Phys. Rev. D **102** (2020) 023518 [arXiv:1907.07569]
348 citations

38. W. Yang, S. Pan, **S. Vagnozzi**, E. Di Valentino, D. F. Mota & S. Capozziello, "*Dawn of the dark: unified dark sectors and the EDGES Cosmic Dawn 21-cm signal*", JCAP **1911** (2019) 044 [arXiv:1907.05344]
61 citations

39.* **S. Vagnozzi** & L. Visinelli, "*Hunting for extra dimensions in the shadow of M87**", Phys. Rev. D **100** (2019) 024020 [arXiv:1905.12421]
244 citations

40. W. Yang, **S. Vagnozzi**, E. Di Valentino, R. C. Nunes, S. Pan & D. F. Mota, "*Listening to the sound of dark sector interactions with gravitational wave standard sirens*", JCAP **1907** (2019) 037, winner of the 2022 *China Top Cited Paper Award* (Astronomy and Astrophysics category) [arXiv:1905.08286]
81 citations

41.* C. Bambi, K. Freese, **S. Vagnozzi** & L. Visinelli, "*Testing the rotational nature of the supermassive object M87* from the circularity and size of its first image*", Phys. Rev. D **100** (2019) 044057 [arXiv:1904.12983]
276 citations

42.* A. Casalino, M. Rinaldi, L. Sebastiani & **S. Vagnozzi**, "*Alive and well: mimetic gravity and a higher-order extension in light of GW170817*", Class. Quant. Grav. **36** (2019) 017001 [arXiv:1811.06830]
84 citations

43. L. Visinelli & **S. Vagnozzi**, "*Cosmological window onto the string axiverse and the supersymmetry breaking scale*", Phys. Rev. D **99** (2019) 063517 [arXiv:1809.06382]
104 citations

44. P. Ade *et al.* (incl. **S. Vagnozzi**, *Simons Observatory* collaboration), "*The Simons Observatory: science goals and forecasts*", JCAP **1902** (2019) 056 [arXiv:1808.07445]
1017 citations

45.* W. H. Kinney, **S. Vagnozzi** & L. Visinelli, "*The zoo plot meets the swampland: mutual (in)consistency of single-field inflation, string conjectures, and cosmological data*, Class. Quant. Grav. **36** (2019) 117001 [arXiv:1808.06424]
183 citations

46. **S. Vagnozzi**, T. Brinckmann, M. Archidiacono, K. Freese, M. Gerbino, J. Lesgourgues & T. Sprenger, "*Bias due to neutrinos must not uncorrect'd go*", JCAP **1809** (2018) 001 [arXiv:1807.04672]
68 citations

47. W. Yang, S. Pan, E. Di Valentino, R. C. Nunes, **S. Vagnozzi** & D. F. Mota, "*Tale of stable interacting dark energy, observational signatures, and the H_0 tension*", JCAP **1809** (2018) 019 [arXiv:1805.08252], winner of the 2021 *China Top Cited Paper Award* (Astronomy and Astrophysics category)
272 citations

48.* A. Casalino, M. Rinaldi, L. Sebastiani & **S. Vagnozzi**, "*Mimicking dark matter and dark energy in a mimetic model compatible with GW170817*", Phys. Dark Univ. **22** (2018) 108 [arXiv:1803.02620]
88 citations

49. E. Giusarma, **S. Vagnozzi**, S. Ho, S. Ferraro, K. Freese, R. Kamen-Rubio & K.-B. Luk "*Scale-dependent galaxy bias, CMB lensing-galaxy cross-correlation, and neutrino masses*", Phys. Rev. D **98** (2018) 123526 [arXiv:1802.08694]
92 citations

50. **S. Vagnozzi**, S. Dhawan, M. Gerbino, K. Freese, A. Goobar & O. Mena "*Constraints on the sum of the neutrino masses in dynamical dark energy models with $w(z) \geq -1$ are tighter than those obtained in ΛCDM*", Phys. Rev. D **98** (2018) 083501 [arXiv:1801.08553]
165 citations

51.* J. Dutta, W. Khyllep, E. N. Saridakis, N. Tamanini & **S. Vagnozzi**, "*Cosmological dynamics of mimetic gravity*", JCAP **1802** (2018) 041 [arXiv:1711.07290], winner of the 2021 *India Top Cited Paper Award* (Astronomy and Astrophysics category)
102 citations

52. L. Visinelli, N. Bolis & **S. Vagnozzi**, "*Brane-world extra dimensions in light of GW170817*", Phys. Rev. D **97** (2018) 064039 [arXiv:1711.06628]
121 citations

53. **S. Vagnozzi**, "*Recovering a MOND-like acceleration law in mimetic gravity*", Class. Quant. Grav. **34** (2017) 185006 [arXiv:1708.00603]
76 citations

54. **S. Vagnozzi**, "*New solar metallicity measurements*", Atoms **7** (2019) 41 (Proceedings of the 51st Rencontres de Moriond, Cosmology Session, ARISF (2016) 175) [arXiv:1703.10834]
19 citations

55. T. Schwetz, K. Freese, M. Gerbino, E. Giusarma, S. Hannestad, M. Lattanzi, O. Mena & **S. Vagnozzi**, "*Comment on "Strong Evidence for the Normal Neutrino Hierarchy"*" [arXiv:1703.04585]
46 citations

56. **S. Vagnozzi**, E. Giusarma, O. Mena, K. Freese, M. Gerbino, S. Ho & M. Lattanzi, "*Unveiling ν secrets with cosmological data: neutrino masses and mass hierarchy*", Phys. Rev. D **96** (2017) 123503 [arXiv:1701.08172], results quoted in the Review of Particle Physics
347 citations

57. L. Sebastiani, **S. Vagnozzi** & R. Myrzakulov, "*Mimetic gravity: a review of recent developments and applications to cosmology and astrophysics*", Adv. High Energy Phys. **2017** (2017) 3156915 [arXiv:1612.08661], invited review
224 citations

58. M. Gerbino, K. Freese, **S. Vagnozzi**, M. Lattanzi, O. Mena, E. Giusarma & S. Ho, "*Impact of neutrino properties on the estimation of inflationary parameters from current and future observations*", Phys. Rev. D **95** (2017) 043512 [arXiv:1610.08830]
80 citations

59. E. Giusarma, M. Gerbino, O. Mena, **S. Vagnozzi**, S. Ho & K. Freese, "*Improvement of cosmological neutrino mass bounds*", Phys. Rev. D **94** (2016) 083522 [arXiv:1605.04320], results quoted in the Review of Particle Physics
171 citations

60. **S. Vagnozzi**, K. Freese & T. H. Zurbuchen, "*Solar models in light of new high metallicity measurements from solar wind data*", Astrophys. J. **839** (2017) 55 [arXiv:1603.05960]
30 citations

61.* R. Foot & **S. Vagnozzi**, "*Solving the small-scale structure puzzles with dissipative dark matter*", JCAP **1607** (2016) 013 [arXiv:1602.02467]
127 citations

62.* G. Cognola, R. Myrzakulov, L. Sebastiani, **S. Vagnozzi** & S. Zerbini "*Covariant Hořava-like and mimetic Horndeski gravity: cosmological solutions and perturbations*", Class. Quant. Grav. **33** (2016) 225014 [arXiv:1601.00102]
111 citations

63.* R. Myrzakulov, L. Sebastiani, **S. Vagnozzi** & S. Zerbini, "*Static spherically symmetric solutions in mimetic gravity: rotation curves & wormholes*", Class. Quant. Grav. **33** (2016) 125005 [arXiv:1510.02284]
145 citations

64.* R. Myrzakulov, L. Sebastiani, **S. Vagnozzi** & S. Zerbini, "*Mimetic covariant renormalizable gravity*", Fund. J. Mod. Phys. **8** 2 (2015) 119 [arXiv:1505.03115], invited contribution
34 citations

65.* R. Myrzakulov, L. Sebastiani & **S. Vagnozzi**, "*Inflation in $f(R,\phi)$ theories and mimetic gravity scenario*", Eur. Phys. J. C **75** (2015) 444 [arXiv:1504.07984]
170 citations

66.* R. Foot & **S. Vagnozzi**, "*Diurnal modulation signal from dissipative hidden sector dark matter*", Phys. Lett. B **748** (2015) 61 [`arXiv:1412.0762`]
106 citations

67.* R. Foot & **S. Vagnozzi**, "*Dissipative hidden sector dark matter*", Phys. Rev. D **91** (2015) 023512 [`arXiv:1409.7174`], selected as an *Editors' Suggestion*
287 citations

Impact breakdown according to the traditional INSPIRE classification:

- 1 renown paper (500+ citations)
- 7 famous papers (250-499 citations)
- 23 very well-known papers (100-249 citations)
- 19 well-known papers (50-99 citations)

Other academic works

1. **S. Vagnozzi**, "*Viva la revolución cosmológica*", Nat. Astron. **4** (2020) 312, invited book review on "*The Cosmic Revolutionary's Handbook*" (*Cambridge University Press*) by L. A. Barnes and G. F. Lewis
2. **S. Vagnozzi**, "*Weigh them all! - Cosmological searches for the neutrino mass scale and mass ordering*", PhD thesis at the Department of Physics, Stockholm University (ISBN 978-91-7797-729-2), winner of the Springer Thesis Award and published in the *Springer Theses* series (ISBN 978-3-030-53502-5) [`arXiv:1907.08010`]