Jerome Quintin (he/him) — Curriculum Vitæ

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Citizenship: Canadian
Languages: French, English

EMPLOYMENT

Perimeter Institute for Theoretical Physics (PI), Waterloo (ON), Canada
Associate Postdoctoral Researcher — Dec 2022-present

University of Waterloo (UWaterloo), Waterloo (ON), Canada
'Prestigious Postdoctoral Fellowship', Dept. of Applied Math — Dec 2022-present
Associate Postdoc, Waterloo Centre for Astrophysics (WCA) — Dec 2022-present
Joint postdoc with Fields (see below) — July 2022-Nov 2022

Fields Institute, University of Toronto, Toronto (ON), Canada
Fields Postdoctoral Fellow, jointly affiliated with UWaterloo — July 2022-Nov 2022

Max Planck Institute for Gravitational Physics (Albert Einstein Institute), Potsdam, Germany (AEI-Potsdam)
Postdoctoral Researcher — Sep 2019-Jun 2022

EDUCATION

Ph.D. and M.Sc. in Physics, McGill U. — Sep 2013-Jun 2019
Thesis Supervisor: Robert Brandenberger
GPA: 4.0/4.0

B.Sc. in Physics and Mathematics, Bishop's U. — Sep 2010-Apr 2013
Research Advisor: Lorne Nelson
GPA: 95.74/100
Recipient of the Governor General's Silver Medal (student graduating with the highest grade point average in the university at the undergraduate level)

RESEARCH EXPERIENCE

UWaterloo/Perimeter/Fields, independent postdoctoral research — 2022-
AEI-Potsdam, postdoctoral research with Jean-Luc Lehners — 2019-2022
McGill, doctoral research with Robert Brandenberger — 2015-19
ETH-ITS Zurich, Visiting Graduate Research Student — Oct-Nov 2015
McGill, M.Sc. Student with Robert Brandenberger & Yi-Fu Cai — 2013-15
Bishop's, Honors Student with Lorne Nelson & Saul Rappaport (MIT) — 2011-13
Mont-Megantic Observatory, Visiting Scientist — Aug 2011-12-13, May 2012
MIT, Visiting Undergraduate Research Student — May 2011

SELECTED HONORS AND AWARDS

UWaterloo Faculty of Mathematics *Prestigious Postdoctoral Fellowship* — 2022-
Fields Postdoctoral Fellowship, Fields Institute (U. of Toronto) — 2022
AARMS Postdoctoral Fellowship, UNB (declined)
NSERC Postdoctoral Fellowship — 2019-21
FRQNT Postdoctoral Research Scholarship — 2019-21
Kavli IPMU Postdoctoral Fellowship, Tokyo (declined)
Nordita Postdoctoral Fellowship, Stockholm (declined)
Vanier Canada Graduate Scholarship, NSERC — 2016-19
Reinhardt C. Fellowship, McGill — 2017
Walter C. Sumner Memorial Fellowship, McGill — 2015-17
NSERC Alexander Graham Bell Graduate Scholarship - CGS D (declined)
FRQNT Doctoral Research Scholarship — 2015-16
FRQNT Masters Research Scholarship — 2014-15
NSERC Alexander Graham Bell Graduate Scholarship - CGS M — 2013-14
Lorne Trottier Accelerator Award, McGill — 2013
NSERC Undergraduate Student Research Award (USRA, 3 times) — 2011-13
Captain Melville Greenshields Memorial Scholarship, Bishop's — 2011-12

PUBLICATIONS

24. J. L. Lehners and **J. Quintin**, *A small Universe*, Phys. Lett. B **850** (2024) 138488, arXiv:2309.03272 [hep-th]
23. G. Geshnizjani, E. Ling and **J. Quintin**, *On the initial singularity and extendibility of flat quasi-de Sitter spacetimes*, JHEP **10**, 182 (2023), arXiv:2305.01676 [gr-qc]
22. C. Jonas, J. L. Lehners and **J. Quintin**, *Uses of complex metrics in cosmology*, JHEP **08**, 284 (2022), arXiv:2205.15332 [hep-th]
21. C. Ganguly and **J. Quintin**, *Microphysical manifestations of viscosity and consequences for anisotropies in the very early universe*, PRD **105**, 023532, arXiv:2109.11701 [gr-qc]
20. **J. Quintin**, H. Bernardo and G. Franzmann, *Cosmology at the top of the α' tower*, JHEP **07**, 149 (2021), arXiv:2105.01083 [hep-th]
19. C. Jonas, J.-L. Lehners and **J. Quintin**, *Cosmological consequences of a principle of finite amplitudes*, PRD **103**, 103525, arXiv:2102.05550 [hep-th]
18. J.-L. Lehners and **J. Quintin**, *Quantum circuit complexity of primordial perturbations*, PRD **103**, 063527, arXiv:2012.04911 [hep-th]
17. Y. Sakakihara, D. Yoshida, K. Takahashi and **J. Quintin**, *Theories with limited extrinsic curvature and a nonsingular anisotropic universe*, PRD **102**, 084004, arXiv:2005.10844 [gr-qc]
16. **J. Quintin** and D. Yoshida, *Cuscuton gravity as a classically stable limiting curvature theory*, JCAP **2002**, 016, arXiv:1911.06040 [gr-qc]
15. **J. Quintin**, R. H. Brandenberger, M. Gasperini and G. Veneziano, *Stringy black-hole gas in α'-corrected dilaton gravity*, PRD **98**, 103519, arXiv:1809.01658 [hep-th]
14. D. Yoshida and **J. Quintin**, *Maximal extensions and singularities in inflationary spacetimes*, CQG **35**, 155019, arXiv:1803.07085 [gr-qc]
13. C. Lin, **J. Quintin** and R. H. Brandenberger, *Massive gravity and the suppression of anisotropies and gravitational waves in a matter-dominated contracting universe*, JCAP **1801**, 011, arXiv:1711.10472 [hep-th]
12. L. Santos, W. Zhao, E. G. M. Ferreira and **J. Quintin**, *Constraining interacting dark energy with CMB and BAO future surveys*, PRD **96**, 103529, arXiv:1707.06827 [astro-ph.CO]
11. D. Yoshida, **J. Quintin**, M. Yamaguchi and R. H. Brandenberger, *Cosmological perturbations and stability of nonsingular cosmologies with limiting curvature*, PRD **96**, 043502, arXiv:1704.04184 [hep-th]
10. Y. B. Li, **J. Quintin**, D. G. Wang and Y. F. Cai, *Matter bounce cosmology with a generalized single field: non-Gaussianity and an extended no-go theorem*, JCAP **1703**, 031, arXiv:1612.02036 [hep-th]
9. B. Kalomeni, L. Nelson, S. Rappaport, M. Molnar, **J. Quintin** and K. Yakut, *Evolution of cataclysmic variables and related binaries containing a white dwarf*, ApJ **833**, 83, arXiv:1610.03051 [astro-ph.SR]
8. **J. Quintin** and R. H. Brandenberger, *Black hole formation in a contracting universe*, JCAP **1611**, 029, arXiv:1609.02556 [astro-ph.CO]
7. **J. Quintin**, Z. Sherkatghanad, Y. F. Cai and R. H. Brandenberger, *Evolution of cosmological perturbations and the production of non-Gaussianities through a nonsingular bounce: Indications for a no-go theorem in single field matter bounce cosmologies*, PRD **92**, 063532, arXiv:1508.04141 [hep-th]
6. Y. F. Cai, E. G. M. Ferreira, B. Hu and **J. Quintin**, *Searching for features of a string-inspired inflationary model with cosmological observations*, PRD Rapid Communications **92**, 121303, arXiv:1507.05619 [astro-ph.CO]

5. S. F. Bramberger, R. H. Brandenberger, P. Jreidini and **J. Quintin**, *Cosmic string loops as the seeds of super-massive black holes*, JCAP **1506**, 007, arXiv:1503.02317 [astro-ph.CO]
4. Y. F. Cai, F. Chen, E. G. M. Ferreira and **J. Quintin**, *New model of axion monodromy inflation and its cosmological implications*, JCAP **1606**, 027, arXiv:1412.4298 [hep-th]
3. E. G. M. Ferreira, **J. Quintin**, A. A. Costa, E. Abdalla and B. Wang, *Evidence for interacting dark energy from BOSS*, PRD **95**, 043520, arXiv:1412.2777 [astro-ph.CO]
2. **J. Quintin**, Y. F. Cai and R. H. Brandenberger, *Matter creation in a nonsingular bouncing cosmology*, PRD **90**, 063507, arXiv:1406.6049 [gr-qc]
1. Y. F. Cai, **J. Quintin**, E. N. Saridakis and E. Wilson-Ewing, *Nonsingular bouncing cosmologies in light of BICEP2*, JCAP **1407**, 033, arXiv:1404.4364 [astro-ph.CO]

INVITED TALKS (long-term visits of $\gtrsim 2$ weeks denoted by **)

40. Canadian Association of Physicists (CAP) Congress — May 2024
39. Dublin Institute for Advanced Studies, School of Theoretical Physics Seminar — Apr 2024
38. KU Leuven, Institute for Theoretical Physics Seminar — Apr 2024
37. **U. de Sherbrooke**, SAG (Math) Seminar — Oct 2023
36. **AnLy** Strings and Fields Online Seminar — Oct 2023
35. **U. de Montréal**, CRM Mathematical Physics Seminar — Sep 2023
34. **Copernicus** Webinar Series — Jul 2023
33. **Canadian Mathematical Society (CMS)** Meeting — Jun 2023
32. ****McGill U.** Theoretical High Energy Journal Club — Dec 2021
31. **Perimeter Institute** Cosmology Seminar — Nov 2021
30. **U. of New Brunswick** Gravity Group Meeting — Nov 2021
29. **Lisbon U.** Institute of Astrophysics and Space Science Seminar — Nov 2021
28. **Copernicus** Webinar Series — Oct 2021
27. **Jagiellonian U.** Theoretical Cosmology Group Meeting — Jul 2021
26. **Canadian Association of Physicist (CAP)** Congress — Jun 2021
25. **U. of Science and Technology of China** Particle Cosmology Webinar — Feb 2021
24. **ICTS** Workshop - Physics of the Early Universe — Sep 2021
23. **Quantum Aspects of Space-Time and Matter (QASTM)** Online Talk — Apr 2020
22. **U. of Cambridge** DAMTP Cosmology Journal Club — Nov 2019
21. **Warsaw U.** Autumn Workshop on Gravity and Cosmology — Nov 2019
20. **Dartmouth College** Cosmology Seminar — Apr 2019
19. **Ohio State U.** High Energy Physics Seminar — Oct 2018
18. ****Harvard-ITC** Luncheon — Sep 2018
17. ****Harvard-ITC** Prof. Avi Loeb Group Meeting — Sep 2018
16. **Princeton U.** New Directions in Cosmology and Gravitational Theory Talk — Jan 2018
15. **Institut d'Astrophysique de Paris (IAP)** GRECO Seminar — Sep 2017
14. **Imperial College London** 3-PAC Seminar — May 2017
13. **U. of Cambridge** DAMTP Cosmology Journal Club — May 2017
12. **King's College London** Theoretical Particle Physics & Cosmology Seminar — May 2017
11. **Queen Mary U. of London** Cosmology and Relativity Seminar — May 2017

10. **Portsmouth U.** Institute of Cosmology and Gravitation Seminar — May 2017
9. **Tufts U.** Institute of Cosmology Seminar — Apr 2017
8. **U. of Pennsylvania** Astrophysics and Cosmology Group Talk — Apr 2017
7. ****U. of Tokyo** Research Center for the Early Universe Seminar — Jun 2016
6. ****U. of Science and Technology of China** Astronomy Colloquium — Jun 2016
5. **Fundan U.** Cosmology Seminar — Jun 2016
4. **Tokyo Institute of Technology** Cosmology Seminar — Jun 2016
3. **U. of Geneva** Cosmology and Astroparticle Physics Journal Club — Oct 2015
2. ****ENS-Lyon** Centre de Recherche Astrophysique de Lyon Seminar — Oct 2015
1. **Bishop's U.** Physics Seminar — Sep 2015

CONTRIBUTED TALKS

11. Workshop on Mathematical Relativity, Scalar Curvature and Synthetic Lorentzian Geometry as part of the Thematic Program on Nonsmooth Riemannian and Lorentzian Geometry at the Fields Institute — Oct 2022
10. Atlantic General Relativity Conference — May 2022
9. YITP (Kyoto U.) Quantum Cosmology Workshop — Nov 2021
8. Alternative Gravities and Fundamental Cosmology Conference — Sep 2021
7. Northeast Cosmology Workshop at McGill U. — Mar 2018
6. COSMO-17 at Paris U. — Sep 2017
5. Beyond ΛCDM Conference — Jan 2015
4. Centre for Research in Astrophysics of Qubec (CRAQ) Meeting — May 2013
3. American Astronomical Society (AAS) Meeting #221 — Jan 2013
2. Canadian Undergraduate Physics Conference (CUPC) — Oct 2012
1. Centre for Research in Astrophysics of Qubec (CRAQ) Meeting — May 2012

LOCAL TALKS (number of presentations given inside parenthesis)

- 2022-present: UWaterloo/PI/WCA (7), CITA (1), Fields (1; link)
- 2019-2022: AEI-Potsdam (7)
- 2013-2019: McGill U. Centre for High Energy Physics (14), McGill Space Institute (2)
- 2013: Bishop's U. Department of Physics (3)

SELECTED WORKSHOPS, SCHOOLS AND ADDITIONAL CONFERENCES ATTENDED

Puzzles in the Quantum Gravity Landscape, conference @ PI — Oct 2023
Gravity, Strings and Fields, conference @ CRM — Jul 2023
Quantum Simulators of Fundamental Physics, meeting @ PI — Jun 2023
Quantum Spacetime in the Cosmos, workshop @ PI — May 2023
10th Central European Relativity Seminar, conference @ AEI — Feb 2020
Advanced Winter School on Theoretical Cosmology @ Nordita — Jan 2020
Workshop on Geometry and Duality @ AEI — Dec 2019
Symposium on History for Physics: Quantum Gravity @ AEI — Nov 2019
XI International Symposium: Quantum Theory and Symmetries @ UdeM — Jul 2019
XIX International Congress on Mathematical Physics @ Montréal — Jul 2018
Northeast Cosmology Workshop @ McGill — Mar 2018
Gravity in the Early Universe, workshop @ Princeton-PCTS — Jan 2018
McGill-Dartmouth Cosmology Day, workshop @ McGill — May 2017
Einstein Symposium @ ETH Zurich — Nov 2015
AdS/CFT and the Resolution of Cosmological Singularities, workshop @ CRM — Jul 2015
Summer School on Cosmology @ ICTP — Aug 2014

Theory Canada 8, conference @ Bishop's — May 2013
AAS Meeting @ Boston — May 2011

OUTREACH TALKS

- Talk to Cegep students, *Unveiling the Big Bang* @ Marianopolis College — Jan 2024
- Talk (in French) for the Club mathématique de l'Université de Sherbrooke, *Les mathmatiques du Big Bang (The mathematics of the Big Bang)* — Oct 2023
- Public talk (in French) as part of "Astronomie en Fût" (Astronomy on Tap), *L'univers a-t-il eu un commencement? (Did the universe have a beginning?)* @ Montréal — Apr 2017
- Speaker and guide for tours at the Bishop's University Observatory — 2011-13

PRESS COVERAGE

- *The Case for a Small Universe* by Brian Koberlein for Universe Today
- *The Case for a Small Universe* on Phys.org
- *How large is our Universe?* by Elke Müller of the AEI Press Office
- *The hunt for black holes older than the universe itself* by Bernard Carr in NewScientist
- *Did the Universe Begin? Rethinking the Penrose Hawking & BGV theorems* by Phil Halper on YouTube (documentary)
- *Semeando buracos negros supermassivos (Sowing supermassive black holes)* by Rua Josephine for Cientistas Feministras (in Portuguese)
- *Evolution of cataclysmic variables and related binaries containing accreting white dwarfs* on Phys.org
- *The 'Dark' Universe May Be Full of Strange Interactions* by Charles Q. Choi for NOVA

PROFESSIONAL ACTIVITIES AND COMMUNITY

- Member of the SOC for the conference 50 Years of Horndeski Gravity: Exploring Modified Gravity — Jul 2024
- Institute of Physics (IOP) Trusted Reviewer status — Sep 2023
- Review Editor for Frontiers in Astronomy and Space Sciences and Frontiers in Physics, Cosmology section — Jan 2023-present
- Referee for PRL, PRD, JCAP, PLB, CQG, EPJ C, NPB, MPLA, IJMPA, MDPI (Universe, Symmetry, Entropy), LHEP, Physica Scripta, Ap&SS, and INJP
- Writing reviews for the American Mathematical Society's Mathematical Reviews Database — Sep 2021-present
- Member of the SOC for the Nordita Winter School on Theoretical Cosmology — Jan 2020
- Reviewed a grant proposal for the National Science Center of Poland — Dec 2018
- McGill HEP-th Journal Club organizer — Sep 2017-Dec 18
- Helped with the organization of the Northeast Cosmology Workshop — Mar 2018
- Helped with the organization of the McGill-Dartmouth Cosmology Day — May 2017
- Helped with the organization of the Theory Canada 8 Conference — May 2013

SUPERVISION AND TEACHING

UWaterloo/PI

- Substitute Lecturer (upcoming in 2024)
- Participation in the Math Teaching Seminar Sep 2023-present
- Mentoring PhD student Brayden Hull Jan 2023-present
- Mentoring MMath student Elly Moghtaderi Sep 2022-present
- Mentoring PhD student Amir Dehghani Sep 2021-present

AEI-Potsdam

- Mentoring PhD student Caroline Jonas Oct 2019-Jun 2022

McGill U.

- Substitute Lecturer Sep 2017
  Very Early Universe
- Mentor for the MGAPS mentorship program Sep-Dec 2016
- Teaching Assistant Sep 2013-Apr 2017
  General Relativity and Cosmology, *Modern Physics and Relativity*, *Electromagnetic Waves*, *Introductory Physics – Mechanics*, *Honours Classical Mechanics 2*, *Honours Classical Mechanics 1*, *Topics in Classical Mechanics*, *Modern Physics and Relativity*

Bishop's U.

- Tutor at the Bishop's University Physics Help Centre Sep 2012-Apr 13
- Teaching Assistant Jan 2012-Apr 2013
  Introduction to Mechanics, *Differential Equations*, *Thermal and Fluid Physics*

Private mathematics and physics tutor (high school and college level) 2009-11, 2015

PROGRAMMING

- Languages I have had experience with: `Python` (incluing `NumPy`, `SciPy`, `Matplotlib`, etc.), `Fortran`, `C/C++`, `Java`, `UNIX shell scripts`, `Perl`, `Mathematica`, `Maple`
- Some codes I have run and/or modified over the years: `CAMB`, `MultiModeCode`, `MathGR`, `xAct`, `PyTransport`, `CosmicPy`, `Pyflation`, `MESA`