

Guilherme Franzmann

Theoretical Physicist | Assistant Professor at NORDITA

Quantum foundations • spacetime emergence • quantum gravity • theoretical cosmology

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[Google Scholar](#) | [Inspire](#) | [ORCID](#) | [EmerGe](#)

Updated July 2026

Research Profile

Theoretical physicist investigating how subsystems, spacetime, and gravity emerge from quantum mechanics. Research spanning quantum foundations, quantum information, and quantum gravity, with an established record in string cosmology, dark energy, and early-universe theory.

Academic Appointments

NORDITA, Nordic Institute for Theoretical Physics Assistant Professor; Principal Investigator and Research Group Leader, <i>Quantum Foundations and Gravity</i> .	Oct 2024–Sep 2028
Stockholm University, Department of Philosophy Postdoctoral Researcher and Lecturer (full-time; concurrent appointment).	Oct 2023–Sep 2026
NORDITA and Oskar Klein Centre Postdoctoral Researcher.	Oct 2019–Oct 2023
McGill University, Department of Physics Graduate Research Fellow.	Sep 2014–Aug 2019

AI Evaluation and Industry Experience

Aligned – Expert AI Evaluation Contributor Remote, part-time contractor. Completed 50+ research-grade scientific AI-evaluation tasks spanning physics, quantum information, cosmology, and philosophy of physics, including failure diagnosis, literature-ground-truth verification, near-miss classification, and objective rubric design.	Mar 2026–Present
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Education

Ph.D. in Physics, McGill University, Canada Supervisor: Robert H. Brandenberger. Thesis: <i>Towards a T-dual Cosmology</i> . GPA: 4.00/4.00; Best Ph.D. Student, Laboratory PhysMath 2018–19.	Sep 2014–Aug 2019
M.Sc. in Physics, IFT-UNESP, Brazil Supervisor: Nathan Berkovits. Dissertation: <i>Application of Open String Field Theory to the Inflationary Scenario</i> . GPA: 4.00/4.00.	Mar 2012–Apr 2014
B.Sc. in Physics, Federal University of Santa Catarina, Brazil Supervisor: Marco A. C. Kneipp. GPA: 3.77/4.00; prize for best student in the graduating class.	Mar 2008–Jan 2012

Narrative Statement

I am a theoretical physicist working across quantum gravity, quantum information, and theoretical cosmology, with a parallel role in philosophy of physics. I hold an Assistant Professor position funded by the Olle Engkvist Foundation, where I am Principal Investigator and Research Group Leader of *Quantum Foundations and Gravity*. I co-founded and lead the international [EmerGe collaboration](#) on spacetime emergence, supervise postdoctoral and graduate researchers, and hold a lecturer position in philosophy at Stockholm University. My trajectory has equipped me with a broad research background and a strong record of independence, leadership, and community building.

Expertise in high-energy-inspired cosmology. From the outset of my Ph.D. at McGill University, I built on my Master's degree in string theory and cosmology and initiated a research line in double field theory cosmology, introducing new insights into spacetime emergence from double geometries and dualities. During this period, I received the *Science Without Borders* and *Excellence Scholarship Program for Foreign Students* fellowships, published nine papers, and received the 2019 prize for best Ph.D. student in applied mathematics in Montreal. This work led to my first postdoctoral position at NORDITA, where I developed a second research line on string corrections in early-Universe cosmology, culminating in the first consistent embedding of string gas cosmology into string theory and six additional publications.

Since 2022, I have shifted focus to the interface between gravity and quantum information, consolidating this agenda by co-founding the [EmerGe collaboration](#). EmerGe brings together physicists and philosophers to rethink spacetime from multiple angles and is currently investigating quantum subsystems, reference frames, and possible departures from standard locality and independence in quantum gravity. This program aims to identify phenomenological signatures that can be studied without assuming a single microscopic reconstruction of spacetime.

Expertise in cosmology and dark-energy phenomenology. I have cultivated extensive experience translating high-energy insights into cosmological models. During my Ph.D., I [co-developed a novel model](#) in which late-time cosmic acceleration emerges dynamically from a two-state dark-matter superfluid, without invoking a cosmological constant. This unified dark matter, dark energy, and MOND-like phenomenology into a testable alternative to Λ CDM, matching the expansion history while predicting distinctive large-scale-structure signatures. More recently, I initiated and led the FADE collaboration, which produced a [comprehensive review of modified-gravity approaches to the cosmological constant problem](#). This work examined conceptual tensions between general relativity and quantum field theory and mapped strategies for addressing the vacuum-energy puzzle.

Independence, leadership, and community building. My publication record spans 27 scholarly publications and preprints, with 591 Google Scholar citations and an h -index of 15 as of July 2026. I have delivered 46 external invited or contributed research presentations, undertaken four panel or moderation roles, and organized 16 academic initiatives and events, including four editions of the [Kefalonia Foundations](#) workshop series. I designed and taught four mixed undergraduate/graduate courses. I currently supervise or co-supervise two postdoctoral researchers, one Ph.D. researcher, and two M.Sc. researchers, alongside six completed degree projects.

Commitment to communication and outreach. Beyond research, I am committed to science communication and training. I co-founded [ScientiFika](#), an outreach and community-building initiative that has delivered 150+ accessible science events in Stockholm since 2021, supported by approximately EUR 4,000/year in funding and reaching approximately 5,000 aggregate attendances. I have also contributed to Astronomy on Tap, Pint of Science, school visits, and art-science programming.

Publications and Pre-Prints

Note: authors are listed alphabetically in the theoretical high-energy physics literature.

27 scholarly publications and preprints

Citation metrics (10 July 2026): [Google Scholar](#) 591,
 $h = 15$ | [INSPIRE](#) 526, $h = 15$

1. T. Rick Perche, Natália Salomé Møller, **G. Franzmann**, “Passive quantum reference frame transformations cannot create entanglement between physical systems”, arXiv:2512.19790 (2025). [\[arXiv\]](#) **Provisionally accepted for publication in Physical Review Research.**
2. R. Dawid, **G. Franzmann**, “Realism and Ontology in Quantum Mechanics and String Theory”, arXiv:2512.17124 (2025). [\[arXiv\]](#) Under review at *Synthese*.
3. N. Boulle, **G. Franzmann**, “Subsystems independence in gravitationally induced entanglement proposals”, *Physical Review D* **114**, 025015 (2026). [\[DOI\]](#) [\[arXiv\]](#)
4. A. Soulas, **G. Franzmann**, A. Di Biagio, “On the emergence of preferred structures in quantum theory”, arXiv:2512.07468 (2025). [\[arXiv\]](#) Under review at the *Journal of Mathematical Physics*.
5. **G. Franzmann**, “To be or not to be, but where?”, arXiv:2405.21031 (2024). [\[arXiv\]](#) Under review at *Quantum*.
6. **G. Franzmann**, S. Jovancic, M. Lawson, “Relative distance of entangled systems in emergent spacetime scenarios”, *Physical Review D* **107**, 066008 (2023). [\[DOI\]](#) [\[arXiv\]](#)
7. The FADE Collaboration: H. Bernardo, B. Bose, **G. Franzmann**, S. Hagstotz, Y. He, A. Litsa, F. Niedermann, “Modified gravity approaches to the cosmological constant problem”, *Universe* **9**, 63 (2023). [\[DOI\]](#) [\[arXiv\]](#)
8. Basic Research Community for Physics, “Against Parasite Publishers: Making Journals Free” (2022). [\[DOI\]](#)
9. H. Bernardo, P. R. Chouha, **G. Franzmann**, “Kalb–Ramond backgrounds in α' -complete cosmology”, *Journal of High Energy Physics* **09**, 109 (2021). [\[DOI\]](#) [\[arXiv\]](#)
10. J. Quintin, H. Bernardo, **G. Franzmann**, “Cosmology at the top of the α' tower”, *Journal of High Energy Physics* **07**, 149 (2021). [\[DOI\]](#) [\[arXiv\]](#)
11. H. Bernardo, R. Brandenberger, **G. Franzmann**, “String cosmology backgrounds from classical string geometry”, *Physical Review D* **103**, 043540 (2021). [\[DOI\]](#) [\[arXiv\]](#)
12. H. Bernardo, R. Brandenberger, **G. Franzmann**, “Solution of the size and horizon problems from classical string geometry”, *Journal of High Energy Physics* **10**, 155 (2020). [\[DOI\]](#) [\[arXiv\]](#)
13. S. Angus, K. Cho, **G. Franzmann**, S. Mukohyama, J.-H. Park, “ $O(D, D)$ completion of the Friedmann equations”, *European Physical Journal C* **80**, 830 (2020). [\[DOI\]](#) [\[arXiv\]](#)
14. H. Bernardo, **G. Franzmann**, “ α' -Cosmology: solutions and stability analysis”, *Journal of High Energy Physics* **05**, 073 (2020). [\[DOI\]](#) [\[arXiv\]](#)
15. H. Bernardo, R. Brandenberger, **G. Franzmann**, “ $O(d, d)$ covariant string cosmology to all orders in α' ”, *Journal of High Energy Physics* **02**, 178 (2020). [\[DOI\]](#) [\[arXiv\]](#)
16. **G. Franzmann**, Y. Yargic, “A democratic cosmos?”, arXiv:1910.00481 (2019). [\[arXiv\]](#)
17. R. Costa, R. R. Cuzinatto, E. G. M. Ferreira, **G. Franzmann**, “Covariant c -flation: a variational approach”, *International Journal of Modern Physics D* **28**, 1950119 (2019). [\[DOI\]](#) [\[arXiv\]](#)
18. E. G. M. Ferreira, **G. Franzmann**, J. Khoury, R. H. Brandenberger, “Unified superfluid dark sector”, *Journal of Cosmology and Astroparticle Physics* **08**, 027 (2019). [\[DOI\]](#) [\[arXiv\]](#)
19. R. Costa, **G. Franzmann**, J. P. Pereira, “A local Lagrangian for MOND as modified inertia”, arXiv:1904.07321 (2019). [\[arXiv\]](#)
20. H. Bernardo, R. Brandenberger, **G. Franzmann**, “ T -dual cosmological solutions in double field theory II”, *Physical Review D* **99**, 063521 (2019). [\[DOI\]](#) [\[arXiv\]](#)
21. R. H. Brandenberger, R. Costa, **G. Franzmann**, A. Weltman, “ T -dual cosmological solutions in double field theory”, *Physical Review D* **99**, 023531 (2019). [\[DOI\]](#) [\[arXiv\]](#)
22. R. H. Brandenberger, R. Costa, **G. Franzmann**, A. Weltman, “Dual space-time and nonsingular string cosmology”, *Physical Review D* **98**, 063521 (2018). [\[DOI\]](#) [\[arXiv\]](#)
23. R. H. Brandenberger, R. Costa, **G. Franzmann**, A. Weltman, “Point particle motion in double field theory and a singularity-free cosmological solution”, *Physical Review D* **97**, 063530 (2018). [\[DOI\]](#) [\[arXiv\]](#)
24. R. H. Brandenberger, **G. Franzmann**, Q. Liang, “Running of the spectrum of cosmological perturbations in string gas cosmology”, *Physical Review D* **96**, 123513 (2017). [\[DOI\]](#) [\[arXiv\]](#)

25. **G. Franzmann**, “Varying fundamental constants: a full covariant approach and cosmological applications”, arXiv:1704.07368 (2017). [[arXiv](#)]
26. G. De Conto, **G. Franzmann**, “Atomic beings and the discovery of gravity”, arXiv:1511.05431 (2015). [[arXiv](#)]
27. R. H. Brandenberger, R. Costa, **G. Franzmann**, “Can back-reaction prevent eternal inflation?”, *Physical Review D* **92**, 043517 (2015). [[DOI](#)] [[arXiv](#)]

Theses

G. Franzmann, *Towards a T-dual Cosmology*. Ph.D. thesis, McGill University (2019). [[Repository](#)]

G. Franzmann, *Application of Open String Field Theory to the Inflationary Scenario*. M.Sc. dissertation, IFT-UNESP (2014). [[Repository](#)]

Collaborations

EmerGe – Emergent Geometries

2022–Present

Co-founder. International collaboration connecting quantum foundations, gravity, and phenomenology. The group develops theory and potential observational or laboratory signatures of emergent spacetime and other quantum-gravitational structures.

FADE – Foundational Aspects of Dark Energy

2021–2023

Founder and scientific lead. Multi-institutional collaboration involving Ph.D. students, postdoctoral researchers, and faculty. The collaboration produced an invited review of modified-gravity approaches to the cosmological constant problem and organized a focused Dark Energy Day at NORDITA.

Funding

Research Funding

Olle Engkvists Stiftelse – Principal Investigator

2024–2028

Spacetime Emergence from Quantum Mechanics: From Theory to Observations. Award 225-0062; SEK 4,511,000 (approximately EUR 390,000), supporting salary, research travel, collaboration, and overhead.

Gravity Theory Trust – Co-applicant with the EmerGe Collaboration

2025

USD 18,400 for the [Inaugural Workshop on Emergent Geometries](#) at NORDITA.

South Africa–Canada Research Chairs Mobility Initiative – Co-applicant

2017–2019

USD 30,000 for a two-year McGill–Cape Town collaboration on double field theory cosmology.

Workshop, Collaboration, and Mobility Funding

COST Action CA23130 (BridgeQG)

2025

Short-Term Scientific Mission; EUR 1,500 for collaboration at IQOQI Vienna on tensor-product structures in quantum mechanics.

COST Action CA23115 (Relativistic Quantum Information)

2025

Short-Term Scientific Mission; EUR 1,500 for collaboration at IQOQI Vienna on quantum subsystems and interpretations of quantum mechanics.

COST Action CA21136 (CosmoVerse)

2024

Short-Term Scientific Mission; EUR 1,500 for collaboration at the University of Edinburgh on the Hubble tension.

Blaumann Foundations

2023–2024

EUR 4,000 for in-person collaboration meetings and travel for EmerGe.

Blaumann Foundations

2022–2023

EUR 10,000 for the Kefalonia Foundations workshop series.

Foundational Questions Institute (FQxI)

2022

USD 5,000 for the Kefalonia workshop on theoretical and conceptual foundations of quantum physics.

Supervision and Mentorship

Postdoctoral Researchers

Roukaya Dekhil , co-supervised with Richard Dawid; philosophy of physics and spacetime emergence	Jan 2026–Dec 2027
T. Rick Perche , postdoctoral researcher in the Quantum Foundations and Gravity group	May 2025–Apr 2028

Doctoral and Master's Researchers

Nicolas Boulle , Ph.D., Mid Sweden University; formal co-supervisor	2023–2027
Steven Sanchez , M.Sc., University of Iceland	Expected Summer 2027
Alexander Flink , M.Sc., Stockholm University	Expected Summer 2027

Completed Degree Projects

Lucas Julin , Bachelor's thesis in Theoretical Philosophy, Stockholm University – <i>Relational Structure and the Emergence of Spacetime: An Ontological Recontextualization of Quantum Mechanics and Relativity</i>	2026
Will Benston , M.Sc., Stockholm University – <i>An Analysis and Synthesis of Emergent Spacetime Perspectives</i>	2026
Emilie Desrochers , M.Sc., Stockholm University – <i>Entanglement Entropy of Cosmological Perturbations</i>	2025
Alexander Flink , B.Sc., Stockholm University – <i>TPS Dynamics and the Quantum Measurement Problem</i>	2025
Nicolas Boulle , M.Sc., Stockholm University – <i>On Quantum Systems and the Measurement Problem</i>	2023
Sebastian Jovancic , M.Sc., KTH Royal Institute of Technology – <i>On the Emergent Relative Distance Between Quantum Systems</i>	2022

Teaching Experience and Academic Service

Teaching Experience

Stockholm University, Department of Philosophy – Course Convenor and Lead Instructor Designed and delivered four mixed undergraduate/graduate course iterations, including syllabi, lectures, assignments, and examinations (approximately 30 enrollments per course; 120 total): <i>Philosophy of Physics</i> (Fall 2024, Fall 2025) and <i>Philosophy of Science</i> (Fall 2023, Spring 2024).	2023–2025
McGill University, Department of Physics – Teaching Assistant Eight appointments spanning introductory mechanics and electromagnetism, general relativity, quantum field theory, thermal and statistical physics, and majors quantum physics; roles included laboratory demonstration and marking.	2014–2018
Project Integrar – Volunteer physics teacher for underserved high-school students	2014
Federal University of Santa Catarina – Calculus I tutor	2008–2009

Academic and Community Service

McGill Brazilian Students' Association – Founding member	2015
IFT-UNESP Graduate Council – Student representative	2013

Personal Interests

Hiking, climbing, music, writing, literature, philosophy, yoga, meditation, science outreach, teaching, nature, dancing, cooking, and film.

Research Presentations

78 documented research presentations and panel roles: 37 invited lectures and seminars, 9 contributed presentations, 4 panel or moderation roles, and 28 internal or local seminars.

Invited Lectures and Seminars

- [Metaphysics Beyond Spacetime 2026](#): “On quantum-gravitational subsystems” 7 Jun 2026
- [RQI Circuit Stockholm](#): “What is an independent system?” 29 May 2026
- [Okinawa Institute for Science and Technology](#): “Passive quantum reference frame transformations cannot create entanglement between physical systems” 31 Mar 2026
- [Yukawa Institute for Theoretical Physics](#): “Spacetime emergence from quantum error-correcting codes” 23 Oct 2025
- [University of Geneva](#): “On independent subsystems: from classical mechanics to quantum field theory and beyond” 22 May 2025
- [Federal University of Santa Catarina](#): “A tale of emergence” 7 Mar 2025
- [Institute for Theoretical Physics, UNESP, Brazil](#): “Are quantum subsystems invariant?” 13 Feb 2025
- [Yukawa Institute for Theoretical Physics](#): “Are quantum subsystems invariant?” 17 Oct 2024
- [Kavli Institute for the Physics and Mathematics of the Universe](#): “Are quantum subsystems invariant?” 11 Oct 2024
- [Tricontinental Quantum Fundamentals Seminar](#): “Are quantum subsystems invariant?” 1 Oct 2024
- [Causal Fermion Systems Working Seminar](#): “Are quantum subsystems invariant?” 5 Jul 2024
- [Institute for Quantum Optics and Quantum Information, Vienna](#): “Are quantum subsystems invariant?” 18 Jun 2024
- [Higgs Centre Colloquium, University of Edinburgh](#): “A tale of emergence” 23 Apr 2024
- [Philosophy of Science Seminar, Stockholm University](#): “A tale of emergence” 18 Apr 2024
- [Oskar Klein Centre Colloquium](#): “The last Copernican revolution – spacetime of gaps” 11 Apr 2023
- [Copernicus Webinar Series](#): “Is our Universe geometrical after all?” 6 Dec 2022
- [Quantum Foundations and Teaching Conference](#): “The weird reality of Hilbert spaces, or what is quantum physics anyway?” 8 Nov 2022
- [University of Nottingham](#): “Is our Universe geometrical after all?” 3 Nov 2022
- [University of Sheffield](#): “Is our Universe geometrical after all?” 2 Nov 2022
- [Institute for Quantum Optics and Quantum Information, Vienna](#): “Is our Universe geometrical after all?” 18 Oct 2022
- [Tokyo Institute of Technology](#): “Spacetime emergence from quantum mechanics” 15 Jul 2022
- [Perimeter Institute](#): “ α' -Cosmological tale: string cosmology backgrounds from classical string geometry” 28 Apr 2022
- [Institute for Quantum Optics and Quantum Information, Vienna](#): “How can we recover classical spacetime from within quantum mechanics?” 22 Oct 2021
- [University of Cape Town](#): “ α' -Cosmological tale: string cosmology backgrounds from classical string geometry” 9 Oct 2020
- [Copernicus Webinar Series](#): “ α' -Cosmological tale: string cosmology backgrounds from classical string geometry” 20 Aug 2020
- [Queen Mary University of London](#): “ $O(d, d)$ covariant string cosmology to all orders in α' ” 13 Feb 2020
- [Max Planck Institute for Gravitational Physics](#): “ $O(d, d)$ covariant string cosmology to all orders in α' ” 27 Nov 2019
- [Double Field Theory: Progress and Applications, University of Cape Town](#): “Towards DFT cosmology” 11 Feb 2019
- [Perimeter Institute](#): “Unified superfluid dark sector” 8 Nov 2018
- [Perimeter Institute](#): “Towards a T-dual cosmology” 8 Nov 2018
- [SISSA](#): “Beyond inflation – string gas cosmology and recent developments” 10 Oct 2018
- [Radboud University](#): “Beyond inflation – string gas cosmology and recent developments” 4 Oct 2018
- [Humboldt University of Berlin](#): “Beyond inflation – a case for string gas cosmology” 21 Sep 2018
- [University of Vienna](#): “Beyond inflation – a case for string gas cosmology” 18 Sep 2018
- [Yukawa Institute for Theoretical Physics](#): “The road towards DFT cosmology” 17 Apr 2018
- [University of Cape Town](#): “Developing double field theory cosmology” 11 Jan 2018
- [University of Cape Town](#): “Covariant c -flation” 16 May 2017

Contributed Presentations

- [SCALE 2026: Strings and Cosmology – All Lengths Explored](#): “Spacetime emergence from quantum mechanics” 13 May 2026
- [Foundations 2025](#): “On quantum subsystems” 1 Jul 2025
- [DICE 2024](#): “Are quantum subsystems invariant?” 16 Sep 2024
- [German Physical Society, Philosophy of Physics Group](#): “Are quantum subsystems invariant?” 21 Mar 2024
- [RQI Circuit Stockholm](#): “Gravity is a weirdo!” 17 Nov 2023
- [Sejny Summer Institute](#): “Finding gravity within quantum mechanics” 28 Jul 2021
- [Cosmology from Home 2021](#): “ α' -Cosmological tale: string cosmology backgrounds from classical string geometry” 5–16 Jul 2021
- [Essential Next Steps for Gravity and Cosmology, Tohoku University](#): “Unified superfluid dark sector” 19 Jun 2018
- [Rethinking Foundations of Physics 2018](#): “On the intertwined nature of mass and time” 17–24 Mar 2018

Panels and Moderation

- [RQI Circuit Stockholm](#): Career Development Talk with Magdalena Zych 29 May 2026
- [Foundations 2025](#): Panel participant, “Quantum gravity and the philosophical foundations of physics” 1 Jul 2025
- [NORDITA Program on Quantum Gravity](#): Chair, panel discussion “Quantum cosmology” 19 Aug 2024
- [Oskar Klein Centre](#): Panel participant, “Pivotal problems with gravity” 22 Apr 2021

Internal and Local Seminars

- [NORDITA High Energy Physics Group](#): “Spacetime emergence from quantum mechanics” 25 May 2026
- [Stockholm University News and Views](#): “What the heck, gravity!” 14 Dec 2023
- [NORDITA Day 2023](#): “The last Copernican revolution – spacetime of gaps” 30 Aug 2023
- [Dark Energy Day, NORDITA and Oskar Klein Centre](#): “Is our Universe geometrical after all?” 28 Sep 2022
- [OKC/NORDITA Topical Review Series](#): “Tensor product structures in Hilbert spaces” 18 May 2022
- [OKC/NORDITA Topical Review Series](#): “Emergent spacetime” 20 Apr 2022
- [CoPS Lunch Talk, Oskar Klein Centre](#): “Space and time from quantum mechanics” 28 Feb 2022
- [Oskar Klein Centre and NORDITA](#): “ α' -Cosmological tale: string cosmology backgrounds from classical string geometry” 15 Jun 2020
- [Oskar Klein Centre](#): “ $O(d, d)$ covariant string cosmology to all orders in α' ” 4 Dec 2019
- [Graduate Student Seminar, McGill University](#): “Mysteries in the sky” 5 Apr 2019
- [Journal Club, McGill University](#): “Towards a T-dual cosmology” 19 Nov 2018
- [McGill Space Institute](#): “Do we really understand the cosmos?” 30 Aug 2018
- [Graduate Student Seminar, McGill University](#): “An introduction to string gas cosmology and beyond” 26 Oct 2017
- [McGill–Dartmouth Cosmology Day](#): “A short talk on c -flation” 25 May 2017
- [Research Seminar, McGill University](#): “A new alternative to inflation: covariant c -flation” 13 Apr 2017
- [Cosmology Group Meeting, McGill University](#): “Covariant c -flation” 8 Mar 2017
- [Graduate Student Seminar, McGill University](#): “Varying fundamental constants – a covariant approach” 3 Feb 2017
- [Graduate Student Seminar, McGill University](#): “Varying speed of light theories” 9 Dec 2016
- [Journal Club, McGill University](#): “Double field theory: an introduction” 1 Nov 2016
- [Graduate Student Seminar, McGill University](#): “From cosmology to double field theory” 8 Apr 2016
- [McGill Space Institute Lunch Talk](#): “The early Universe conundrum” 4 Apr 2016
- [Graduate Student Seminar, McGill University](#): “Entropic gravity” 6 Sep 2015
- [Cosmology Group Meeting, McGill University](#): “Classicalization” 4 Feb 2015
- [Cosmology Group Meeting, McGill University](#): “Conformal symmetry” 5 Nov 2014
- [Qualification Seminar, IFT-UNESP](#): “Introduction to inflationary theory: classical and quantum aspects” 25 Apr 2014
- [Journal Club, IFT-UNESP](#): “Application of open string field theory to the inflationary scenario” 28 Mar 2014
- [21st Scientific Initiation Week, UFSC](#): “Topological solutions in field theories” Nov 2011
- [20th Scientific Initiation Week, UFSC](#): “Magnetic monopoles in field theories” Nov 2010

Organized Events

- **Co-founder and co-organizer**, [ScientiFika](#) at the Oskar Klein Centre and NORDITA 2021–Present
- **Lead organizer**, [Inaugural Workshop on Emergent Geometries](#), NORDITA 17–21 Nov 2025
- **Co-founder and co-organizer**, [Stromboli Summer Research Intensive](#) 23–30 Aug 2025
- **Co-founder and co-organizer**, [Kefalonia Foundations workshop series](#) (four editions) 2022–2025
- **Co-organizer**, [Basics of Quantum Gravity seminar series](#) May–Nov 2023
- **Co-organizer**, [Foundations Under the Midnight Sun](#) 4–11 Jun 2023
- **Co-organizer**, [1st Basic Research Community for Physics Annual Conference](#) 14–16 Oct 2022
- **Co-organizer**, [Dark Energy Day](#), NORDITA and Oskar Klein Centre 28 Sep 2022
- **Co-organizer**, [Advanced Quantum Mechanics Reading Group](#), NORDITA 2020–2023
- **Co-organizer**, [NORDITA Advanced Winter School on Theoretical Cosmology](#) (SEK 300,000 budget) 13–24 Jan 2020
- **Co-organizer**, [Workshop on Scientific Realism](#), McGill University 28 May–25 Jul 2019
- **Co-organizer**, [Double Field Theory: Progress and Applications](#), University of Cape Town 11–15 Feb 2019
- **Co-organizer**, [McGill–Dartmouth Cosmology Day](#) 25 May 2017

Honors, Awards, and Fellowships

- Nordita Fellowship**, SEK 370,260/year 2019–2021
- Best Ph.D. Student, Laboratory PhysMath 2018–19**, Centre de Recherches Mathématiques, Université de Montréal 2019
- BLUE Fellowship**, CAD 3,000 2019
- Competitive travel support** – six awards (McGill, Moriond, COSMO, Rethinking Foundations) 2014–2019
- Japan Society for the Promotion of Science Fellowship**, JPY 200,000/month 2018
- PBEEE Excellence Scholarship for International Students**, CAD 25,000/year 2017–2018
- Science Without Borders Fellowship**, CAD 23,300/year 2014–2018
- CAPEs Scholarship for M.Sc.**, BRL 18,000/year 2012–2014
- Best Student in the B.Sc. Physics graduating class**, UFSC 2012

Professional Memberships

- **COST Action CA23115**: Relativistic Quantum Information Since 2024
- **COST Action CA23130**: Bridging High and Low Energies in Search of Quantum Gravity Since 2024
- **COST Action CA22113**: Fundamental Challenges in Theoretical Physics Since 2023
- **COST Action CA21136**: Addressing Observational Tensions in Cosmology Since 2023
- **Foundational Questions Institute (FQxI)** Since 2022
- **Basic Research Community for Physics** Since 2018
- **International Society for Quantum Gravity** – former Young Researchers Activity Team member Past service

Selected Research Visits

- Western University, hosted by Francesca Vidotto (one month) Mar 2025
- Kavli IPMU and Yukawa Institute for Theoretical Physics, Japan (three weeks) Oct 2024
- University of Warsaw, collaboration with Chunshan Lin (one month) Sep 2019
- University of Cape Town, collaboration with Amanda Weltman (three months) Jan–Mar 2019
- Perimeter Institute, hosted by Lee Smolin (one month) Oct–Nov 2018
- Yukawa Institute for Theoretical Physics, collaboration with Shinji Mukohyama Apr–Jul 2018
- University of Cape Town, collaboration with Amanda Weltman (three months) Dec 2017–Feb 2018

Selected Conferences, Schools, and Workshops

30+ documented conference, school, and workshop participations, including online events; selected entries below.

- [Quantum Reference Frames 2025](#), OIST 13–17 Oct 2025
- [International Summer Institute in Philosophy of Physics: Philosophy of Cosmology and Quantum Gravity](#) 26 Jun–1 Jul 2022
- [QISS 2022 Conference](#), Western University 6–10 Jun 2022
- [Time in Quantum Theory](#), ETH Zurich 30 Aug–3 Sep 2021
- [Quantum Gravity 2020](#), Perimeter Institute (online) 13–17 Jul 2020

- [Strings 2020](#), University of Cape Town (online) 29 Jun–3 Jul 2020
- [History for Physics: Quantum Gravity](#), Max Planck Institute 28–29 Nov 2019
- [Gravity@Prague 2018](#), CEICO Institute 10–14 Sep 2018
- [String and M-theory Geometries: DFT, EFT and Applications](#), BIRS 23–27 Jan 2017
- [Workshop on Double Field Theory](#), ETH Zurich 20–22 Jan 2016
- [Advanced School on Cosmology](#), ICTP 18–29 May 2015
- [School on Approaches to Quantum Gravity](#), ICTP-SAIFR 2–9 Sep 2013
- [Advanced School in General Relativity: Relativistic Astrophysics and Cosmology](#), ICTP-SAIFR 16–27 Jul 2012

Peer and Grant Review

- Grant reviewer, Olle Engkvist Foundations 2024–Present
- Referee for *Physical Review D*, *Journal of High Energy Physics*, *Monthly Notices of the Royal Astronomical Society*, *European Physical Journal C*, *Physics of the Dark Universe*, *Universe*, *Foundations of Physics*, and *Modern Physics Letters A* Since 2017
- Invited to referee for *General Relativity and Gravitation* 2021
- Invited to referee for *Classical and Quantum Gravity* 2019

Public Outreach

ScientiFika – Co-founder

2021–Present

Grassroots science-communication and community-building initiative for junior researchers at the Oskar Klein Centre and NORDITA. Raised ongoing support of approximately EUR 4,000/year; delivered 150+ events with approximately 5,000 aggregate attendances.

Art–science contribution, [Between Art and Science](#), mudaC, Carrara: “*To Be or Not to Be, but Where?*”

30 Apr 2026

- ScientiFika, NORDITA: “On the nature of time” 30 Jan 2026
- Co-organizer, Cine Ciência – *A História que o Céu nos Conta* 9 Apr 2025
- ScientiFika, NORDITA: “World: So... what are you doing?” 31 Jan 2025
- [Pint of Science Stockholm](#): “On the nature of time” 19 May 2024
- ScientiFika, NORDITA: “A tale of emergence” 19 Apr 2024
- High-school student visit, NORDITA: “Cosmology and everything else!” 29 Jan 2024
- High-school student visit, NORDITA: “Ask a cosmologist anything!” 6 Nov 2023
- High-school student visit, NORDITA: “On the nature of time” 19 Dec 2022
- ScientiFika, NORDITA: “On the nature of time” 9 Dec 2022
- High-school student visit, NORDITA: “Was there a Big Bang?” 22 Oct 2022
- High-school student visit, NORDITA: “Inside the mind of a theoretical cosmologist” 22 Nov 2021
- ScientiFika, NORDITA: “What the heck is entropy anyway?” 12 Nov 2021
- Physics Matters, McGill University: “On the nature of time” 9 Apr 2019
- South African Astronomical Observatory: “Was there really a Big Bang?” 10 Feb 2018
- Astronomy on Tap, Montreal: “What is time?” 26 Sep 2017
- Astronomy on Tap, Montreal: “String cosmology – was there really a Big Bang?” 25 Jul 2017

Other Academic Activities

- World Peace Yoga School: *300-Hour Yoga Teacher Training* Dec 2021
- National Junior Faculty Sweden: *Improving Research Culture – Proposals and Discussions from the Science Community* Fall 2020
- Organizer, *Advanced Cosmology Reading Course*, Yukawa Institute for Theoretical Physics Summer 2018
- Organizer, *Differential Geometry Reading Course*, McGill University 2016–2017
- Organizer, *Cosmology Reading Course*, McGill University Summer 2016
- T-PULSE Presentation Skills Workshop, McGill University 23–25 Feb 2015
- *Leading Effective Discussions: Facilitation Skills for Graduate Students*, McGill University 12 Dec 2014