

ANDREW J. LONG

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EMPLOYMENT & EDUCATION

- | | |
|----------------|---|
| 2019 - present | <i>Assistant Professor of Physics and Astronomy</i>
Rice University; Houston, TX |
| 2018 - 2019 | <i>Leinweber Fellow</i>
Leinweber Institute for Theoretical Physics
Ann Arbor, MI |
| 2015 - 2018 | <i>KICP Postdoctoral Fellow</i>
Kavli Institute for Cosmological Physics; Chicago, IL
Supervisors: Edward W. Kolb & Lian-Tao Wang |
| 2012 - 2015 | <i>Postdoctoral Research Associate</i>
Arizona State University; Tempe, AZ
Supervisors: Lawrence Krauss & Tanmay Vachaspati |
| 2006 - 2012 | <i>Doctor of Philosophy, Physics</i>
University of Wisconsin; Madison, WI
Thesis Advisor: Daniel J. H. Chung |
| 2002 - 2006 | <i>Bachelor of Arts, Physics</i>
Cornell University; Ithaca, NY
Research Advisor: David L. Rubin |

RESEARCH INTERESTS AND EXPERTISE

My work addresses open questions in the fields of high energy particle physics and cosmology. Most notably I have endeavored to understand the origin matter / antimatter asymmetry of the universe using the techniques of quantum field theory, particle physics, and statistical mechanics. Additionally, I continue to study the nature of dark matter; the mechanism of cosmological inflation; the origin, evolution, and detection of primordial magnetic fields; the power of future collider experiments to probe Higgs physics and the complementarity with gravitational wave interferometry as a probe of the electroweak epoch; and the extent to which astrophysical observations can be used to search for and uncover relics from the early universe.

AWARDS

1. "Gravitational Waves as a Probe of the Early Universe,"
agency: National Aeronautics and Space Administration (NASA),
program: Astrophysics Theory Program (ATP),
PI: Dr. Tina Kahniashvili (Carnegie Mellon University),
co-PI: Dr. Axel Brandenburg (University of Colorado),
co-PI / Institutional-PI: Dr. Andrew J. Long (Rice University),
July 1, 2022 - June 30, 2025,
amount: \$664,956 (\$190,949 to Rice).
2. "Cosmological and Astrophysical Signatures of Axions,"
agency: National Science Foundation (NSF),
Award #2114024,
PI: Dr. Andrew J. Long (Rice University),
Sep 1, 2021 - Aug 31, 2024,
amount: \$225,000.

INVITED SEMINARS

1. "Searching for new physics with X-rays from compact stars"
Carnegie Melon University,
Astro Lunch Seminar, March 3, 2023.
2. "Making massive spin-2 particle from gravity during inflation"
University of Pittsburgh,
Pitt PACC Seminar, March 1, 2023.
3. "Making massive spin-2 particle from gravity during inflation"
Online,
Majorana-Raychaudhuri Seminar, Jan 6, 2023.
4. "Searching for new physics with X-rays from compact stars"
Fermi National Accelerator Laboratory,
Particle Theory seminar, June 23, 2022.
5. "Searching for new physics with X-rays from compact stars"
University of New Mexico,
NUPAC seminar, Mar 29, 2022.
6. "Searching for new physics with X-rays from compact stars"
University of Minnesota,
FITP seminar, Oct 29, 2021.
7. "Searching for new physics with X-rays from compact stars"
Johns Hopkins University,
High energy particle physics and cosmology seminars, Sep 14, 2021.

8. "Searching for new physics with X-rays from compact stars"
Santa Cruz Institute for Particle Physics (SCIPP) (remote),
SCIPP Remote Seminar, Apr 13, 2021.
9. "Black holes, and nuggets, and blobs. Oh my!"
University of Nebraska (remote),
Dept of Physics and Astronomy Colloquium, Apr 8, 2021.
10. "Searching for new physics with X-rays from compact stars"
Institute for Basic Study (IBS) (remote),
CPPC Seminar, Mar 16, 2021.
11. "Searching for new physics with X-rays from magnetic white dwarf stars"
University of New South Wales (remote),
CPPC Seminar, Feb 24, 2021.
12. "Searching for new physics with X-rays from magnetic white dwarf stars"
University of Kansas (remote),
PPP Theory Seminar, Feb 23, 2021.
13. "X-ray signatures of axion emission from compact stars"
Max Planck Institute for Theoretical Physics, MPIK-Heidelberg (remote),
Particle and Astroparticle Physics Seminar, Dec 14, 2020.
14. "Bubbles at the Big Bang"
Carleton University (remote),
Physics Dept. Colloquium, Nov 10, 2020.
15. "Gravitational particle production in the inflationary era"
National Institute for Nuclear Physics (INFN) (remote),
Newton 1665 Seminar, July 23, 2020.
16. "What can colliders teach us about the electroweak epoch?"
India Institute of Technology (IIT) at Kanpur (remote),
HEP Seminar, May 11, 2020.
17. "Black holes and nuggets and blobs! Oh my!"
Rice University (remote),
Astronomy Undergrad Seminar, April 22, 2020.
18. "Searching for new physics with X-rays from magnetic white dwarf stars"
University of Tokyo, RESCEU,
Cosmology Seminar, January 20, 2020.
19. "Making and measuring ultra-light matter"
University of Florida,
AU Seminar, October 2, 2019.

20. "Searching for new physics with X-ray emission from magnetic white dwarf stars"
Rice University,
High Energy Physics Seminar, November 1, 2019.
21. "Making and measuring ultra-light matter"
University of Maryland,
Particle Theory Seminar, April 22, 2019.
22. "Ultra-light dark photon dark matter from a network of cosmic strings"
Arizona State University,
Cosmology Seminar, March 20, 2019.
23. "Ultra-light dark photon dark matter from a network of cosmic strings"
University of Minnesota,
High Energy Theory Lunchtime Seminar, February 15, 2019.
24. "Dark photon dark matter from cosmic strings"
Simon Fraser University,
Cosmology Seminar, February 5, 2019.
25. "Black Holes, and Nuggets, and Blobs. Oh my!"
University of California - Irvine,
Joint Particle Seminar, January 16, 2019.
26. "Black Holes, and Nuggets, and Blobs. Oh my!"
University of California - San Diego,
HET Seminar, January 15, 2019.
27. "Black Holes, and Nuggets, and Blobs. Oh my!"
University of California - Riverside,
Particle Theory Seminar, January 14, 2019.
28. "Black Holes, and Nuggets, and Blobs. Oh my!"
Cornell University,
LEPP Theory Seminar, October 26, 2018.
29. "Black Holes, and Nuggets, and Blobs. Oh my!"
University of Syracuse,
HET, Relativity, & Cosmology Seminar, October 22, 2018.
30. "Black Holes, and Nuggets, and Blobs. Oh my!"
University of Michigan,
High Energy Theory Seminar, September 28, 2018.
31. "Six Flavor Quark Matter."
Fermi National Accelerator Laboratory,
Particle Astrophysics Seminar, April 9, 2018.

32. "Baryogenesis from Axions and Anomalies."
Tufts University,
Cosmology Seminar, March 29, 2018.
33. "Leptogenesis from a First-Order Lepton-Number Breaking Phase Transition."
University of Massachusetts,
AFCI Seminar, March 27, 2018.
34. "Testing Baryons from Bubbles with Colliders and Cosmology."
University of Cincinnati,
Particle-Astrophysics Seminar, February 27, 2018.
35. "Why is there something rather than nothing?"
Rice University,
Physics and Astronomy Colloquium, February 21, 2018.
36. "Testing Baryons from Bubbles with Colliders and Cosmology."
Case Western Reserve University,
Particle Physics Seminar, February 13, 2018.
37. "Testing Baryons from Bubbles with Colliders and Cosmology."
Notre Dame University,
Particle Physics Seminar, February 6, 2018.
38. "Why is there something rather than nothing?"
Northwestern University,
High Energy Physics Seminar, January 8, 2018.
39. "Topics in Axion Cosmology."
Institute for Physics and Mathematics of the Universe,
APEC Seminar, November 10, 2017.
40. "Topics in Axion Cosmology."
Argonne National Laboratory,
Theory Seminar, October 10, 2017.
41. "Topics in Axion Cosmology."
University of Wisconsin at Madison,
High Energy / Cosmology Theory Seminar, October 3, 2017.
42. "Topics in Axion Cosmology."
University of Michigan - MCTP,
High Energy Theory Brown Bag Seminar, September 27, 2017.
43. "Baryogenesis from Helical Magnetic Fields."
University of Sussex,
Theoretical Particle Physics Seminar, April 3, 2017.
44. "Baryogenesis from Helical Magnetic Fields."
University College London,
Cosmology Seminar, March 29, 2017.

45. "Electroweak Phase Transition Models and Higgs Couplings at the CEPC, From A Cosmologist's Perspective."
University of Illinois, Urbana-Champaign,
HEP Seminar, February 3, 2017.
46. "Baryogenesis from Helical Magnetic Fields."
University of Wisconsin at Madison,
HEP / Cosmology Theory Seminar, September 13, 2016.
47. "Relic Neutrino Direct Detection."
University of Chicago,
HEP Brown Bag Seminar, May 9, 2016.
48. "Chiral Charge Erasure via Thermal Fluctuations of Magnetic Helicity."
Arizona State University,
Seminar, March 30, 2016.
49. "Helical Magnetic Fields in the Cosmos."
Fermilab,
Astrophysics Seminar, February 8, 2016.
50. "Helical Magnetic Fields in the Cosmos."
University of Chicago, Kavli Institute for Cosmological Physics (KICP),
Seminar, January 15, 2016.
51. "Helical Magnetic Fields in the Cosmos."
University of Illinois, Urbana-Champaign,
High Energy Phenomenology Seminar, December 4, 2015.
52. "Probing the Relic Neutrino Background: Physics Potential of Direct Detection."
Argonne National Laboratory,
Seminar, October 13, 2015.
53. "Particle Production from Cosmic Strings."
University of Chicago, Kavli Institute for Cosmological Physics (KICP),
Open Group Seminar, April 28, 2015.
54. "Probing the Relic Neutrino Background: Physics Potential of Direct Detection."
Washington University,
Theory Seminar, April 23, 2015.
55. "Probing the Relic Neutrino Background: Physics Potential of Direct Detection."
Lawrence Berkeley National Laboratory,
Particle Theory Seminar, February 18, 2015.
56. "Particle Production from Cosmic Strings."
Tufts University,
Joint MIT / Tufts Cosmology Seminar, February 3, 2015.

57. "Particle Production from Cosmic Strings."
University of Pennsylvania,
High Energy Theory Special Seminar, November 11, 2014.
58. "Light from Dark Strings."
University of Wisconsin – Madison,
Theory Seminar (High Energy / Cosmology), April 11, 2014.
59. "Light from Dark Strings and r from Light Higgs."
University of Minnesota – Duluth,
Cosmology Group Meeting, April 9, 2014.
60. "Electroweak Baryogenesis in the LHC Era."
Arizona State University,
Cosmology, Particle, and Astrophysics Seminar, May 24, 2012.
61. "Electroweak Baryogenesis in the LHC Era."
Iowa State University,
HEP Seminar, April 12, 2012.
62. "Dark Matter and Baryogenesis at the Electroweak Phase Transition."
Argonne National Laboratory,
HEP Theory Seminar, December 20, 2011.

WORKSHOP / CONFERENCE TALKS

1. "Astrophysical and cosmological probes of axions"
Plenary talk given at Windows on the Universe - 30th Anniversary of Recontres du Vietnam,
International Center for Interdisciplinary Science (ICISE), Quy Nhon, Vietnam.
Aug 10, 2023.
2. "CMB Birefringence from Axion Strings"
Parallel talk given at SUSY 2023,
University of Southampton. July 17, 2023.
3. "Relic Gravitational Waves from Chiral Plasma Instability in the Standard Cosmological Model"
Talk given at New Proposals for Baryogenesis,
Mainz Institute for Theoretical Physics, Johannes Gutenberg University. June 12, 2023.
4. "Making dark matter from gravity"
Talk given at Ending Inflation and the Hot Big Bang,
Simons Center for Geometry and Physics. June 5, 2023.

5. “Astrophysical and cosmological probes of axion-like particles and dark photons”
Plenary talk given at Phenomenology Symposium 2023,
University of Pittsburgh. May 8, 2023.
6. “Making massive spin-2 particles from gravity during inflation”
Talk given at Rocky Fest: The Adventures of Rocky and Friends,
University of Chicago. Mar 18, 2023.
7. “What can be learned from a direct detection of the relic neutrino background?”
Talk given at DCPIHEP 2023,
University of Colima. Jan 10, 2023.
8. “Gravitational wave radiation as a probe of dark sectors.”
Talk given at Dark Interactions 2022,
Online. Nov 15, 2022.
9. “A universe from gravity.”
Talk given at Texas Astrophysics and Cosmology Symposium (TACOS) 2022,
Southern Methodist University. Oct 10, 2022.
10. “How to make dark matter from gravity.”
Talk given at Physics of This Universe workshop,
John’s Hopkins University. May 30, 2022.
11. “CMB birefringence from ultra-light axion string networks.”
Talk given at Mitchell Conference,
Texas A&M University. May 24, 2022.
12. “Gravitational production of dark matter at the end of inflation.”
Talk given at Theory Mini-Workshop,
Arizona State University. Apr 20, 2022.
13. “Searching for new physics with X-rays from magnetic white dwarf stars.”
Talk given at CHEW 21 Workshop,
Online (remote). July 28, 2021.
14. “Heavy dark matter: theory overview.”
Talk given at Optomechanics for dark matter detection workshop,
Online (remote). Apr 9, 2021.
15. “Baryon number: cosmic wonder.”
Talk given at BLV Circa 2020 Workshop,
Online (remote). July 6, 2020.
16. “Gravitational production of dark matter at the end of inflation.”
Talk given at “From Inflation to the Hot Big Bang” conference,
KITP. Santa Barbara, CA. February 3, 2020.

17. "Dark photon dark matter from a network of cosmic strings."
Talk given at Remnants of the Big Bang Workshop,
Arizona State University. Phoenix, Arizona, USA. January 23, 2020.
18. "Filtered dark matter at a first order phase transition."
Talk given at Dark Matter as a Portal to New Physics Workshop,
APCTP. Pohang, Korea. January 13, 2020.
19. "A phase of confined electroweak force in the early universe."
Talk given at DCPIHEP 2020 Workshop,
University of Colima. Comala, Mexico. January 9, 2020.
20. "New perspectives on baryogenesis."
Plenary talk given at BLV 2019 Conference,
Institute for Theoretical Physics (IFT). Madrid, Spain. October 21, 2019.
21. "Does dark matter interact with more than gravity?"
Talk given at Cosmic Controversies Workshop,
University of Chicago. Chicago, IL, USA. October 5, 2019.
22. "Testing axion-like particles with x-ray emission from magnetic white dwarf stars."
Talk given at Mitchell Conference,
Texas A & M. College Station, TX, USA. May 16, 2019.
23. "Testing axion-like particles with x-ray emission from magnetic white dwarf stars."
Parallel talk given at Pheno Symposium 2019,
University of Pittsburgh. Pittsburgh, PA, USA. May 6, 2019.
24. "Testing the electroweak phase transition at CEPC."
Parallel talk given at CEPC Workshop,
Oxford University. Oxford, UK. April 16, 2019.
25. "The relic neutrino background."
Talk given at LCTP Workshop,
University of Michigan. Ann Arbor, MI, USA. April 3, 2019.
26. "Making dark photon dark matter."
Talk given at Signal of Dark Matter in its Natural Habitat Workshop,
TRIUMF. Vancouver, Canada. January 7, 2019.
27. "Light dark matter from topological defects."
Talk given at Dark Light World,
KAIST. Daejeon, Korea. December 19, 2018.
28. "Electroweak Symmetry Breaking & CEPC."
Parallel talk given at CEPC Workshop,
IHEP. Beijing, China. November 14, 2018.

29. "Testing Baryogenesis/Leptogenesis at Present & Future Colliders."
Talk given at IPA 2018,
University of Cincinnati. October 10, 2018.
30. "Dark Quark Nuggets."
Talk given at 6th PIKIO Meeting,
Notre Dame University. South Bend, IN, USA. October 6, 2018.
31. "Six Flavor Quark Matter."
Talk given at "Probing Baryogenesis via LHC and Gravitational Wave Signatures"
workshop,
MITP. June 17, 2018.
32. "Cosmology of the Clockwork Axion."
Talk given at 5th PIKIO Meeting,
University of Illinois. Urbana-Champaign, IL, USA. March 17, 2018.
33. "Testing the Electroweak Phase Transition with Higgs Couplings at the FCC."
Talk given at 2nd FCC Physics Workshop,
CERN, January 18, 2018.
34. "Electroweak Phase Transition."
Parallel talk given at Workshop on CEPC Physics.
IHEP, Beijing, China. November 7, 2017.
35. "Baryogenesis from Helical Magnetic Fields."
Parallel talk given at Cosmo 2017.
Paris Diderot University. Paris, France. August 29, 2017.
36. "Blazar Halo Morphology as a Probe of Helical Intergalactic Magnetic Fields."
Parallel talk given at TeVPA 2017.
The Ohio State University. Columbus, OH. August 10, 2017.
37. "Leptogenesis from a First-Order Lepton- Number Breaking Phase Transition."
Parallel talk given at TeVPA 2017.
The Ohio State University. Columbus, OH. August 10, 2017.
38. "Baryogenesis from Helical Magnetic Fields."
Parallel talk given at PASCOS 2017.
Instituto de Física Teórica. Madrid, Spain. June 22, 2017.
39. "A Cosmologists's Perspective on Higgs Factories."
Parallel talk given at BLV 2017.
Case Western Reserve University. Cleveland, OH. May 16, 2017.
40. "Baryogenesis from Helical Magnetic Fields."
Parallel talk given at BLV 2017.
Case Western Reserve University. Cleveland, OH. May 15, 2017.

41. "A Cosmologist's Perspective on Higgs Factories."
Parallel talk given at Phenomenology 2017 Symposium.
University of Pittsburgh. Pittsburgh, PA. May 9, 2017.
42. "Baryogenesis from Helical Magnetic Fields Through the Electroweak Phase Transition."
Talk given at Electroweak Phase Transition Workshop.
ACFI. University of Massachusetts. Amherst, MA. April 7, 2017.
43. "Exploding! Lepton! Bubbles!"
Talk given at Current Trends in Particle Theory Workshop.
University of Illinois. Chicago, IL. March 4, 2017.
44. "Electroweak Phase Transition Models and Higgs Couplings at the CEPC, From A Cosmologist's Perspective."
Talk given at Workshop on CEPC Physics.
IHEP, Beijing, China. December 14, 2016.
45. "Baryogenesis from Decaying Magnetic Helicity."
Poster presentation given at Cosmo 2016.
University of Michigan. Ann Arbor, MI. August 8, 2016.
46. "The Complementarity of Colliders and Gravitational Waves for Probing the Electroweak Phase Transition."
Parallel talk given at ICHEP.
University of Chicago. Chicago, IL. August 6, 2016.
47. "Probing First Order Electroweak Phase Transition with CEPC – a Cosmologist's Perspective."
Talk given at New Physics Workshop.
KITPC, Beijing, China. July 28, 2016.
48. "Probes of Particle Production from Cosmic Strings."
Talk given at Cosmic Strings Brazil.
IFSC / USP. Sao Carlos, Brazil. February 16, 2016.
49. "keV Relic Neutrino Capture on Tritium."
Talk given at nuDark Workshop.
Technical University of Munich. Garching, Germany. December 9, 2015.
50. "Helical Magnetic Fields from Creation to Detection."
Parallel talk given at Cosmo 2015.
University of Warsaw. Warsaw, Poland. September 11, 2015.
51. "Astrophysical and Cosmological Probes of a Cosmic String Network."
Parallel talk given at Cosmo 2015.
University of Warsaw. Warsaw, Poland. September 9, 2015.

52. "Generating a helical magnetic field from leptogenesis."
Talk given at Nordita Workshop: Cosmological Magnetic Fields.
Nordita. Stockholm, Sweden. June 23, 2015.
53. "Morphology of blazar-induced gamma ray halos."
Parallel talk given at Nordita Workshop: Cosmological Magnetic Fields.
Nordita. Stockholm, Sweden. June 22, 2015.
54. "Detecting Relic Neutrinos: How will we do it and what will we learn?"
Parallel talk given at COSMO 2014.
University of Chicago. Chicago, IL. August 26, 2014.
55. "Constraining Hidden Sectors with Light from Cosmic Strings."
Parallel talk given at Phenomenology 2014 Symposium.
University of Pittsburgh. Pittsburgh, PA. May 5, 2014.
56. "No Light from Light Dark Strings."
Talk given at the ASU / Tufts Cosmic Strings Workshop.
Arizona State University. Tempe, AZ. February 4, 2014.
57. "Testing Electroweak Baryogenesis at the LHC."
Parallel talk given at the Cosmic Frontier Workshop 2013.
SLAC. Menlo Park, CA. March 7, 2013.
58. "Probing Cosmological Fine-Tuning with Phase Transitions."
Parallel talk given at the String Phenomenology Conference 2011.
University of Wisconsin. Madison, WI. August 2011.
59. "Dark Matter Freeze Out at an Electroweak Scale Phase Transition."
Parallel talk given at the Phenomenology 2010 Symposium.
University of Wisconsin. Madison, WI. May 2010.
60. "Electroweak Baryogenesis in the mu-from-nu SSM."
Parallel talk given at the Phenomenology 2009 Symposium.
University of Wisconsin. Madison, WI. May 2009.

PROFESSIONAL SERVICE, EDUCATION, & OUTREACH

1. Co-organized Texas Section of the American Physical Society (TSAPS) annual meeting.
Rice University; Houston, TX.
Oct 22-23, 2022.
2. Mentor at Gulf Coast Undergraduate Research Symposium (GCURS).
Rice University; Houston, TX.
<https://gcurs.rice.edu>.
Oct 8, 2022.
3. Public lecture “Rice University Classroom Sampler”.
National Association for College Admission Counseling (NACAC) Conference 2022.
Rice University; Houston, TX.
Sep 21, 2022.
4. Co-organized “Mega Dark Matter: Theory and Detection” workshop.
MITP; Mainz, Germany.
May 2-20, 2022.
5. Panelist and lecturer for “SpaceVision 2021.”
Johnson Space Center; Houston, TX.
<https://spacevision.seds.org>.
Nov 5, 2021.
6. Mentor at Gulf Coast Undergraduate Research Symposium (GCURS).
Rice University; Houston, TX.
<https://gcurs.rice.edu>.
Oct 16, 2021.
7. Public lecture “Dark Matter Demystified” for the Youth in Physics Summer Program (YiPS).
Houston, TX (remote).
<https://www.youth-inventa.org/yipsprogram>.
June 28-29, 2021.
8. Public lecture “Dark Matter Demystified” for the Quark Net teacher training program.
Rice University; Houston, TX.
June 17, 2021.
9. Public lecture “Dark Matter Demystified” for the Northwest Austin Rotary Club.
Austin, TX (remote).
Feb 5, 2021.
10. Panelist for “SEDS Lecture Series.”
Rice University; Houston, TX.
<http://seds.rice.edu/272-2>.
January 2020.

11. Co-convenor of the baryogenesis session at “BLV 2019” workshop.
Institute for Theoretical Physics; Madrid, Spain.
<https://indico.cern.ch/event/754031>.
October 2019.
12. Organized “CAP at Rice” workshop.
Rice University; Houston, TX.
<https://physics.rice.edu/capp/cosmology-and-astroparticle-physics-workshop>
October 2019.
13. Organized “PIMKIO” workshop.
LCTP, University of Michigan; Ann Arbor, MI.
<https://sites.google.com/a/umich.edu/pimkio-7>.
March 2019.
14. Co-convenor of the BSM session of the “CEPC 2018” workshop.
Institute of High Energy Physics; Beijing, China.
<https://indico.ihep.ac.cn/event/7389/overview>.
November 2018.
15. Public lecture “Dark Matter Demystified” for the “Art of Science” series.
Agitator Gallery; Chicago, IL.
<http://www.agitatorgallery.com/event/art-of-science-lecture-series-dark-matter>
July 2018.
16. “Life Long Learning”
Co-organizer of an outreach program for older adults in Chicago.
We coordinate speakers from the university to visit libraries and senior centers
to give public lectures on contemporary topics in physics and astronomy.
Spring 2016 - Summer 2018.
17. Co-organized “Towards Dark Matter Discovery” workshop.
KICP, University of Chicago; Chicago, IL.
<http://kicp-workshops.uchicago.edu/2018-dm>
April 2018.
18. Interviewed for “How to Build a Universe.”
Symmetry Magazine.
<http://www.symmetrymagazine.org/article/how-to-build-a-universe>.
February 2017.
19. Co-organized “Theoretical Advances in Particle Cosmology” workshop.
KICP, University of Chicago; Chicago, IL.
https://kicp-workshops.uchicago.edu/ParticleCosmo_2016
October 2016.
20. “New Physics” panel discussion of LHC, Higgs boson, dark matter, cosmology,
Phoenix Comic-Con; Phoenix, AZ.
May 2015.

21. Co-organized “Is Our Universe Necessary” workshop.
Arizona State University; Tempe, AZ.
https://origins.asu.edu/sites/default/files/origins_project_newsletter_2014_02.pdf
February 2014.
22. “Origins Project Interdisciplinary Meeting (OPTIM),”
Regular interdisciplinary, informal discussion group.
Arizona State University; Tempe, AZ
Fall 2013 - Spring 2015.
23. Referee for “Physics Letters B,” “European Physical Journal C,” “Physical Review Letters,” “Chinese Physics C,” “Journal of Cosmology and Astroparticle Physics,” “Physical Review D,” “European Physical Journal C,” “Nuclear Physics B.”
Ongoing.

TOP-CITED JOURNAL ARTICLES (*h-index* = 28); last updated Aug. 2023

1. 131 citations
“Probing the Electroweak Phase Transition with Higgs Factories and Gravitational Waves,”
Peisi Huang, Andrew J. Long, and Lian-Tao Wang
Phys.Rev. D**94** (2016) no.7, 075008, [hep-ph/1608.06619].
2. 129 citations
“Detecting Non-Relativistic Cosmic Neutrinos by Capture on Tritium: Phenomenology and Physics Potential,”
Andrew J. Long, Cecilia Lunardini, and Eray Sabancilar
JCAP 1408 (2014) 038, [hep-ph/1405.7654].
3. 128 citations
“The 125 GeV Higgs and Electroweak Phase Transition Model Classes,”
Daniel J. H. Chung, Andrew J. Long, and Lian-Tao Wang
Phys.Rev. D**87**:023509 (2013), [hep-ph/1209.1819].
4. 124 citations
“Dark Quark Nuggets,”
Yang Bai, Andrew J. Long, and Sida Lu
Phys.Rev. D**99** (2019) no.5, 055047, [hep-ph/1810.04360].
5. 90 citations
“Dark Photon Dark Matter from a Network of Cosmic Strings,”
Andrew J. Long and Lian-Tao Wang
Phys.Rev. D**99** (2019) no.6, 063529, [hep-ph/1901.03312].

PUBLISHED JOURNAL ARTICLES (for complete record see INSPIRE)

1. “Relic Gravitational Waves from the Chiral Plasma Instability in the Standard Cosmological Model,”
Axel Brandenburg, Emma Clarke, Tina Kahniashvili, Andrew J. Long, and Guotong Sun
Submitted for publication to PRD, [astro-ph/2307.09385].
2. “Measures of non-Gaussianity in axion-string-induced CMB birefringence,”
Ray Hagimoto and Andrew J. Long
Submitted for publication to JCAP, [astro-ph/2306.07351].
3. “Cosmological gravitational particle production of massive spin-2 particles,”
Edward W. Kolb, Siyang Ling, Andrew J. Long, and Rachel A. Rosen
JHEP 05, 181 (2023), [astro-ph/2302.04390].
4. “Photons from dark photon solitons via parametric resonance,”
Mustafa A. Amin, Andrew J. Long, and Enrico D. Schiappacasse
JCAP 05, 015 (2023), [hep-ph/2301.11470].
5. “Completely Dark Matter from Rapid-Turn Multifield Inflation,”
Edward W. Kolb, Andrew J. Long, Evan McDonough, and Guillaume Payeur
JHEP 02 (2023) 181, [hep-th/2211.14323].
6. “Quantum interference in gravitational particle production,”
Eddie Basso, Daniel J. H. Chung, Edward W. Kolb, and Andrew J. Long
JHEP 2022, 108 (2022), [gr-qc/2209.01713].
7. “Searching for axion-like particles through CMB birefringence from string-wall networks,”
Mudit Jain, Ray Hagimoto, Andrew J. Long, and Mustafa A. Amin
JCAP 10 (2021) 090, [astro-ph/2208.08391].
8. “An analytic evaluation of gravitational particle production of fermions via Stokes phenomenon,”
Soichiro Hashiba, Siyang Ling, and Andrew J. Long
JHEP 2022, 216 (2022), [hep-th/2206.14204].
9. “Upper Limit on the QCD Axion Mass from Isolated Neutron Star Cooling,”
Malte Buschmann, Christopher Dessert, Joshua W. Foster, Andrew J. Long, and Benjamin R. Safdi
Phys. Rev. Lett. 128, 091102, [hep-ph/2111.09892].
10. “Achieving the highest temperature during reheating with the Higgs condensate,”
Samuel Passaglia, Wayne Hu, Andrew J. Long, and David Zegeye
Phys. Rev. D 104, 083540, [hep-ph/2108.00962].
11. “No evidence for axions from Chandra observation of magnetic white dwarf,”
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