

# Evan McDonough

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## Academic Appointments

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January 2023 - :	Director, Winnipeg Institute of Theoretical Physics
Fall 2021 - :	University of Winnipeg Assistant Professor of Physics
2020 -2021 :	University of Chicago <a href="#">Kavli Fellow</a> , <a href="#">Enrico Fermi Fellow</a>
2020:	Massachusetts Institute of Technology <a href="#">Banting Fellow</a>
2017-2020:	Brown University Post-Doctoral Research Associate, <a href="#">Presidential Scholar</a> Post-doctoral Researcher

## Education

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2012-2017:	McGill University Ph.D. Physics,
2008-2012:	McGill University Hon. B.Sc. Physics

## Grants

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### **Research Manitoba New Investigator Operating Grant, 2023-2025**

Proposal: *Non-Thermal Dark Matter Production in Multifield Cosmic Inflation*

Amount: \$50,000 (\$25k/yr, 2 years).

Amount: up to \$50,000 matching funds (1 year).

**NSERC Discovery Grant. 2022-2026**Proposal: *Dark Matter in Extreme Environments*

Amount: \$205,000 (\$41k/yr, 5 years).

**Arthur B. McDonald Canadian Astroparticle Physics Research Institute, HQP Shared Resources Grant. 2022-2023.**Proposal: *Ultralight Dark Matter*

Amount: \$40,000 (\$20k/yr, 2 years).

## Publications

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Summary statistics as of Feb 2024:

 $h$ -index: 25,

published papers: 44; including preprints: 47

43.2 cites per published paper.

**2023:**

47. E. McDonough, J. C. Hill, M. M. Ivanov, A. La Posta and M. W. Toomey, *Observational constraints on early dark energy*, Invited Review for International Review of Modern Physics D, submitted. [[arXiv:2310.19899](https://arxiv.org/abs/2310.19899)].
46. C. Capanelli, L. Jenks, E. W. Kolb and E. McDonough, *Cosmological Implications of Kalb-Ramond-Like-Particles*, JHEP, submitted. [[arXiv:2309.02485](https://arxiv.org/abs/2309.02485)].
45. S. Alexander, H. Gilmer, T. Manton and E. McDonough, *The  $\pi$ -axion and  $\pi$ -axiverse of dark QCD*, Phys.Rev.D 108 (2023) [[arXiv:2304.11176](https://arxiv.org/abs/2304.11176)].
44. M. Cicoli, M. Licheri, R. Mahanta, E. McDonough, F. G. Pedro and M. Scalisi, *Early Dark Energy in Type IIB String Theory*, JHEP 06 (2023) 052 [[arXiv:2303.03414](https://arxiv.org/abs/2303.03414)].
43. W. Qin, S. R. Geller, S. Balaji, E. McDonough and D. I. Kaiser, *Planck Constraints and Gravitational Wave Forecasts for Primordial Black Hole Dark Matter Seeded by Multifield Inflation*, Phys.Rev.D 108 (2023) 4, 043508 [[arXiv:2303.02168](https://arxiv.org/abs/2303.02168)].

**2022:**

42. M. X. Lin, E. McDonough, J. C. Hill and W. Hu, *A Dark Matter Trigger for Early Dark Energy Coincidence*, Phys.Rev.D 107 (2023) 10, 103523, [[arXiv:2212.08098](https://arxiv.org/abs/2212.08098)].
41. L. Jenks, K. Koutrolikos, E. McDonough, S. Alexander and S. J. Gates, *Towards A Direct Detection of the Spin of Dark Matter*, Phys.Lett.B 842 (2023) 137956, [[arXiv:2212.07442](https://arxiv.org/abs/2212.07442)].
40. E. W. Kolb, A. J. Long, E. McDonough and G. Payeur, *Completely Dark Matter from Rapid-Turn Multifield Inflation*, JHEP 02 (2023) 181 [[arXiv:2211.14323](https://arxiv.org/abs/2211.14323)].

39. E. McDonough and M. Scalisi, *Towards Early Dark Energy in String Theory*, Preprint available at [[arXiv:2209.00011](https://arxiv.org/abs/2209.00011)].
38. A. Maleknejad and E. McDonough, *Ultra-Light Pion (ULP) and Baryon WIMPzilla Dark Matter*. Phys.Rev.D 106 (2022) 9, 095011 [[arXiv:2205.12983](https://arxiv.org/abs/2205.12983)].
37. S. Geller, W. Qin. E. McDonough, and D. I. Kaiser, *Primordial Black Holes from Multifield Inflation with Nonminimal Couplings*. Phys.Rev.D 106 (2022) 6, 063535 [[arXiv:2205.04471](https://arxiv.org/abs/2205.04471)].

**2021:**

36. E. McDonough, M. X. Lin, J. C. Hill, W. Hu and S. Zhou, *The Early Dark Sector, the Hubble Tension, and the Swampland*. Phys.Rev.D 106 (2022) 4, 043525 [[arXiv:2112.09128](https://arxiv.org/abs/2112.09128)].
35. S. Alexander, C. Capanelli, E. G. M. Ferreira, and E. McDonough, *Cosmic Filament Spin from Dark Matter Vortices*. Phys.Lett.B 833 (2022) 137298 [[arXiv:2111.03061](https://arxiv.org/abs/2111.03061)].
34. K. Inomata, E. McDonough and W. Hu, *Amplification of Primordial Perturbations from the Rise or Fall of the Inflaton*. JCAP 02 (2022) 02, 031 [[arXiv:2110.14641](https://arxiv.org/abs/2110.14641)].
33. K. Inomata, E. McDonough, and W. Hu, *Primordial Black Holes Arise When The Inflaton Falls*. Phys.Rev.D 104 (2021) 12, 123553. [[arXiv:2104.03972](https://arxiv.org/abs/2104.03972)].
32. E. W. Kolb, A. J. Long and E. McDonough, *The Gravitino Swampland Conjecture*. Phys. Rev. Lett. 127 (2021) 13, 131603 [[arXiv:2103.10437](https://arxiv.org/abs/2103.10437)].
31. E. W. Kolb, A. J. Long, and E. McDonough, *Catastrophic Production of Slow Gravitinos*. Phys. Rev. D 104 (2021) 7 [[arXiv:2102.10113](https://arxiv.org/abs/2102.10113)].

**2020:**

30. S. Alexander, E. McDonough, and David N. Spergel, *Strongly-Interacting Ultralight Millicharged Particles*. Phys. Lett. B, 822, 2021, 136653. [[arXiv:2011.06589](https://arxiv.org/abs/2011.06589)].
29. S. Alexander, L. Jenks and E. McDonough, *Higher Spin Dark Matter*. Phys. Lett. B 819, 2021,136436. [[arXiv:2010.15125](https://arxiv.org/abs/2010.15125)].
28. E. McDonough, A. H. Guth, D. I. Kaiser, *Nonminimal Couplings and the Forgotten Field of Axion Inflation*. Preprint available at [[arXiv:2010.04179](https://arxiv.org/abs/2010.04179)].
27. M. M. Ivanov, E. McDonough, J. C. Hill, M. Simonović, M. W. Toomey, S. Alexander, and M. Zaldarriaga, *Constraining Early Dark Energy with Large-Scale Structure*. Phys. Rev. D 102 (2020) 103502 . [[arXiv:2006.11235](https://arxiv.org/abs/2006.11235)].
26. J. C. Hill, E. McDonough, M. W. Toomey and S. Alexander, *Early Dark Energy Does Not Restore Cosmological Concordance*. Editors suggestion, Phys. Rev. D 102 (2020) 4, 043507 . [[arXiv:2003.07355](https://arxiv.org/abs/2003.07355)].
25. S. Alexander, G. Herczeg, J. Liu and E. McDonough, *Chiral Symmetry and the Cosmological Constant*. Phys. Rev. D 102 (2020) 8, 083526. [[arXiv:2003.08416](https://arxiv.org/abs/2003.08416)].

24. E. McDonough, *The Cosmological Heavy Ion Collider: Fast Thermalization after Cosmic Inflation*. Phys. Lett. B 809 (2020) 135755. [[arXiv:2001.03633](#)].

**2019:**

23. S. Alexander, E. McDonough, A. Pullen and B. Shapiro, *Physics Beyond The Standard Model with Circular Polarization in the CMB and CMB-21cm Cross-Correlation*. JCAP **2001**, no. 01, 032 (2020) [[arXiv:1911.01418](#)].
22. S. Alexander, S. Gleyzer, E. McDonough, M. W. Toomey and E. Usai, *Deep Learning the Morphology of Dark Matter Substructure*. Ap. J. **15** **893** (2020) [[arXiv:1909.07346](#)].
21. S. Alexander, S. J. Gates Jr. , L. Jenks, K. Koutrolikos, and E. McDonough, *Higher Spin Supersymmetry at the Cosmological Collider: Sculpting SUSY Rilles in the CMB*. JHEP **1910**, 156 (2019) [[arXiv:1907.05829](#)].
20. S. Alexander and E. McDonough, *Axion-Dilaton Destabilization and the Hubble Tension*. Phys. Lett. B797 (2019) [[arXiv:1904.08912](#)].
19. R. Kallosh, A. Linde, E. McDonough, and M. Scalisi, *dS vacua and the Swampland*. JHEP 1903 (2019) 134 [[arXiv:1901.02022](#)].
18. S. Alexander, J. Bramburger, and E. McDonough, *Dark Disk Substructure and Superfluid Dark Matter*. Phys. Lett. B797 (2019) [[arXiv:1901.03694](#)].

**2018:**

17. S. Alexander and E. McDonough, *Primordial Circular Polarization in the Cosmic Microwave Background*. Phys. Lett. B 0370 (2018) 2693 [[arXiv:1811.05953](#)].
16. R. Kallosh, A. Linde, E. McDonough and M. Scalisi, *4d models of dS uplift in KKLT*. Phys.Rev. D99 (2019) no.4, 046006 [[arXiv:1809.09018](#)].
15. S. Alexander, E. McDonough, R. Sims and N. Yunes, *Hidden-Sector Modifications to Gravitational Waves From Binary Inspirals*, Class. Quant. Grav. **35**, no. 23, 235012 (2018) [[arXiv:1808.05286](#)].
14. R. Kallosh, A. Linde, E. McDonough and M. Scalisi, *de Sitter Vacua with a Nilpotent Superfield*. Fortschr. Phys. 2018, 1800068 [[arXiv:1808.09428](#)].
13. K. Dasgupta, M. Emelin, E. McDonough, and R. Tatar, *Quantum Corrections and the de Sitter Swampland Conjecture*. JHEP **1901**, 145 (2019) [[arXiv:1808.07498](#)].
12. S. Alexander and E. McDonough, *Observable Chiral Gravitational Waves from Inflation in String Theory*. JCAP 1811, no. 11, 030 (2018) [[arXiv:1806.05684](#)].
11. S. Alexander, E. McDonough, and D. N. Spergel, *Chiral Gravitational Waves and Baryon Superfluid Dark Matter*, JCAP 1805, no. 05, 003 (2018) [[arXiv:1801.07255](#)].

**2013-2017:**

10. H. Bazrafshan Moghaddam, E. McDonough, R. Namba, and R. H. Brandenberger, *Inflationary magneto-(non)genesis, increasing kinetic couplings, and the strong coupling problem*, *Class. Quant. Grav.* 35, no. 10, 105015 (2018) [[arXiv:1707.05820](#)].
9. S. Alexander, E. McDonough, and R. Sims, *V-mode Polarization in Axion Inflation and Preheating*, *Phys. Rev. D* 96, no. 6, 063506 (2017) [[arXiv:1704.00838](#)].
8. E. McDonough and M. Scalisi, *Inflation from Nilpotent Kähler Corrections*, *JCAP* 1611, no. 11, 028 (2016) [[arXiv:1609.00364](#)].
7. K. Dasgupta, M. Emelin, and E. McDonough, *Fermions on the Anti-Brane: Higher Order Interactions and Spontaneously Broken Supersymmetry*, *Phys. Rev. D* 95, 026003 [[arXiv:1601.03409](#)].
6. E. McDonough, H. B. Moghaddam, and R. H. Brandenberger, *Preheating and Entropy Perturbations in Axion Monodromy Inflation*, *JCAP* 1605 (2016) 012 [[arXiv:1601.07749](#)].
5. K. Dasgupta, M. Emelin, and E. McDonough, *Non-Kähler Resolved Conifold, Localized Fluxes in M-Theory and Supersymmetry*, *JHEP* 1502 (2015) 179 [[arXiv:1412.3123](#)].
4. L. P. Levasseur and E. McDonough, *Backreaction and Stochastic Effects in Single Field Inflation*, *Phys.Rev. D*91 (2015) 063513 [[arXiv:1409.7399](#)].
3. K. Dasgupta, R. Gwyn, E. McDonough, M. Mia, and R. Tatar. *de Sitter Vacua in Type IIB String Theory: Classical Solutions and Quantum Corrections*, *JHEP* 1407, 054 (2014) [[arXiv:1402.5112](#)].
2. Y. -F. Cai, E. McDonough, F. Duplessis and R. H. Brandenberger, *Two Field Matter Bounce Cosmology*, *JCAP* 1310, 024 (2013) [[arXiv:1305.5259](#)].
1. E. McDonough and R. H. Brandenberger, *Searching for Signatures of Cosmic String Wakes in 21cm Redshift Surveys using Minkowski Functionals*, *JCAP* 1302, 045 (2013) [[arXiv:1109.2627](#)].

## Student Mentoring and Research Supervision

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### Research Supervision:

*Undergraduate*: two summer undergraduate researchers, 2022; 4 summer undergraduates 2023

*Graduate*: 1 PhD candidate, McGill University, Sept. 2022 - ; 1 MSc, McGill University, 2023- ; 1 PhD, U Manitoba, 2023-

*High School*: Maples Met Internship. Student won provincial science fair competition, CAP medal, and silver medal in Canada-Wide Science Fair

### Research Co-Supervision During Postdoc Appointments:

*Density Perturbations Group, MIT*: Mentor and informal research co-supervisor to five (5) undergraduate students in the Density Perturbations Group (DPG) at the MIT, led by Alan Guth and David Kaiser.

*Presidential Scholars Program, Brown University:* Mentor, tutor, and advisor to undergraduate **Presidential Scholars** at Brown University.

*Brown University, Research Supervision:* co-supervision of six (6) undergraduate research projects, and nine (9) graduate theses.

## Awards and Honours

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Selected awards and prizes totaling \$311,000 .

Banting Fellowship, Government of Canada.

*2020. \$140,000. National Prize Postdoctoral Fellowship*

Post-Doctoral Fellowship (PDF), Natural Sciences and Engineering Research Council (NSERC)

*2017-2019, \$90,000. National Award.*

P. R. Wallace Thesis Prize, Canadian Association of Physicists,

*2019. National award for best Doctoral thesis.*

Prix Meilleur Etudiant, Centre de Recherches Mathematiques (CRM)

*2017, \$1,000. National award for Doctoral research.*

Post-Graduate Scholar Doctoral fellowship (PGS D), Natural Sciences and Engineering Research Council (NSERC).

*2014-2017, \$63,000. National award.*

Lorne Trottier Science Accelerator Fellowship, McGill University

*2014, \$5,000. Award from McGill University.*

Wolfe Fellowship in Scientific and Technological Literacy, McGill University

*2015, \$12,000. Award from McGill University.*

## Teaching

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### **Course Instructor**

PHYS 2106: Math Physics II

Winter 2022 & Winter 2023, University of Winnipeg

Enrolment: 13 students.

*Mathematical methods for undergraduate physics students. Sole instructor, responsible for all teaching and assessment.*

**Course Instructor**

PHYS 4201: Electrodynamics

Fall & Winter 2021-2022 & 2022-2023, University of Winnipeg

Enrolment: 6 students.

*Advanced electromagnetism for upper-year undergraduates. Sole instructor, responsible for all teaching and assessment.*

**Guest Lecturer**

PHYS 0150: The Jazz of Physics

Fall 2017, Fall 2018, Fall 2019. Brown University

Enrolment: 40 students.

*Designed and gave 6 lectures per term.*

**Course Co-Instructor**

PHYS 743: Very Early Universe

Fall 2016, McGill University

Enrolment: 11 students.

*Designed and organized the course, gave four lectures, and assessed student performance. Utilized the 'just in time' teaching method.*

**Course Organizer**

PHYS 731: Mathematical Methods of High Energy Physics (Special Topics Course)

Winter 2013, McGill University

Enrollment: 4 students.

*Organized and led a reading course on mathematical aspects of higher energy physics, for graduate students at McGill University.*

**Lecturer:**

Summer Lectures on Topological Defects and Cosmology

May-June 2012, McGill University.

*Lecture series (8 lectures) on topological defects (e.g. cosmic strings, monopoles) and their observational signatures to undergraduate and graduate students at McGill University.*

## Professional Service and Activities

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**Scientific Council Member**, Institute of Particle Physics

**Director**, Winnipeg Institute for Theoretical Physics

**Chair, Departmental Colloquium Committee**, University of Winnipeg Physics department.

**Chair, Graduate Program Committee**, University of Winnipeg Physics department.

**Diversity and Inclusion Committee:** Serving member and post-doc representative on the Departmental Diversity and Inclusion Action Plan (DDIAP) committee, Brown University Physics department.

**Referee for journals:** Referee for *Physical Review Letters*, *Journal of High Energy Physics*, *Physical Review D*, and *European Physics Journal C*.

**Conference Co-organizer:** *String Theory and Cosmology*, June 15 - 16, 2019. Gordon Research Seminar, Barcelona, Spain.

**Workshop Co-organizer:** *Northeast Cosmology Workshop*, March 16-18, 2018. Workshop at McGill University.

**Seminar Series Organizer:** *Brown Physics Post-Doc Journal Club*, 2018-2019, Brown University.

**Session Chair:** "Quantum Gravity and Gravitational Waves", *Theory Canada 13* June 7-10, 2018. National conference at St. Francis-Xavier University.

**Seminar Series Organizer:** *High Energy Theory Journal Club*, 2015-2017, McGill University.

**Webmaster for the High Energy Physics Seminars Listing Website:** Fall 2015 - 2017.

## Seminars and Invited Talks

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Recordings of talks at Stanford University, at the Institute for Advanced Study, and at the Perimeter Institute, can be found on my website here: [www.evanmcdonoughphysics.com](http://www.evanmcdonoughphysics.com).

Talks in order of date:

59. Invited talk at Institute of Particle Physics Annual General Meeting, *Canadian Subatomic Theory Update 2023*, June 23, 2023.
58. Invited talk at CAP Congress 2023, *The  $\pi$ -axion and  $\pi$ -axiverse of Dark QCD*, June 22, 2023.
57. Invited Copernicus Webinar, *The  $\pi$ -axion and  $\pi$ -axiverse of Dark QCD*, May 23, 2023.
56. Invited colloquium speaker, Prairie University Physics Speaker Series (PUPSS), University of Regina, *Cosmological Condensed Matter Physics*, Feb 10, 2023.
55. Invited colloquium speaker, Prairie University Physics Speaker Series (PUPSS), University of Saskatoon, *Cosmological Condensed Matter Physics*, Feb 9, 2023.
54. WITP Colloquium, Brandon University, January 16, *Cosmological Condensed Matter Physics*, Feb 9, 2023.
53. Invited colloquium speaker at the University of Manitoba, *Ultralight Dark Matter and Cosmological Condensed Matter Physics*, November 25, 2022.



52. Invited colloquium speaker at the University of North Dakota, *Ultralight Dark Matter and Cosmological Condensed Matter Physics*, October 28, 2022.
51. Invited talk at McGill University, *Ultralight Dark Matter from A(LPs) to U(LPs)*, October 12, 2022.
50. Keynote talk at Canadian Association of Physicists (CAP) Congress 2022, McMaster University, Hamilton ON. *Ultralight Dark Matter and Cosmological Condensed Matter Physics*, June 9, 2022.
49. Invited talk at the Institute for Advanced Study, Princeton, NJ, *Ultralight Dark Matter and Cosmological Condensed Matter Physics*, April 21st, 2022.
48. Invited talk at the University of Calgary, *The Light and Fuzzy Side of Dark Matter*, February 17th, 2022.
47. Invited talk at the University of Lethbridge, *The Light and Fuzzy Side of Dark Matter*, February 1st, 2022.
46. Invited talk at CITA National Jamboree, *Strongly Interacting Millicharged Particles*, October 8th, 2021.
45. Invited talk at Peebles Symposium, Canadian Association of Physicists Congress 2021, *New Directions for Dark Matter*, June 8th, 2021.
44. Invited talk at Stanford, *Catastrophic Production of Slow Gravitinos*. May 14, 2021.
43. Invited talk at CERN, *Catastrophic Production of Slow Gravitinos*. May 12, 2021.
42. Invited talk at Ben Gurion University, *Catastrophic Production of Slow Gravitinos*. May 10, 2021.
41. Invited talk at McGill University, *The Gravitino Swampland Conjecture*. Apr. 26, 2021.
40. Invited talk at University of Illinois at Urbana-Champaign, *Catastrophic Production of Slow Gravitinos*. Apr. 23, 2021.
39. Invited talk at String Pheno Webinar, *The Gravitino Swampland Conjecture*. Apr. 13, 2021.
38. Invited talk at the University of Chicago, Kadanoff Center for Theoretical Physics, *The Gravitino Swampland Conjecture*. Apr. 7, 2021.
37. Invited talk at Queen's University, *Constraining Early Dark Energy with Large Scale Structure*. Mar. 16, 2021.
36. Invited talk at Higher Spin Gravity Webinar, *Higher Spin Dark Matter*. Mar. 2, 2021.
35. Invited talk at the Perimeter Institute for Theoretical Physics, *Constraining Early Dark Energy with Large Scale Structure*. Feb. 16, 2021.
34. Invited talk at the University of New Brunswick, *Higher Spin Dark Matter*. Feb. 9, 2021.

33. Invited talk at Newton 1665 seminar, *STUMP Dark Matter*. Jan. 26, 2021.
32. Invited talk at the Massachusetts Institute of Technology, Joint MIT/Tufts cosmology seminar, *Constraining Early Dark Energy with Large Scale Structure*. Oct. 20, 2020.
31. Invited talk at MPA Garching, *Constraining Early Dark Energy with Large Scale Structure*. Oct. 20, 2020.
30. Invited talk at PACMAN (Particle Astro/Cosmo Meeting Around NYC) seminar, *Ultra-light Fermionic Dark Matter: Halo Cores as Dark Neutron Stars*. Oct. 13, 2020.
29. Invited talk at Copernicus Webinar Series, *Constraining Early Dark Energy with Large Scale Structure*. July 23, 2020.
28. Invited talk at the Theoretical Cosmology, Gravity and Fields Workshop, Dartmouth College. *Constraining Early Dark Energy with Large Scale Structure*. July 21, 2020.
27. Invited talk at University of Illinois Urbana-Champaign, *Gravitational Lamp Posts for Dark Matter Physics*. Dec. 6, 2019.
26. Invited talk at Northeastern University, *The Chirality of Primordial Gravitational Waves*. Sept. 30, 2019.
25. Invited talk at Theory Canada 14, *New (Old) Gravitational Probes of Dark Matter*. May 31, 2019.
24. Invited Lecture at Atlantic General Relativity 2019, *Primordial Cosmology and High Energy Physics*. May 27, 2019.
23. Seminar at the Flatiron Institute, Center for Computational Astrophysics, *Strong Gravity Probes of Dark Matter*. May 1, 2019
22. Seminar at the ETH Zurich, *The Chirality of Primordial Gravitational Waves*. March 22, 2019
21. Seminar at the Max Planck Institute for Astrophysics (MPA) Garching, *The Chirality of Primordial Gravitational Waves*. March 19, 2019
20. Seminar at the Syracuse University, *The Chirality of Primordial Gravitational Waves*, Dec 11, 2018.
19. Seminar at the Massachusetts Institute of Technology, *The Chirality of Primordial Gravitational Waves*, Dec 11, 2018.
18. Invited Speaker at [Canadian Association of Physicists \(CAP\) Congress 2018](#), June 11-15, 2018. Dalhousie University, Halifax, Nova Scotia.
17. Session Chair and contributed talk at the [Theory Canada 13](#), June 7-9, 2018. St. Francis Xavier University, Antigonish, Nova Scotia.
16. Invited speaker at conference [New England Cosmology Workshop](#), October 13-14, 2018. Massachusetts Institute of Technology.

15. Seminar at the Dartmouth College, *Chiral Gravitational Waves and Baryon Superfluid Dark Matter*, May 2, 2018.
14. Seminar at the University of Pennsylvania, *Chiral Gravitational Waves and Baryon Superfluid Dark Matter*, April 26, 2018.
13. Seminar at the New York University, *Chiral Gravitational Waves and Baryon Superfluid Dark Matter*, April 17, 2018.
12. Seminar at the Institute for Advance Study, Princeton, *Chiral Gravitational Waves and Baryon Superfluid Dark Matter*, March 12, 2018.
11. Seminar at Harvard University, Dvorkin-Finkbeiner-Kovacs journal club, *Chiral Gravitational Waves and Baryon Superfluid Dark Matter*, February 20, 2018.
10. Seminar at Tufts University, *Anti-Brane Induced Inflation*, November 14, 2017.
9. Invited speaker at conference [String Theory and Cosmology: Cosmic Origin and Cosmic Fate, From Big Bang to Dark Energy](#) May 27-28, 2017, Italy.
8. Seminar at Brown University, *Primordial Black Holes and Preheating in Axion Inflation*, April 26, 2016.
7. Contributed talk, *Fermions on the Antibrane*, at the workshop [Northeast Gravity Workshop](#), April 22-24, 2016, hosted by UMass Amherst.
6. Seminar at the Massachusetts Institute of Technology, *Preheating in Axion Inflation Models*, April 12, 2016.
5. Seminar at the University of California at Berkeley, *Fermions on the Anti-Brane: Higher Order Interactions and Spontaneously Broken Supersymmetry*, March 1, 2016.
4. Seminar at the University of Chicago, *de Sitter in String Theory: A story of branes, planes, and quantum corrections*, June 12, 2014.
3. Seminar at Ecole Physique Les Houches, *Pour some SUGRA on me: Supergravity and Superconformal Gauge Theory*, while attending summer school *Post-Planck Cosmology*, July 3 - August 3, 2013.
2. Contributed talk, *Two Field Matter Bounce Cosmology*, at the conference [Theory Canada 8](#), May 24-26, 2013, hosted by Bishop's University.