

Jerome Quintin – Curriculum Vitae

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Citizenship: Canadian

Languages: French, English, German (intermediate)

EMPLOYMENT	Max Planck Institute for Gravitational Physics (Albert Einstein Institute), Potsdam, Germany Postdoctoral Researcher	Sep 2019-present
EDUCATION	Ph.D. and M.Sc. in Physics, McGill U. Thesis Supervisor: Robert Brandenberger GPA: 4.0/4.0	Sep 2013-Jun 2019
	B.Sc. in Physics and Mathematics, Bishop's U. Research Advisor: Lorne Nelson GPA: 95.74/100 <i>Recipient of the Governor General's Silver Medal (student graduating with the highest grade point average in the university at the undergraduate level)</i>	Sep 2010-Apr 2013
RESEARCH EXPERIENCE	AEI Potsdam , Postdoctoral Researcher with Jean-Luc Lehnert McGill , Ph.D. Student with Robert Brandenberger ETH-ITS Zurich , Visiting Graduate Research Student McGill , M.Sc. Student with Robert Brandenberger & Yi-Fu Cai Bishop's , Honors Student with Lorne Nelson & Saul Rappaport (MIT) Mont-Megantic Observatory , Visiting Scientist MIT , Visiting Undergraduate Research Student	2019-present 2015-19 Oct-Nov 2015 2013-15 2011-13 Aug 2011-12-13, May 2012 May 2011
SELECTED HONORS AND AWARDS	NSERC Postdoctoral Fellowship FRQNT Postdoctoral Research Scholarship Kavli IPMU Postdoctoral Fellowship, Tokyo (declined) Nordita Postdoctoral Fellowship, Stockholm (declined) Vanier Canada Graduate Scholarship , NSERC Reinhardt C. Fellowship, McGill Walter C. Sumner Memorial Fellowship, McGill NSERC Alexander Graham Bell Graduate Scholarship - CGS D (declined) FRQNT Doctoral Research Scholarship FRQNT Masters Research Scholarship NSERC Alexander Graham Bell Graduate Scholarship - CGS M Lorne Trottier Accelerator Award, McGill NSERC Undergraduate Student Research Award (USRA, 3 times) Captain Melville Greenshields Memorial Scholarship, Bishop's Richard Tomlinson Scholarship, Bishop's	2019-21 2019-21 2016-19 2017 2015-17 2015-16 2014-15 2013-14 2013 2011-13 2011-12 2010-11
PUBLICATIONS	<ol style="list-style-type: none">21. C. Ganguly and J. Quintin, <i>Microphysical manifestations of viscosity and consequences for anisotropies in the very early universe</i>, arXiv:2109.11701 [gr-qc]20. J. Quintin, H. Bernardo and G. Franzmann, <i>Cosmology at the top of the α' tower</i>, JHEP 07, 149 (2021), arXiv:2105.01083 [hep-th]19. C. Jonas, J.-L. Lehnert and J. Quintin, <i>Cosmological consequences of a principle of finite amplitudes</i>, PRD 103, 103525, arXiv:2102.05550 [hep-th]18. J.-L. Lehnert and J. Quintin, <i>Quantum circuit complexity of primordial perturbations</i>, 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
SEMINARS AND
CONFERENCE
TALKS**

- 2021
- *Isotropisation in the Approach to a Singularity*
[Copernicus Webinar Series](#)
 - *Cosmological Consequences of a Principle of Finite Amplitudes*
[AltFunCosmo'21](#), Jagiellonian U.
 - *Discriminating Between Theories of the Very Early Universe*
[CAP Congress](#)
 - *Quantum Circuit Complexity of Primordial Perturbations*
[USTC](#)
- 2020
- *Limiting Curvature in the Very Early Universe*
[ICTS Workshop - Physics of the Early Universe](#), Cargèse (canceled due to the pandemic)
 - *Bouncing Cosmology: the Current State and the Road Ahead*
[QASTM Online Talk](#)
- 2019
- *Cuscuton Gravity as a Classically Stable Limiting Curvature Theory*
[Cambridge-DAMTP](#), [Workshop on Gravity and Cosmology @ Warsaw U.](#), [Dartmouth](#)
- 2018
- *The Fate of a Contracting Universe and the Evolution of Stringy Black Holes*
[OSU](#)
 - *Black Hole Formation in a Contracting Universe*
[Harvard-ITC](#)
 - *Challenges for the Matter Bounce Scenario*
[Harvard-ITC](#), [Princeton-PCTS](#), [Northeast Cosmology Workshop @ McGill](#)
- 2017
- *Stability of Nonsingular Cosmologies with Limiting Curvature*
[Imperial](#), [COSMO @ Paris VII](#)
 - *The Fate of a Contracting Universe: Black Holes Before the Big Bang*
[Cambridge-DAMTP](#), [UPenn](#), [IAP](#), [KCL](#), [QMUL](#), [Tufts](#), [Portsmouth-ICG](#)
- 2016
- *No-Go Theorem in Nonsingular Bouncing Cosmology*
[Tokyo U.](#), [Tokyo Tech](#), [Fudan](#)
 - *Conspiracy in the Dark: A New Twist on Dark Matter and Dark Energy*
[USTC](#)
- 2015
- *No-Go Theorem in Nonsingular Bouncing Cosmology*
[Geneva](#)
 - *The Successes and Problems of Inflationary Cosmology and its Alternatives*
[ENS-Lyon](#)
 - *Connecting Theories of the Very Early Universe with Cosmological Observations*
[Bishop's](#)
 - *Matter Creation in a Nonsingular Bouncing Cosmology*
[Beyond \$\Lambda\$ CDM conference @ Oslo](#)

2013

- *X-Ray Binary Evolution: The Effects of Self-Induced Irradiation*
[AAS Meeting @ Long Beach](#), [CRAQ Meeting](#), [CUPC @ Vancouver](#)

INTERNAL SEMINARS

AEI Potsdam, Theoretical Cosmology Group Meeting/Journal Club (JC) 2019-

On the role of conformal symmetry in the very early universe
On classical, semi-classical and quantum versions of the null energy condition
Isotropisation mechanisms in bouncing cosmology
What are primordial standard clocks?
Cuscuton gravity as a classically stable limiting curvature theory

McGill

2014-2019

Cosmological scalar-tensor theories after GW170817, [MSI Cosmo-ph JC](#)
The connection between mimetic gravity, limiting curvature, and the cuscuton, HEP-th JC
The string/black hole correspondence, HEP-th Graduate Seminar
Nonsingular spacetimes with limiting curvature, HEP-th JC
Hamiltonian analysis of gauge systems: gravity as an example, HEP-th Grad Seminar
The fate of a contracting universe and the state of matter at high density, HEP-th JC
The search for a theory of the very early universe, MSI Lunch Talk
Stability of nonsingular cosmologies, HEP-th Grad Seminar
Thermal fluctuations in the very early universe, HEP-th Grad Seminar
Interacting dark matter and dark energy, how crazy is that?!, HEP-th JC
Backreaction in cosmology: averaging Einsteins equations, HEP-th Grad Seminar
Towards a no-go theorem in bouncing cosmology, HEP-th JC
Black hole superradiance, Lecture as part of Advanced GR and QFT in curved spacetime
Cosmological perturbations in bouncing cosmology, HEP-th Grad Seminar
More on manifolds, Lie groups and Lie algebras, Lecture as part of Geometry/Topology
Gravitational particle production: application to bouncing cosmology, HEP-th Grad Seminar

Bishop's

2013

X-ray Binary Evolution: The Effects of Self-Induced Irradiation, Physics Seminar
Amazing Astronomy using the New BU Telescope, Physics Seminar

WORKSHOPS, SCHOOLS AND ADDITIONAL CONFERENCES ATTENDED

Regular Black Holes in Quantum Gravity and Beyond , Online Workshop	Oct 2021
Black Holes Inside and Out , Online Conference	Sep 2021
Cosmological Frontiers in Fundamental Physics , Online Conference	May 2021
Gravitational-Wave Primordial Cosmology , Online Workshop	May 2021
The Quantum & The Gravity , Online Workshop	April 2021
Current Challenges in Gravitational Physics , Online Workshop	April 2021
Quantum Gravity, Higher Derivatives and Nonlocality , Online Workshop	Mar 2021
10th Central European Relativity Seminar @ 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 @ Princeton-PCTS	Jan 2018
McGill-Dartmouth Cosmology Day @ McGill	May 2017
100 Years, General Theory of Relativity, Einstein Symposium @ ETH Zurich	Nov 2015
Workshop on AdS/CFT and the Resolution of Cosmological Singularities @ 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	Public talk (in French), “Astronomie en Fût” (Astronomy on Tap), <i>L’univers a-t-il eu un commencement?</i> (<i>Did the universe have a beginning?</i>) @ Montréal	Apr 2017
	Speaker and guide for tours at the Bishop’s University Observatory	2011-13
PRESS COVERAGE	Semeando buracos negros supermassivos (<i>Sowing supermassive black holes</i>) by Rua Josephine in Cientistas Feministas (in Portuguese)	
	Evolution of cataclysmic variables and related binaries containing accreting white dwarfs in Phys.org	
	The ‘Dark’ Universe May Be Full of Strange Interactions by Charles Q. Choi in NOVA	
PROFESSIONAL ACTIVITIES AND COMMUNITY	Referee for PRD, PRL, JCAP, PLB, CQG, EPJ C, MPLA, LHEP, Physica Scripta, and Ap&SS	
	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 @ McGill	Mar 2018
	Helped with the organization of the McGill-Dartmouth Cosmology Day @ McGill	May 2017
	Helped with the organization of the Theory Canada 8 Conference @ Bishop’s	May 2013
SUPERVISION AND TEACHING	AEI	
	• Co-supervised PhD student Caroline Jonas	Oct 2019-Feb 2021
	McGill	
	• Substitute Lecturer	Sep 2017
	<i>Very Early Universe</i> (Instructor: Robert Brandenberger)	
	• Teaching Assistant	Sep 2013-Apr 2017
	<i>General Relativity and Cosmology</i> (Instructor: Robert Brandenberger), <i>Modern Physics and Relativity</i> (Alex Maloney), <i>Electromagnetic Waves</i> (James Cline), <i>Introductory Physics – Mechanics</i> (Kenneth Ragan), <i>Honours Classical Mechanics 2</i> (Guillaume Gervais), <i>Honours Classical Mechanics 1</i> (Robert Brandenberger), <i>Topics in Classical Mechanics</i> (Gilbert Holder), <i>Modern Physics and Relativity</i> (Lilian Childress)	
	Bishop’s U.	
	• Tutor at the Bishop’s University Physics Help Centre	Sep 2012-Apr 13
	• Teaching Assistant	Jan 2012-Apr 2013
	<i>Introduction to Mechanics</i> (Instructor: Ariel Edery), <i>Differential Equations</i> (Brad Willms), <i>Thermal and Fluid Physics</i> (Sylvain Turcotte)	
	Private mathematics and physics tutor (high school and college level)	2009-11, 2015