Valerio MARRA – Curriculum Vitae

June 25, 2023

Cosmo-ufes & Physics Department,
Federal University of Espírito Santo (UFES)

Astronomical Observatory of Trieste,
National Institute for Astrophysics (INAF)

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Citizenship: Italian
Languages: Italian (native), English (fluent), Portuguese (fluent)

Main Areas of Research

Theoretical Cosmology – Dark Energy and Dark Matter – Gravitational Lensing – Large Scale Structure – Inhomogeneous Cosmological Models – Numerical simulations – Data Analysis – Astrophysics of Galaxies

Education

Department of Physics, University of Padova, Italy.
Ph.D. in Physics, January 2005 – December 2007; graduation: March 14, 2008.
Thesis: *A Back-Reaction Approach to Dark Energy* (128 pages), arXiv:0803.3152.
Advisor: Prof. Sabino Matarrese.

Department of Physics, University of Padova, Italy.
Master's degree (Laurea V.O.) in Physics, October 1999 – October 2004; graduation: October 12, 2004.
Thesis: *Fundamental constants and their variation induced by a cosmological scalar* (115 pages, in Italian).
Advisor: Prof. Antonio Masiero. Final grade: 110/110 magna cum laude.

Present Position

Physics Department, Federal University of Espírito Santo, Brazil.
Assistant Professor (Professor Adjunto), November 10, 2014 – present day.

Astronomical Observatory of Trieste, National Institute for Astrophysics, Italy.
Associated Researcher, September 1, 2020 – present day.

Previous Positions

Astronomical Observatory of Trieste, National Institute for Astrophysics, Italy.
Marie Skłodowska-Curie Fellow, September 1, 2020 – February 28, 2022.
Host: Stefano Borgani.

Physics Institute, Federal University of Rio de Janeiro, Brazil.
"Science without Borders" Fellow, April 1, 2014 – October 31, 2014.
Group leader: Prof. Ioav Waga.

Institute for Theoretical Physics, Heidelberg University, Germany.
Postdoctoral Fellow, October 1, 2011 – March 31, 2014.
Group leader: Prof. Luca Amendola.

Department of Physics, University of Jyväskylä, Finland and
Helsinki Institute of Physics, University of Helsinki, Finland.
Postdoctoral Fellow, October 1, 2008 – September 30, 2011.
Group leader: Prof. Kimmo Kainulainen.

Visiting Positions

Kavli Institute for Cosmological Physics (KICP), The University of Chicago, USA.
Visiting Postdoctoral Fellow, May-September 2008.
Collaboration with Prof. Edward W. Kolb.

Department of Astronomy and Astrophysics, The University of Chicago, USA.
Visiting Ph.D. Student, January-December 2007.
Collaboration with Prof. Edward W. Kolb.

International Collaborations

- Member of the Einstein Telescope (ET) collaboration via the BETS Brazilian Research Unit, May 2023 – present day.
- PI in the LSST Brazilian Participation Group and member of LSST Dark Energy Science Collaboration, July 2019 – present day.
- Member of the J-PLUS collaboration, February 2019 – present day.
- Member of the J-PAS collaboration, December 2014 – present day. Coordinator of the "Large Scale Structure" Science Working Group, November 2018 – present day. Coordinator of "Data Validation", June 2019 – present day.
- Member of the Euclid Consortium, March 2013 – March 2014. External collaborator, April 2014 – present day (change due to the present non-European affiliation). Coordinator of the Work Package 5 "Deviations from Homogeneity and Isotropy" of the Theory Science Working Group between March 2013 – September 2017.

Professional Service

- Dean of the PhD program PPGCosmo, July 2022 – present.
- Head of the UFES undergraduate distance-learning course in Physics, March 2018 – August 2020.
- Member of the Brazilian Physical Society, April 2014 – present.
- Member of the Master and PhD program PPGFis, founding member of the PhD program PPGCosmo.
- INAF (National Institute for Astrophysics) associate, Trieste division, 2020 – present day.
- INFN (National Institute of Nuclear Physics) associate, Padova division, 2005 — 2008.

Italian National Scientific Qualification

- Competition sector 02/A2 (theoretical physics of fundamental interactions), fascia I (full professor). Valid from September 4, 2019 to September 4, 2030.
- Competition sector 02/A2 (theoretical physics of fundamental interactions), fascia II (associate professor). Valid from September 4, 2019 to September 4, 2030.
- Competition sector 02/C1 (astronomy, astrophysics, Earth and planetary physics), fascia II (associate professor). Valid from September 2, 2019 to September 2, 2030.

Grants and Awards (last 5 years, won as proponent)

- 2023, my former student David Camarena won the 2023 ICTP-SAIFR Prize in Classical Gravity and Applications for best PhD thesis.
- 2023 – present day, researcher 1D fellowship of CNPq (highest tier 1/level D recognition).
- 2020 – present day, over 5.5 million CPU hours as PI at Italian and Brazilian Tier-0 supercomputers.

- 2020 – 2022, Marie Skłodowska-Curie fellowship of the call H2020-MSCA-IF-2019 (€137605).
- 2017 – present day, FAPES: Universal (R$14580), Apoio à organização de eventos (R$13000, R$5500).
- 2017 – present day, CNPq: Universal (R$21000), ARC (R$16000), PQ (R$145200), AVG (R$3120).

Reviewer for the funding agencies:

1. *Advisory Committee of the Santos Dumont supercomputer*, Brazil. 2022 – ongoing.
2. *Marie Skłodowska-Curie Postdoctoral Fellowships*, European Commission. 2022 – ongoing.
3. *Agencia Nacional de Investigación y Desarrollo*, Chile. 2021 – ongoing.
4. *Narodowe Centrum Nauki*, Poland. 2019 – ongoing.
5. *Marsden Fund*, New Zealand. 2019 – ongoing.
6. *Conselho Nacional de Desenvolvimento Científico e Tecnológico*, Brazil. 2018 – ongoing.
7. *Fundação de Amparo à Pesquisa e Inovação do Espírito Santo*, Brazil. 2018 – ongoing.

Teaching

Lecturer, Federal University of Espírito Santo, Brazil

Graduate courses in Physics (60 hours, 4h per week, 1 semester, equivalent to approximately 8 CFU):

- Bayesian Inference (2016-1, 2017-2, 2019-1)
- General Relativity (2016-2)

Undergraduate courses in Physics (60 hours, 4h per week, 1 semester, equivalent to approximately 8 CFU):

- Electromagnetism (2015-1, 2017-1)
- Astrophysics (2019-2)
- Modern Physics I (2015-2, 2018-2, 2022-1)
- Modern Physics II (2022-1)
- Special Relativity (2015-2)
- General Relativity (2016-1, 2016-2, 2020-1)
- Statistical Physics (2017-1)
- Condensed Matter (2015-1)

Undergraduate distance-learning courses in Physics (15 weeks, 2h sync. + 2h async. per week, 1 semester):

- Mechanics (2017-1)
- Statistics (2018-1)
- Calculus I (2017-2)
- Calculus II (2017-2)
- Linear Algebra (2022-2)
- Physics 4 (2023-1)
- Electromagnetism (2018-1, 2019-1, 2020-1)

Teaching Assistant, Heidelberg University, Germany

Undergraduate courses in Physics (2h per week, 1 semester):

- General Relativity (2012-1)
- Computational Statistics (2013-1)
- Cosmology (2013-2)

Teaching Assistant, University of Jyväskylä, Finland

Undergraduate courses in Physics (2h per week, 1 semester):

- Cosmology (2010-1)

Advising

Postdoctoral fellows (supervisor):

- Pedro da Silveira Ferreira (ongoing – PPGCosmo/UFES, Brazil)
- Rodrigo von Marttens (2022 – PPGCosmo/UFES, Brazil)
- Heinrich Steigerwald (2017–2019 – PPGFis/UFES, Brazil)

PhD students (supervisor):

- Özgen Tunç Türker (ongoing – PPGCosmo/UFES, Brazil)
- Ranier Menote (ongoing – PPGCosmo/UFES, Brazil)
- Pedro Bessa (ongoing – PPGCosmo/UFES, Brazil)
- Rodrigo Duarte Silva (ongoing – PPGFis/UFES, Brazil)
- David Francisco Camarena Torres (2022 – PPGCosmo/UFES, Brazil)
- Tássia Andrade Ferreira (2021 – PPGCosmo/UFES, Brazil)
- Pedro Otávio Souza Baqui (2020 – PPGFis/UFES, Brazil)
- Eddy Giusepe Chirinos Isidro (2019 – PPGFis/UFES, Brazil)

PhD students (co-supervisor):

- Mikko Pääkkönen (2014 – University of Jyväskylä, Finland – supervisor: Kimmo Kainulainen)

Master students (supervisor):

- Laura Pereira de Carvalho (ongoing – PPGFis/UFES, Brazil)
- Ranier Menote (2021 – PPGFis/UFES, Brazil)
- David Camarena Torres (2018 – PPGFis/UFES, Brazil)
- Rodrigo Duarte Silva (2018 – PPGFis/UFES, Brazil)
- Ingrid Ferreira da Costa (2018 – PPGFis/UFES, Brazil)

Master students (co-supervisor):

- Alexandre Posada (2013 – Heidelberg University, Germany – supervisor: Luca Amendola)
- Caroline Heneka (2013 – Heidelberg University, Germany – supervisor: Luca Amendola)
- Mikko Pääkkönen (2010 – University of Jyväskylä, Finland – supervisor: Kimmo Kainulainen)

Undergraduate students (supervisor):

- Guilherme Fracalossi (ongoing – DFIS/UFES, Brazil)
- Ana Paula Jeakel (2019 – DFIS/UFES, Brazil)
- Elisa Dardengo Mendes Glória (2019 – DFIS/UFES, Brazil)
- Maikon Barbosa de Araujo (2017 – DFIS/UFES, Brazil)
- Vitor Leandro Pinto (2016 – DFIS/UFES, Brazil)

Scientific Meetings

Organization of scientific events

1. *Workshop Antônio Brasil Batista*, Vitória, ES, Brazil. December 15-16, 2022.
2. *Cosmo22*, Rio de Janeiro, RJ, Brazil. August 22-26, 2022.
3. *V José Plínio Baptista School of Cosmology*, Pedra Azul, ES, Brazil. October 1-5, 2021.
4. *PPGCosmo workshop*, Vitória, ES, Brazil. March 5-6, 2020.
5. *Gravitational Wave Challenges And Cosmology*, Natal, RN, Brazil. June 3-14, 2019.
6. *Verão Quântico 2019*, Ubu, Anchieta, ES, Brazil. February 17-22, 2019.
7. *IV José Plínio Baptista School of Cosmology*, Pedra Azul, ES, Brazil. October 15-19, 2018.
8. *XXXIX National Meeting on Particles and Fields* of the Brazilian Physical Society, Campos do Jordão, SP, Brazil. September 24-28, 2018.
9. *Inverno Astrofísico 2018*, Castelo, ES, Brazil. July 22-29, 2018.
10. *Interactions in the dark sector of the universe*, Santa Teresa, ES, Brazil. June 3-6, 2018.
11. *XXXVIII National Meeting on Particles and Fields* of the Brazilian Physical Society, Passa Quatro, MG, Brazil. September 18-22, 2017.
12. *III José Plínio Baptista School of Cosmology*, Pedra Azul, ES, Brazil. September 25-30, 2016.
13. *Black Holes and their Analogues*, Ubu-Anchieta, ES, Brazil. April 13-17, 2015.
14. *Seventh TRR33 Winter School*, Passo del Tonale, Italy, December 1-6, 2013.
15. *Sixth TRR33 Winter School*, Passo del Tonale, Italy, December 9-14, 2012.
16. *Fifth TRR33 Winter School*, Passo del Tonale, Italy, December 4-9, 2011.
17. *Workshop: Inhomogeneous Cosmologies*, Jyväskylä, Finland, August 15-19, 2011.

Speaker at scientific events

1. *VI José Plínio Baptista School of Cosmology*, Pedra Azul-ES, Brazil, September 22, 2022.
   Invited talk: "ΛLTB N-body simulations cosmology beyond homogeneity and isotropy".
2. *Workshop on Classical Gravity and Applications*, ICTP-SAIFR, Brazil, August 29, 2022.
   Invited talk: "ΛLTB N-body simulations cosmology beyond homogeneity and isotropy".
3. *Reuven Opher Workshop on Challenges of New Physics in Space*, Brazil, December 13, 2021.
   Invited talk: "The Copernican principle in light of the latest cosmological data".
4. *LSST Brazil 2021*, Brazil, December 8, 2021.
   Invited talk: "Cosmology with LSST Type Ia Supernovae".
5. *CosmoBR*, Guarapari (ES), Brazil, December 8, 2021.
   Invited talk: "Tensões no modelo padrão da cosmologia".
6. *UK-Brazil Frontiers of Science 2020*, Itatiba (SP), Brazil, March 10-13, 2020. Invited talk: "Star-Galaxy classification using machine learning in miniJPAS".
7. *PPGCosmo workshop*, Vitória (ES), Brazil, March 5-6, 2020. Invited talk: "The Hubble-constant crisis".

8. *XL Encontro Nacional de Física de Partículas e Campos*, Campos do Jordão (SP), Brazil, September 1-5, 2019. Invited talk: "Model independent analyses in cosmology".

9. *II South American Dark Matter Workshop*, São Paulo (SP), Brazil, November 21-23, 2018. Conference talk: "No fundamental acceleration scale in disk galaxies".

10. *The Dark Energy Revolution in Cosmology*, Rio de Janeiro (RJ), Brazil, September 28, 2018. Invited talk: "No fundamental acceleration scale in disk galaxies".

11. *Present problems in gravitation and cosmology*, Vitória (ES), Brazil, October 23 – October 24, 2017. Invited talk: "Clustering dark energy models and halo abundances".

12. *IV CosmoSul*, ICTP-SAIFR, São Paulo (SP), Brazil, July 31 – August 2, 2017. Invited talk: "Clustering dark energy and halo abundances".

13. *12th J-PAS Meeting*, CBPF, Rio de Janeiro (RJ), Brazil, April 11, 2016. Invited talk: "Testing homogeneity and isotropy with J-PAS".

14. *VIth workshop challenges of new physics in space*, Campos do Jordão, SP, Brazil. May 24-29, 2015. Invited talk: "Lensing of point sources".

15. *Verão Quântico*, João Pessoa, PB, Brazil. February 23-27, 2015. Invited talk: "Constraining perturbations with lensing of supernovae".

16. *1º Workshop de Física Teórica do IFES*, IFES-Cariacica, Cariacica (ES), Brazil, December 19, 2014. Invited opening talk: "Observational Cosmology and the Euclid Mission".

17. *2a Reunião Carioca de Cosmologia e Gravitação*, Rio de Janeiro State University (UERJ), Brazil, April 3-4, 2014. Invited talk: "Cosmology with SNe: signals and biases".

18. *The Quest for Dark Energy*, Ringberg Castle, Germany, June 24-29, 2012. Invited talk: "Systematic search for systematic bias in SN Ia data".

19. *Workshop: Inhomogeneous Cosmologies*, Jyväskylä, Finland, August 15-19, 2011. Invited talk: "Gravitational lensing with the sGL method".

20. *Finnish Cosmophysics Meeting*, Tampere, Finland, April 20-21, 2011. Invited talk: "Gravitational lensing with the sGL method".

21. *45th Rencontres de Moriond, Cosmology Session*, La Thuile, Italy, March 13-20, 2010. Conference talk: "Gravitational lensing and parameter extraction from SNe catalogues".

22. Λ-*LTB Cosmology*, KEK, Tsukuba, Japan, October 20-23, 2009. Invited talk: "Toy models for the inhomogeneous universe".

23. *Invisible Universe International Conference*, Palais de l'UNESCO, Paris, France, June 29-July 3, 2009. Conference talk: "Impact of cosmic inhomogeneities on observations".

24. *SIGRAV School in Cosmology*, GGI, Firenze, Italy, January 26-29, 2009. Conference talk: "Cosmological background solutions and cosmological backreactions".

25. *43rd Rencontres de Moriond, Cosmology Session*, La Thuile, Italy, March 15-22, 2008. Conference talk: "On cosmological observables in a swiss-cheese universe".

26. Les Houches Summer School (Session LXXXIV) on *Particle Physics Beyond The Standard Model*, Les Houches, France, August 1-26, 2005.
Title of the talk: "Cosmological evolution of alpha driven by a general coupling with quintessence".

Invited institute seminars

1. Università degli Studi dell'Insubria, Como, Italy, March 29, 2022.
   Seminar: "ΛLTB N-body simulations cosmology beyond homogeneity and isotropy".

2. Instituto Nacional de Pesquisas Espaciais, São José dos Campos (SP), Brazil, August 24, 2021.
   Seminar: "A possible solution to the Hubble-constant crisis".

3. SNOWMASS, August 24, 2021. Seminar: "The M_B tension".

4. International Institute of Physics, Natal (RN), Brazil, June 23, 2021.
   Seminar: "A possible solution to the H0 crisis".

5. Sharif University of Technology, Tehran, Iran, March 2, 2021.
   Seminar: "The Hubble-constant crisis".

6. Institute for Theoretical Physics, Heidelberg, Germany, December 1, 2020.
   Seminar: "The Hubble-constant crisis".

7. Institute for Fundamental Physics of the Universe, Trieste, Italy, October 2, 2020.
   Seminar: "The Hubble-constant crisis".

8. Donostia International Physics Center, Spain, February 17, 2020.
   Seminar: "A fundamental test for MOND".

9. IF-UFRJ, Brazil, October 10, 2019. Colloquium: "The Hubble-constant crisis".

10. Padova University, Padova, Italy, February 21, 2019.
    Theory seminar: "Absence of a fundamental acceleration scale in galaxies".

11. Universidad de Chile, Santiago, Chile, November 17, 2017.
    Theory seminar: "Clustering dark energy and halo abundances".

12. ICTP-SAIFR, São Paulo (SP), Brazil, July 6, 2016.
    Theory seminar: "Constraining the halo mass function with observations".

13. National Observatory, Rio de Janeiro (RJ), Brazil, February 24, 2016.
    Theory seminar: "Testing homogeneity and isotropy with J-PAS".

14. UFES, Vitória (ES), Brazil, June 26, 2015.
    Theory seminar: "Coupling dark energy to dark matter inhomogeneities".

15. National Observatory, Rio de Janeiro (RJ), Brazil, August 20, 2014.
    Theory seminar: "Signal and noise from lensing of point sources".

16. Astronomy Unit, Queen Mary University of London, England, July 7, 2014.
    Theory seminar: "Lensing of point sources, inhomogeneous cosmology and robustness".

17. Physics Institute, São Paulo University, Brazil, May 19, 2014.
    Theory seminar: "Cosmological information and bias from lensing of point sources".

18. Institute for Theoretical Physics, Heidelberg University, Germany, March 12, 2014.
    Theory seminar: "so long, and thanks for all the Physik".

19. Physics Institute, University of Bonn, Germany, February 11, 2014.
    Theory seminar: "Supernova cosmology: signals and biases".

20. LUTH, Observatoire de Paris, France, June 5, 2013.
    Theory seminar: "Cosmological information from lensing of standard candles".

21. Department of Physics, University of Jyväskylä, Finland, March 5, 2010.
    Theory seminar: "Modeling inhomogeneities in the universe".

22. Institute for Theoretical Physics, Heidelberg University, Germany, October 7, 2009.
    Theory seminar: "Toy models for the inhomogeneous universe".

23. Department of Physics, University of Jyväskylä, Finland, November 13, 2008.
    Theory seminar: "Cosmological background solutions and cosmological backreactions".

Outreach

Organization

1. *Universo no Parque*, Vitória, ES, Brazil. 2017 – ongoing. General-audience seminars in the parks of Vitória, with topics ranging from astronomy to physics.
2. *Universo no Escola*, Vitória, ES, Brazil. 2017 – ongoing. General-audience seminars in the public high schools of Vitória, with topics ranging from astronomy to physics.
3. NEXT, Trieste, Italy, September 25-26, 2021. VR Headset simulations.

Seminars

1. Seminar on cosmology at the elementary school "Elio de Morpurgo", Trieste, Italy, October 21, 2021.
   Seminar: "La Cosmologia Moderna.
2. NEXT, Trieste, Italy, September 25-26, 2021.
   Seminar: "A caccia di galassie per capire l'energia oscura"
3. Pint of Science, Trieste, Italy, September 14, 2021.
   Title: "Osservando milioni di galassie per capire la natura dell'energia oscura."
4. 100 Anos do Eclipse de Sobral, UFES, Vitória (ES), Brazil, May 29-30, 2019.
   Title: "Cosmologia Moderna e Futura".
5. Parque Botânico Vale, Vitória, ES, Brazil, May 13, 2018.
   Title: "O Brasil verá quase toda as galáxias observáveis!".
6. Escola Duarte Rabelo, Vitória, ES, Brazil, June 22, 2018.
   Title: "O Brasil verá quase toda as galáxias observáveis!".
7. Parque da Pedra da Cebola, Vitória, ES, Brazil, October 1, 2017.
   Title: "O Brasil verá quase toda as galáxias observáveis!".
8. Seminari dell'Accademia della Marca Trevigiana, Roncade, TV, Italy, December 23, 2016.
   Title: "Le galassie dell'universo osservabile".

Publications

I have published in the journal Philosophy and Cosmology the following short story:

Understanding Our Only Universe

Abstract: *In an imaginary dialogue between a professor and a layman about the future of cosmology, the said professor relates the paradoxical story of scientist Zee Prime, a bold thinker of a future civilization, stuck in a lonely galaxy, forever unaware of the larger universe. Zee Prime comes to acknowledge his position and shows how important it is to question standard models and status quo, as only the most imaginative ideas give us the chance to understand what he calls "our only universe" – the special place and time in which we live.*

Web of Science™

Web Of Science CV
Prepared on February 14th 2023

Valerio Marra

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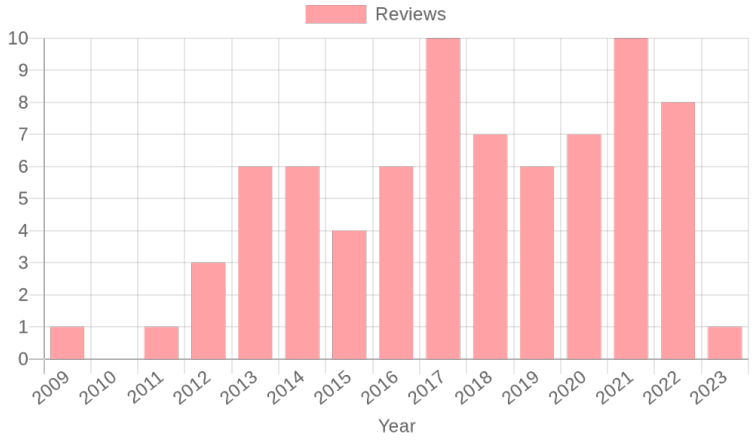
Verified reviews

REVIEW SUMMARY



REVIEWER SUMMARY

For manuscripts reviewed from date range January 2005 - February 2023

(33) Physical Review D	(7) Monthly Notices of the Royal Astronomical So...
(7) Physics of the Dark Universe	(7) Journal of Cosmology and Astroparticle Physi...
(3) Classical and Quantum Gravity	(2) General Relativity and Gravitation
(2) Physical Review Letters	(2) Physics Letters B
(2) The European Physical Journal C	(1) Fortschritte der Physik
(1) Brazilian Journal of Physics	(1) International Journal of Modern Physics D
(1) Universe	(1) Advances in High Energy Physics
(1) Aeronautics and Aerospace Open Access Jour...	(1) Palgrave Communications
(1) The Astrophysical Journal	(1) Modern Physics Letters A
(1) EPL (Europhysics Letters)	(1) Proceedings of the Royal Society A: Mathemat...

Valerio MARRA – Publications

June 25, 2023

I am author of 74 Refereed Publications in the fields of cosmology and astrophysics, of which 57 with less than 8 authors. I published 1 paper in *Nature Astronomy* [25], 2 papers in *Physical Review Letters* [49, 40], 1 paper in *Physical Review D Letters* [11] and 1 paper in *Monthly Notices of the Royal Astronomical Society Letters* [42]. I am also author of 5 Refereed Publications in other fields [76, 77, 78, 79, 80], mostly on data analysis, which do not appear in NASA ADS. In particular, I authored a paper on the COVID pandemic, which was published in the *Lancet Global Health* [78] and has 500+ citations. Finally, 14 published papers feature a student of mine as first author.

	$<$ 8 authors — mean of 3.2 authors				all papers		
	papers	100+ papers	h-index	citations	papers	h-index	citations
Web of Science	62	3	25	–	79	28	2900
NASA ADS	57	5	27	2100	74	32	3800
total IF/papers, all years	398.4/62=6.4				525.3/79=6.6		
total IF/papers, $\geq$2013	322.9/49=8.1				428.1/62=8.5		
total IF/papers, $\geq$2018	216.5/29=7.5				321.8/42=7.7		

Regarding my 17 published collaboration papers:

- Snowmass 2021: I signed the four Letters of Interest [67, 68, 69, 70] because I was invited to participate in Snowmass 2021 thanks to my work on the Hubble-constant tension. I contributed to Sections IV and VII of the review paper [62], as stated in the paper.
- Euclid: I contributed to Section IV.3 "Beyond homogeneity and isotropy" of the review paper [75]. I contributed to the development of the paper [64], in particular to the part on ΛLTB. My student D. Camarena is the leading authors of [60].
- J-PAS: I share first authorship of the J-PAS paper [74], as stated in the paper. I contributed to Sections 4.2 and 6.3 of the presentation paper of the miniJPAS survey [71]. I signed [59, 61, 63, 66, 65, 72, 73] because I was awarded the J-PAS "PathFinder Infrastructure Team" award in 2020.

Publications under Review

[1] R. von Marttens *et al.*, *J-PLUS DR3: Galaxy-Star-Quasar classification*, arXiv:2212.05868 [astro-ph.GA].

Refereed Publications

[2] D. Camarena, V. Marra, Z. Sakr, and C. Clarkson, *A void in the Hubble tension? The end of the line for the Hubble bubble*, Class. Quant. Grav. **39** (2022) no. 18, 184001, arXiv:2205.05422 [astro-ph.CO].

[3] V. Marra, T. Castro, D. Camarena, S. Borgani, and A. Ragagnin, *The BEHOMO project: ΛLTB N-body simulations*, A&A **664** (2022) A179, arXiv:2203.04009 [astro-ph.CO].

[4] T. Ferreira and V. Marra, *A fast and reliable method for the comparison of covariance matrices*, Mon. Not. Roy. Astron. Soc. **513** (2022) 5438–5445, arXiv:2107.04211 [astro-ph.CO].

[5] R. Menote and V. Marra, *Baryon acoustic oscillations in thin redshift shells from BOSS DR12 and eBOSS DR16 galaxies*, Mon. Not. Roy. Astron. Soc. **513** (2022) no. 2, 1600–1608, arXiv:2112.10000 [astro-ph.CO].

[6] H. Steigerwald, V. Marra, and S. Profumo, *Revisiting constraints on asymmetric dark matter from collapse in white dwarf stars*, Phys.Rev. **D105** (2022) 083507, arXiv:2203.09054 [astro-ph.CO].

[7] G. Alestas, D. Camarena, E. Di Valentino, L. Kazantzidis, V. Marra, S. Nesseris, and L. Perivolaropoulos, *Late-transition versus smooth $H(z)$-deformation models for the resolution of the Hubble crisis*, Phys.Rev. **D105** (2022) 063538, arXiv:2110.04336 [astro-ph.CO].

[8] H. Leandro, V. Marra, and R. Sturani, *Measuring the Hubble constant with black sirens*, Phys.Rev. **D105** (2022) 023523, arXiv:2109.07537 [gr-qc].

[9] H. Steigerwald, D. Rodrigues, S. Profumo, and V. Marra, *Type Ia Supernova Magnitude Step from the local Dark Matter Environment*, Mon. Not. Roy. Astron. Soc. **510** (2022) 4779–4795, arXiv:2112.09739 [astro-ph.CO].

[10] D. Camarena, V. Marra, Z. Sakr, and C. Clarkson, *The Copernican principle in light of the latest cosmological data*, Mon. Not. Roy. Astron. Soc. **509** (2022) 1291–1302, arXiv:2107.02296 [astro-ph.CO].

[11] V. Marra and L. Perivolaropoulos, *A rapid transition of $G_{\rm eff}$ at $z_t \simeq 0.01$ as a solution of the Hubble and growth tensions*, Phys.Rev. **D104** (2021) L021303, arXiv:2102.06012 [astro-ph.CO].

[12] R. von Marttens, J. E. Gonzalez, J. Alcaniz, V. Marra, and L. Casarini, *Model-independent reconstruction of dark sector interactions*, Phys.Rev. **D104** (2021) 043515, arXiv:2011.10846 [astro-ph.CO].

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