Guilherme Sadovski

Personal Data

Name:	Guilherme Sadovski
Place Birth:	Salvador, Bahia, Brazil
Website:	gsadovski.github.io

Education

2019 – 2015	**Ph.D. in Physics**, Universidade Federal Fluminense (UFF), Brazil. Thesis: *"A renormalizable topological quantum field theory for gravity"*. Advisor: Prof. Dr. Rodrigo Ferreira Sobreiro.
Winter 2017	Visiting Ph.D. student at Centro de Estudios Científicos (CECs), Chile. Supervisor: Prof. Dr. Jorge Zanelli.
2015 – 2013	**M.Sc. in Physics**, Universidade Federal Fluminense (UFF), Brazil. Dissertation: *"Cosmology of a gauge theory modified for gravity"*. Advisor: Prof. Dr. Rodrigo Ferreira Sobreiro.
2013 – 2008	**B.Sc. in Physics**, Universidade Estadual de Feira de Santana (UEFS), Brazil. Monograph: *"On the covariance of physical laws"*. Advisor: Prof. Dr. Milton Souza Ribeiro.
Fall 2011	Visiting student at Instituto Superior Técnico (IST), Portugal.

Languages

Portuguese:	Mother-tongue
English:	Fluent
Spanish:	Moderate
Japanese:	Basic

Computer Skills

Basic:	Lua, C, Scilab, Sagemath Access.
Intermediate:	Mathematica, OriginLab.
Advanced:	LaTeX, Markdown, GNU/Linux, GNUPlot.

Employments

2024 – 2022 **Postdoctoral Scholar** at Henan University (HENU), Kaifeng, China (full time)
School of Mathematics and Statistics
Researcher in quantum field theory and quantum gravity.

2022 – 2019 **Postdoctoral Scholar** at Okinawa Institute of Science and Technology (OIST), Okinawa, Japan (full time)
Gravity, Quantum Geometry and Field Theory Unit
Researcher in quantum field theory and quantum gravity.

2015 – 2016 **Physics Tutor** at Universidade Federal Fluminense, Niterói, Brazil (20hs/week)
Institute of Physics
Exercise classes in Newtonian Mechanics, Linear Algebra, Calculus, for first-year students of the Physics undergraduate program.

2013 – 2015 **Maths Tutor** at Universidade Federal Fluminense, Niterói, Brazil (20hs/week)
School of Engineering
Exercise classes in differential and integral calculus for students in the Environmental Engineering undergraduate program.

Achievements

May 2025 Approved for Adjoint Professorship position at Universidade de Brasília.
Winter 2017 Selected Ph.D. candidate for international exchange program funded by CAPES.
2019 – 2015 Ph.D. Scholarship funded by CAPES.
2015 – 2013 M.Sc. Scholarship funded by CAPES.
Fall 2011 Selected B.Sc. student for international exchange program funded by UEFS.
2011-2009 B.Sc Scholarship funded by UEFS.

Scientific Peer Reviewer

- Classical and Quantum Gravity;
- Physical Review D;
- International Journal of Geometric Methods in Modern Physics.
- Journal of Physics A
- Journal of Physics G
- Physica Scripta

Society Memberships

– 2021 International Society for Quantum Gravity
– 2009 *Sociedade Brasileira de Física*

Scientific Research

gr-qc: Modified theories of gravity, gauge theories of gravity, topological gravity; quantum gravity, spacetime topology.
hep-th: Topological quantum field theories, twisted supersymmetries; non-Abelian gauge theories, quantum stability, anomalies, Gribov problem.
math-phys: BRST algebra and geometry, instanton moduli; 4D algebraic and differential topology.

Scientific Publications

- G. Sadovski and R. F. Sobreiro. "Topological symmetry-restored phase of gravity". In: *European Physical Journal C* 85.710 (May 2025). DOI: 10.1140/epjc/s10052-025-14274-y. arXiv: 2405.02884 [gr-qc]
- G. Sadovski. "About the (in)equivalence between holonomic *versus* non-holonomic theories of gravity". In: *International Journal of Geometric Methods in Modern Physics* 22.6 (Oct. 2024), p. 2550004. DOI: 10.1142/S0219887825500045. arXiv: 2207.05721 [gr-qc]
- D. Dudal, C. P. Felix, O. C. Junqueira, et al. "Infinitesimal Gribov copies in gauge-fixed topological Yang-Mills theories". In: *Physical Letters B* 807 (135531 Aug. 2020). DOI: 10.1016/j.physletb.2020.135531. arXiv: 1907.05460 [hep-th]
- O. C. Junqueira, A. D. Pereira, G. Sadovski, et al. "More about the renormalization properties of topological Yang-Mills theories". In: *Physical Review D* 98.10–15 (Nov. 2018), p. 105017. DOI: 10.1103/PhysRevD.98.105017. arXiv: 1807.01517 [hep-th]
- O. C. Junqueira, A. D. Pereira, G. Sadovski, et al. "Absence of radiative corrections in four-dimensional topological Yang-Mills theories". In: *Physical Review D* 98.2 (July 2018), 021701(R). DOI: 10.1103/PhysRevD.98.021701. arXiv: 1805.01850 [hep-th]
- O. C. Junqueira, A. D. Pereira, G. Sadovski, et al. "Equivalence between the Lovelock-Cartan action and a constrained gauge theory". In: *European Physical Journal C* 77.4 (Apr. 2017), p. 249. DOI: 10.1140/epjc/s10052-017-4820-y. arXiv: 1612.05590 [hep-th]
- F. T. Falciano, G. Sadovski, R. F. Sobreiro, et al. "Cosmology from a gauge induced gravity". In: *General Relativity and Gravitation* 49.118 (Aug. 2015), pp. 1–21. DOI: 10.1007/s10714-017-2282-z. arXiv: 1508.04329 [gr-qc]
- O. C. Junqueira, A. D. Pereira, G. Sadovski, et al. "Topological Yang-Mills theories in self-dual and anti-self-dual Landau gauges revisited". In: *Physical Review D* 96.8 (Oct. 2017), p. 085008. DOI: 10.1103/PhysRevD.96.085008. arXiv: 1707.06666 [hep-th]

Events & Talks

2025 | Invited seminar, UFBA, Salvador, Brazil.
Talk: *"Global aspects of quantum field theory and gravity"*

2023 | Weekly seminar, HENU, Kaifeng, China.
Talk: *"About the (in)equivalence between holonomic versus non-holonomic theories of gravity"*
Weekly seminar, HENU, Kaifeng, China.
Talk: *"Scalar-tensor theories of gravity"*
Conference 2023: Instanton, Holography, Strong Interactions and Nuclear Physics, HENU, Kaifeng, China [website].

2022 | Invited seminar, OIST, Okinawa Japan.
Talk: *"Tropical algebraic geometry"* [recording]
Invited seminar, OIST, Okinawa Japan.
Talk: *"Tropical arithmetics"* [recording]

2021 | Workshop, Regular black holes in quantum gravity and beyond: from theory to shadow observations, via Zoom [website].
Workshop, Black holes inside and out, via Zoom [website].
Workshop, First International Society for Quantum Gravity Meeting, via Zoom [website].
Invited Seminar, Heriot-Watt U., Edinburgh, UK.

Talk: *"Exotic smoothness and physics"*

2020 Invited Seminar, OIST, Okinawa, Japan.
Talk: *"Why is the world four-dimensional?"*
Invited Seminar, UFOB, Bahia, Brazil.
Talk: *"Porque o mundo é quadri-dimensional?"*
Workshop, Quantum gravity meets dark energy, via Zoom.
Workshop, Recent develoments in quantum gravity, via Zoom.
4th Bangkok Workshop on Discrete Geometry, Dynamics and Statistics, Chulalongkorn University, Bangkok, Thailand [website].

2019 Workshop, Quantum and Gravity in Okinawa, OIST, Okinawa, Japan [website].
Talk: *"A renormalizable topological quantum field theory for gravity"*

2018 V Carioca Meeting of Cosmology and Gravitation, UFF, Niterói, Brazil.
Talk: *"(In-)equivalence between two distinct formulations of gravity theories"*.
XVII Brazilian School of Cosmology and Gravitation, CBPF, Rio de Janeiro, Brazil.
XXXIX National Meeting of Field and Particle Physics, São Paulo, Brazil.
Talk: *"Perturbative renormalizability of a topological phase of gravity"*.

2017 Lunch Seminar, CECs, Valdivia, Chile.
Talk: *"Monopoles, wormholes and their possible relation"*.

2016 IV Carioca Meeting of Cosmology and Gravitation, ON, Rio de Janeiro, Brazil.

2015 V National Workshop of Quantum Field Theory, Rio de Janeiro, Brazil.
XXXVI National Meeting of Field and Particle Physics, Minas Gerais, Brazil.
Theoretical Frontiers in Black Holes and Cosmology, IIP, Natal, Brazil.
Talk: *"Cosmology of a Yang-Mills theory modified for gravity"*.
X School of CBPF, CBPF, Rio de Janeiro, Brazil.
III Carioca Meeting of Cosmology and Gravitation, UFRJ, Rio de Janeiro, Brazil.

2014 IV National Workshop of Quantum Field Theory, UFMA, Maranhão, Brazil.
Talk: *"Cosmology of a Yang-Mills theory modified for gravity"*
XXXV National Meeting of Field and Particle Physics, Minas Gerais, Brazil
Talk: *"Cosmology of a gauge theory modified for gravity"*
Invited talk at Fluminense Federal University, Rio de Janeiro, Brazil
Talk: *"Differential Geometry and Maxwell's Equations"*

2012 VI Inner Seminar of Research and Extension, UEFS, Bahia, Brazil
Talk: *"On the covariance of physical laws"*
XXVII Journey of Theoretical Physics, IFT-UNESP, São Paulo, Brazil

2010 XIV Seminar of Scientific Initiation, UEFS, Bahia, Brazil
Talk: *"Maxwell's equations and Spacetime"*
VIII School of CBPF, CBPF, Rio de Janeiro, Brazil
XIII Physics Week of UEFS, UEFS, Bahia, Brazil
Poster: *"Maxwell's equations and Spacetime"*

2009 XXVII Meeting of Physicist from North and Northeast, Pará, Brazil
XII Physics Week of UEFS, Bahia, Brazil