

Joel Meyers

CONTACT INFORMATION	Department of Physics Southern Methodist University 3215 Daniel Ave. Rm 102 Dallas, TX 75205-1437	<i>Phone:</i> (682) 240-3874 <i>E-mail:</i> jrmeyers@smu.edu <i>Website:</i> https://joelmeyers.github.io <i>Citizenship:</i> U.S. Citizen
RESEARCH INTERESTS	Early Universe Cosmology, Cosmic Microwave Background, Theoretical High Energy Physics	
RESEARCH EXPERIENCE	Southern Methodist University Department of Physics, 2018 - Present Assistant Professor Canadian Institute for Theoretical Astrophysics (CITA) University of Toronto, 2012 - 2018 Senior Research Associate, Theoretical Cosmology Weinberg Theory Group and Texas Cosmology Center University of Texas at Austin, 2006 - 2012 Theoretical Cosmology, Dissertation research conducted with Prof. Steven Weinberg	
EDUCATION	The University of Texas at Austin , Austin, Texas, USA Ph.D. in Physics, August 2012 <ul style="list-style-type: none">• Dissertation Topic: <i>Inflation: Connecting Theory to Observation</i>• Advisor: Professor Steven Weinberg University of Wisconsin , Madison, Wisconsin, USA B.S. in Physics and Mathematics, May 2006 <ul style="list-style-type: none">• Thesis Topic: <i>Cosmic Superstrings</i>• Thesis Advisor: Professor Gary Shiu	
COLLABORATIONS	<ul style="list-style-type: none">• CMB-S4, 2015-present, (Light Relics Working Group Co-Lead)• Simons Observatory, 2016-present• PICO, 2016-present• CCAT-Prime, 2016-present	
HONORS AND AWARDS	<ul style="list-style-type: none">• Beatrice and Vincent Tremaine Fellowship, 2016 - 2017• Texas Cosmology Center Summer Research Fellowship, 2010• A.D. Hutchison Student Endowment Fellowship, 2009 - 2010• Phi Beta Kappa, University of Wisconsin, 2006• Mike Litvinov Memorial Academic Scholarship, 2002 - 2006	

INVITED TALKS

- Institute for Advanced Study Astrophysics Seminar, Princeton, NJ, May 2019
- *CMB-S4 Collaboration Workshop, Fermilab-2019*, Fermilab, March 2019
- *Building Astronomy in Texas Symposium 2019*, Dallas, TX, January 2019
- *CMB in HD*, Flatiron Institute, December 2018
- *nu Physics in the CMB*, University of California, San Diego, November 2018
- University of Texas at Dallas Physics Colloquium, October 2018
- University of Texas at Austin Theory Group Seminar, October 2018
- *CMB-S4 Collaboration Workshop, Princeton-2018*, Princeton University, September 2018
- PICO Collaboration Science Meeting, University of Minnesota May 2018
- YITP Seminar, Stony Brook University, April 2018
- Rice University Physics Colloquium, Houston, TX, February 2018
- Southern Methodist University Physics Colloquium, Dallas, TX, February 2018
- *Lake Louise Winter Institute 2018*, Lake Louise, Alberta, February 2018
- Cosmology Lunch, Institute for Advanced Study, Princeton, November 2017
- *Kavli CMB Lensing Workshop*, Stanford University, September 2017
- *CMB-S4 Collaboration Workshop, Harvard-2017*, Harvard University, August 2017
- *SLAC Summer Institute 2017*, SLAC, August 2017
- *Phenomenology 2017 Symposium*, Plenary Talk, University of Pittsburgh, May 2017
- University of California Riverside Seminar, March 2017
- University of Illinois Theory Seminar, February 2017
- University of Texas at Austin Theory Group Seminar, January 2017
- Boston University Theory Seminar, October 2016
- *CMB-S4 / Future Cosmic Surveys*, University of Chicago, September 2016
- *Cosmology with CMB-S4*, University of Chicago, September 2016
- *US Radio/Millimeter/Submillimeter Science Futures II*, Baltimore, Maryland, August 2016
- *Neutrinos and Light Particles in Cosmology*, University of California Berkeley, June 2016
- Lawrence Berkeley National Laboratory Cosmology Lunch, March 2016
- *Cosmology with CMB-S4 Workshop*, Lawrence Berkeley National Laboratory, March 2016
- Johns Hopkins University Theory Seminar, November 2015
- *Cosmology with CMB-S4*, University of Michigan, September 2015
- California Institute of Technology TAPIR Seminar, June 2015
- Perimeter Institute Seminar, May 2015
- *Testing Inflation with Large Scale Structure*, CITA, October 2014
- University of Texas at Austin Theory Group Seminar, May 2014
- Istituto Nazionale di Fisica Nucleare Theory Seminar, April 2014
- St. Mary's University Astrophysics Seminar, February 2014
- University of Nevada, Las Vegas Theory Seminar, December 2013
- University of British Columbia Cosmology Seminar, August 2013
- Kavli Institute for Cosmological Physics Seminar, University of Chicago, May 2013
- University of Nottingham Cosmology Seminar, April 2013
- Kavli Institute for the Physics and Mathematics of the Universe Seminar, November 2012
- CITA Seminar, University of Toronto, July 2012

CONFERENCE
CONTRIBUTIONS

- *COSMO-16*, University of Michigan, August 2016
- *Rencontres de Moriond Cosmology*, March 2016
- *Cosmology on Safari*, January 2015
- *New Challenges for Early Universe Cosmologists*, Lorentz Center, August 2013
- *The Universe as Seen by Planck*, European Space Agency/European Space Research and Technology Centre, April 2013
- *Gravity and Cosmology 2012*, Yukawa Institute for Theoretical Physics, December 2012
- *Critical Tests of Inflation Using Non-Gaussianity*, Max Planck Institute for Astrophysics, November 2012
- *Inflationary Theory and its Confrontation with Data in the Planck Era*, Aspen Center for Physics, February 2012

- *DEUS: Current and Future Challenges of the Dark and Early Universes*, Dark Cosmology Centre, Niels Bohr Institute, August 2011
- *Cosmological Non-Gaussianity: Observations Confront Theory Workshop*, University of Michigan, May 2011
- *Primordial Features and Non-Gaussianities*, Harish-Chandra Research Institute, May 2011
- *Texas Cosmology Network Meeting*, University of Texas at Austin, October 2009

STUDENTS
SUPERVISED

- **Eric Guzman**, Ph.D. Student at SMU, October 2018 - present
- **Noah Pearson**, Undergraduate at Southern Methodist University, May 2019 - present
- **Selim Hotinli**, Co-supervision with Andrew Jaffe, Ph.D. Student at Imperial College London, October 2016 - present
- **Alex Laguë**, Ph.D. Student at University of Toronto, Summer 2018 - present
- **Victor Chan**, Co-supervision with Renée Hložek and Alex van Engelen, Ph.D. Student at University of Toronto, Summer 2018 - present
- **Connor Sheere**, Co-supervision with Alex van Engelen and Daan Meerburg, Summer 2016 - present
- **Brayden Mon**, Co-supervision with Daan Meerburg and Alex van Engelen, Summer Undergraduate Research Program 2017 at CITA
- **Matthew Wilson**, Co-supervision with Dick Bond, Master's student in University of Toronto Physics Department, January - August 2016
- **Harrison Winch**, Co-supervision with Daan Meerburg and Alex van Engelen, Summer Undergraduate Research Program 2016 at CITA
- **Vivian Britto**, Summer Undergraduate Research Program 2014 at CITA
- **Derek Inman**, Co-supervision with Ue-Li Pen, Ph.D. Student at CITA, September 2013 - August 2014
- **Shenglin Jing**, Co-supervision with Ido Ben-Dayana, Undergraduate Student at CITA, September 2012 - August 2013

POSTDOCTORAL
RESEARCHERS
SUPERVISED

- **Cynthia Trendafilova**, Southern Methodist University, September 2019 - present

TEACHING
EXPERIENCE

Instructor

- Cosmology, General Physics, January 2019 - present, Southern Methodist University
- SLAC Summer Institute 2017, August 2017, SLAC
- Scientific Computing - Symbolic Computing, May 2016 and May 2017, CITA
- MCAT Physics, June 2007 - March 2009, Princeton Review, Austin, Texas

Tutor

- General Physics, June 2011 - August 2012, Austin, Texas
- Astronomy, August 2011 - August 2012, Austin, Texas
- MCAT Physics, August 2008 - January 2009, Princeton Review, Austin, Texas
- Calculus, Fall 2007, Austin, Texas

Teaching Assistant

- University of Texas at Austin, Fall 2006 - Spring 2012
- General physics, History of Science, Undergraduate Quantum Mechanics, Graduate Quantum Mechanics, Quantum Field Theory

SERVICE AND
LEADERSHIP

- **SMU Astrophysics Discussion:** Co-organizer, 2019 - present
- **SMU Theoretical HEP Discussion:** Co-organizer, 2018 - present
- **SMU Graduate Committee:** Member, 2018 - present
- **SMU Faculty Hiring Committee:** Member, 2018 - present
- **CMB-S4:** Light Relics Working Group Co-Lead, Science Council Member, 2018 - present
- **CITA Cosmology Discussion:** Co-organizer, 2012 - 2018
- **CITA Blackboard Discussion:** Co-organizer, 2013 - 2018
- **CITA Postdoc Hiring Committee:** Member, 2013 - 2018
- **CITA Jamboree:** Co-organizer, 2014 - 2015
- **Journal Referee:**
 - Physical Review Letters
 - Physical Review D
 - Physical Review X
 - Journal of Cosmology and Astroparticle Physics

WORKSHOPS
ORGANIZED

- *CMB in HD*, Flatiron Institute, December 2018
- *Neutrinos and (G)astrophysics in Large-Scale Structure*, CITA, December 2016

PUBLICATIONS

Note: All author lists are alphabetical except those with an asterisk (*)

1. M. Aravena *et al.*,
The CCAT-Prime Submillimeter Observatory,
arXiv:1909.02587 [astro-ph.IM]. arXiv:1909.02587 [astro-ph.IM].
2. M. Alvarez *et al.*,
PICO: Probe of Inflation and Cosmic Origins,
arXiv:1908.07495 [astro-ph.IM].
3. A. Laguë and J. Meyers, *Prospects and Limitations for Constraining Light Relics with Primordial Abundance Measurements*,
arXiv:1908.05291 [astro-ph.CO].
4. K. Abazajian *et al.*,
CMB-S4 Decadal Survey APC White Paper,
arXiv:1908.01062 [astro-ph.IM].
5. M. H. Abitbol *et al.* [Simons Observatory Collaboration],
The Simons Observatory: Astro2020 Decadal Project Whitepaper,
arXiv:1907.08284 [astro-ph.IM].
6. K. Abazajian *et al.*,
CMB-S4 Science Case, Reference Design, and Project Plan,
arXiv:1907.04473 [astro-ph.IM].
7. (*) N. Sehgal *et al.*,
CMB-HD: An Ultra-Deep, High-Resolution Millimeter-Wave Survey Over Half the Sky,
arXiv:1906.10134 [astro-ph.CO].
8. (*) E. B. Grohs, J. R. Bond, R. J. Cooke, G. M. Fuller, J. Meyers and M. W. Paris,
Big Bang Nucleosynthesis and Neutrino Cosmology,
arXiv:1903.09187 [astro-ph.CO].
9. (*) S. Ferraro *et al.*,
Inflation and Dark Energy from spectroscopy at $z > 2$,
arXiv:1903.09208 [astro-ph.CO].
10. (*) D. Green *et al.*,
Messengers from the Early Universe: Cosmic Neutrinos and Other Light Relics,
arXiv:1903.04763 [astro-ph.CO].
11. (*) S. Shandera *et al.*,
Probing the origin of our Universe through cosmic microwave background constraints on gravitational waves,
arXiv:1903.04700 [astro-ph.CO].
12. (*) P. D. Meerburg *et al.*,
Primordial Non-Gaussianity,
arXiv:1903.04409 [astro-ph.CO].
13. (*) N. Sehgal *et al.*,
Science from an Ultra-Deep, High-Resolution Millimeter-Wave Survey,
arXiv:1903.03263 [astro-ph.CO].

14. (*) S. Hanany *et al.* [NASA PICO Collaboration],
PICO: Probe of Inflation and Cosmic Origins,
arXiv:1902.10541 [astro-ph.IM].
15. (*) S. C. Hotinli *et al.*,
Transverse Velocities with the Moving Lens Effect,
Phys. Rev. Lett. **123**, no. 6, 061301 (2019) arXiv:1812.03167 [astro-ph.CO].
16. (*) S. Foreman, P. D. Meerburg, J. Meyers and A. van Engelen,
Cosmic variance mitigation in measurements of the integrated Sachs-Wolfe effect,
Phys. Rev. D **99**, 083506 (2019) arXiv:1811.00529 [astro-ph.CO].
17. J. Aguirre *et al.* [Simons Observatory Collaboration],
The Simons Observatory: Science goals and forecasts,
JCAP **1902**, 056 (2019) arXiv:1808.07445 [astro-ph.CO].
18. (*) G. J. Stacey *et al.*,
CCAT-prime: Science with an Ultra-widefield Submillimeter Observatory at Cerro Chajnantor,
arXiv:1807.04354 [astro-ph.GA].
19. R. de Putter, O. Doré, J. Gleyzes, D. Green and J. Meyers,
Dark Matter Interactions, Helium, and the CMB,
Phys. Rev. Lett. **122**, 041301, (2018) arXiv:1805.11616 [astro-ph.CO].
20. D. Green, P. D. Meerburg and J. Meyers,
Aspects of Dark Matter Annihilation in Cosmology,
JCAP **1904**, 025 (2019) arXiv:1804.01055 [astro-ph.CO].
21. (*) S. Foreman, P. D. Meerburg, A. van Engelen and J. Meyers,
Lensing reconstruction from line intensity maps: the impact of gravitational nonlinearity,
JCAP **1807**, no. 07, 046 (2018) arXiv:1803.04975 [astro-ph.CO].
22. (*) S. C. Hotinli, J. Frazer, A. H. Jaffe, J. Meyers, L. C. Price and E. R. M. Tarrant,
Effect of reheating on predictions following multiple-field inflation,
Phys. Rev. D **97**, no. 2, 023511 (2018) arXiv:1710.08913 [astro-ph.CO].
23. (*) J. Meyers, P. D. Meerburg, A. van Engelen and N. Battaglia,
Beyond CMB Cosmic Variance Limits on Reionization with the Polarized SZ effect,
Phys. Rev. D **97**, no. 10, 103505 (2018), **Editor's Suggestion** arXiv:1710.01708 [astro-ph.CO].
24. P. D. Meerburg, J. Meyers and A. van Engelen,
Reconstructing the Primary CMB Dipole,
Phys. Rev. D **96**, no. 8, 083519 (2017) arXiv:1704.00718 [astro-ph.CO].
25. P. D. Meerburg, J. Meyers, K. M. Smith and A. van Engelen,
Reconstructing CMB Fluctuations and the Mean Reionization Optical Depth,
Phys. Rev. D **95**, no. 12, 123538 (2017) arXiv:1701.06992 [astro-ph.CO].
26. (*) C. Sheere, A. van Engelen, P. D. Meerburg and J. Meyers,
Establishing the Origin of CMB B-mode Polarization,
Phys. Rev. D **96**, no. 6, 063508 (2017) arXiv:1610.09365 [astro-ph.CO].

27. K. N. Abazajian *et al.* [CMB-S4 Collaboration],
CMB-S4 Science Book, First Edition,
arXiv:1610.02743 [astro-ph.CO].
28. R. de Putter, O. Doré, D. Green and J. Meyers,
Single-Field Inflation and the Local Ansatz: Distinguishability and Consistency,
Phys. Rev. D **95**, no. 6, 063501 (2017) arXiv:1610.00785 [hep-th].
29. D. Green, J. Meyers and A. van Engelen,
CMB Delensing Beyond the B Modes,
JCAP **1712** (2017) no.12, 005 arXiv:1609.08143 [astro-ph.CO].
30. J. Meyers,
Cosmic Neutrinos and Other Light Relics,
arXiv:1605.05575 [astro-ph.CO].
31. (*) P. D. Meerburg, J. Meyers, A. van Engelen and Y. Ali-Haïmoud,
CMB B-Mode Non-Gaussianity,
Phys. Rev. D **93**, 123511 (2016) arXiv:1603.02243 [astro-ph.CO].
32. D. Baumann, D. Green, J. Meyers and B. Wallisch,
Phases of New Physics in the CMB,
JCAP **1601**, 007 (2016) arXiv:1508.06342 [astro-ph.CO].
33. (*) P. D. Meerburg, R. Hložek, B. Hadzhiyska and J. Meyers,
Multiwavelength Constraints on the Inflationary Consistency Relation,
Phys. Rev. D **91**, no. 10, 103505 (2015) arXiv:1502.00302 [astro-ph.CO].
34. M. Alvarez *et al.*,
Testing Inflation with Large Scale Structure: Connecting Hopes with Reality,
arXiv:1412.4671 [astro-ph.CO].
35. V. Britto and J. Meyers,
Monthly Modulation in Dark Matter Direct-Detection Experiments,
JCAP **1511**, 006 (2015) arXiv:1409.2858 [astro-ph.CO].
36. J. Meyers and E. R. M. Tarrant,
Perturbative Reheating After Multiple-Field Inflation: The Impact on Primordial Observables,
Phys. Rev. D **89**, no. 6, 063535 (2014) arXiv:1311.3972 [astro-ph.CO].
37. J. Meyers,
Non-Gaussian Correlations Outside the Horizon in Local Thermal Equilibrium,
arXiv:1212.4438 [astro-ph.CO].
38. J. Meyers and N. Sivanandam,
Adiabaticity and the Fate of Non-Gaussianities: The Trispectrum and Beyond,
Phys. Rev. D **84**, 063522 (2011) arXiv:1104.5238 [astro-ph.CO].
39. J. Meyers and N. Sivanandam,
Non-Gaussianities in Multifield Inflation: Superhorizon Evolution, Adiabaticity, and the Fate of fnl ,
Phys. Rev. D **83**, 103517 (2011) arXiv:1011.4934 [astro-ph.CO].
40. W. Fischler and J. Meyers,
Dark Radiation Emerging After Big Bang Nucleosynthesis?,
Phys. Rev. D **83**, 063520 (2011) arXiv:1011.3501 [astro-ph.CO].