

Chanda Prescod-Weinstein

Dark Universe Science Center and Department of Physics
University of Washington
Box 351560
Seattle, Washington 98195-1560
U.S.A.

email: cprescod@uw.edu
url: <http://cprescodweinstein.com>

Citizenship: U.S.A.

Current position

Research Associate, Department of Physics and Dark Universe Science Center, University of Washington, Seattle, U.S.A.
advisor: Ann Nelson

Areas of specialization

Theoretical Cosmology with an emphasis on classical and quantum fields in the early universe; novel approaches to dark matter (axions) and cosmic acceleration; and formal problems in quantum fields in curved spacetimes and General Relativity

Education

- 2010 PhD in Physics, University of Waterloo/Perimeter Institute, Canada, Dissertation: *Cosmic Acceleration as Quantum Gravity Phenomenology*, advisors: Dr. Lee Smolin & Professor Niayesh Afshordi
- 2005 MSc in Astronomy and Astrophysics, University of California, Santa Cruz, U.S.A., advisor: Professor Anthony Aguirre
- 2003 AB in Physics and Astronomy and Astrophysics, Harvard College, Cambridge, U.S.A., Thesis: *A Study of Winds in Active Galactic Nuclei*, advisor: Dr. Martin Elvis

Appointments held

- 2011-2016 Dr. Martin Luther King, Jr. Fellow in Physics, Massachusetts Institute of Technology, Cambridge, U.S.A.
- 2010-2011 NASA Postdoctoral Program Fellow, Observational Cosmology Lab, Goddard Space Flight Center, Greenbelt, U.S.A.
- 2006-2010 Graduate Student Researcher Perimeter Institute for Theoretical Physics, Waterloo, Canada
- 2006-2010 Doctoral Student, advised by Professors Lee Smolin and Niayesh Afshordi, Department of Physics and Astronomy, University of Waterloo, Canada

- 2003-2006 Doctoral Student, University of California, Santa Cruz, U.S.A.
- 2003 Researcher, Smithsonian Astrophysical Observatory, Cambridge, U.S.A.
- 2002 Undergraduate Researcher, Department of Materials and Applied Science, Harvard University, Cambridge, U.S.A.
- 2001 Undergraduate Researcher, Department of Computational Neuroscience, University of Chicago, U.S.A.
- 2000-2002 Data Analyst, Harvard College Observatory, Cambridge, U.S.A.
- 2000 Undergraduate Researcher, Department of Physics, University of Chicago, U.S.A.

Grants, honors & awards

- 2016-2018 Principle Investigator, FQXi Physics of the Observer Large Grant, \$100,522.31, “Epistemological Schemata of Astro | Physics: A Reconstruction of Observers”
- 2013 Infinite Kilometer Award, M.I.T. School of Science
- 2012 Young Scientist, Lindau Nobel Laureates Conference in Physics
- 2012 Society for the Advancement of Chicanos/Hispanics and Native Americans in the Sciences Summer Leadership Institute Graduate
- 2011-2016 Dr. Martin Luther King Postdoctoral Fellowship, M.I.T.
- 2007 Barbados House Canada Inc. Gordon C. Bynoe Scholarship Award
- 2004 National Science Foundation Graduate Research Fellow (2004-2007)

Publications & talks

Refereed articles

- 2015 A. Guth, M.P. Hertzberg, & **C. Prescod-Weinstein**, Do Dark Matter Axions Form a Condensate with Long-Range Correlation?, **Editors’ Suggestion** in *Phys. Rev. D* 92, 103513, [arXiv:1412.5930](https://arxiv.org/abs/1412.5930) [[astro-ph.CO](https://arxiv.org/abs/1412.5930)]
- 2015 **C. Prescod-Weinstein** and E. Bertschinger, An Extension of the Faddeev-Jackiw Technique to Fields in Curved Spacetimes, *Class. Quantum Grav.* 32 075011, [[arXiv:1404.0382](https://arxiv.org/abs/1404.0382)] [[hep-th](https://arxiv.org/abs/1404.0382)]
- 2009 **C. Prescod-Weinstein** and L. Smolin (2009), Disordered Locality as an Explanation for the Dark Energy, *Phys. Rev. D* 80, 063505 [[arXiv:0905.3551v2](https://arxiv.org/abs/0905.3551v2)] [[astro-ph.CO](https://arxiv.org/abs/0905.3551v2)]
- 2009 **C. Prescod-Weinstein**, N. Afshordi and M. Balogh (2009), Stellar Black Holes and the Origin of Cosmic Acceleration, *Phys. Rev. D* 80, 043513, [[arXiv:0903.5303v3](https://arxiv.org/abs/0903.5303v3)] [[hep-th](https://arxiv.org/abs/0903.5303v3)]

Preprints

- 2016 M. DeCross, D. Kaiser, A. Prabhu, **C. Prescod-Weinstein**, and E. Sfakianakis, Preheating after Multifield Inflation with Nonminimal Couplings, III: Dynamical spacetime results, [arXiv:1610.08916](https://arxiv.org/abs/1610.08916) [[astro-ph.CO](https://arxiv.org/abs/1610.08916)]
- 2016 M. DeCross, D. Kaiser, A. Prabhu, **C. Prescod-Weinstein**, and E. Sfakianakis, Preheating after Multifield Inflation with Nonminimal Couplings, II: Resonance Structure, [arXiv:1610.08868](https://arxiv.org/abs/1610.08868) [[astro-ph.CO](https://arxiv.org/abs/1610.08868)]
- 2015 M. DeCross, D. Kaiser, A. Prabhu, **C. Prescod-Weinstein**, and E. Sfakianakis, Preheating

after Multifield Inflation with Nonminimal Couplings, I: Covariant Formalism and Attractor Behavior, [arXiv:1510.08553](https://arxiv.org/abs/1510.08553) [[astro-ph.CO](https://arxiv.org/archive/astro)]

2010 **C. Prescod-Weinstein** and N. Afshordi (2010), Using Dark Matter Haloes to Learn about Cosmic Acceleration: A New Proposal for a Universal Mass Function, [arXiv:1010.5501](https://arxiv.org/abs/1010.5501) [[astro-ph.CO](https://arxiv.org/archive/astro)]

2008 S. DeDeo and **C. Prescod-Weinstein** (2008), Macroscopic Objects in Theories with Energy-dependent Speeds of Light, [arXiv:0811.1999](https://arxiv.org/abs/0811.1999) [[astro-ph](https://arxiv.org/archive/astro)]

In Preparation

2016 A. Nelson and **C. Prescod-Weinstein**, Solving the Strong CP Problem with the Relaxion
2016 R. Hlozek, D. Kaiser, and **C. Prescod-Weinstein**, Imprints of New Higgs Inflation on the Cosmic Microwave Background

2016 D. Kaiser, **C. Prescod-Weinstein**, and E. Sfakianakis, The Effective Potential for Non-minimally Coupled Scalar Fields

Invited Presentations (selected)

2016 *Axions and Inflatons in the Early Universe, Whiting Prize Lecture*, Wellesley College, Massachusetts, USA (October 2016)

2016 *From Condensed Matter to Cosmology: Axions and Inflatons in the Early Universe*, Colloquium, Department of Astronomy, Yale University, USA (February 2016)

2015 *From Condensed Matter to Cosmology: Axions in the Early Universe*, Astrophysics Colloquium, American Museum of Natural History, New York, USA (April 2015)

2015 *From Condensed Matter to Cosmology: Axions & Inflatons in the Early Universe*, Colloquium, Department of Physics, University of Washington, USA (March 2015)

2014 *Bose-Einstein Condensates in Space!*, Department of Physics and Astronomy, Swarthmore College, Pennsylvania, USA (November 2014)

2014 *Bose-Einstein Condensates in Space!*, Astronomy Seminar, Department of Physics and Astronomy, University of Delaware, Newark, USA, (September 2014)

2013 *Bose-Einstein Condensates in Space!*, Faculty Lunch Talk, Department of Physics, M.I.T., Cambridge, USA (November 2013)

2013 *Axion Dynamics in Curved Spacetimes*, Astrophysics Seminar, Brown University, Providence, USA (March 2013)

2012 *Cosmology as Quantum Gravity*, Department of Physics Colloquium, Wellesley College, Wellesley, USA (October 2012)

2010 *Can Dark Matter Tell Us About Dark Energy?*, Colloquium, Department of Mathematics, California State University, Northridge, U.S.A. (October, 2010)

2009 *Better Cosmology Through Modified Gravity*, Tea Talk, Department of Astronomy, California Institute of Technology, Pasadena, California (December, 2009)

Teaching (selected)

2014-16 Co-supervisor for undergraduates in Guth Group: Matthew DeCross, Karla Guardado (senior thesis), & Anirudh Prabhu

- 2012 Associate Instructor, Freshman Seminar on Cosmology
- 2012 Recitation Instructor, Graduate Introduction to General Relativity, M.I.T.
- 2010 Research Mentor, *What's the Deal with Cosmic Acceleration?*, International Summer School for Young Physicists, Perimeter Institute for Theoretical Physics, Waterloo, Canada

Service to the profession

- 2016 co-author *Building an Inclusive AAS - The Critical Role of Diversity and Inclusion Training for AAS Council and Astronomy Leadership*, [arXiv:1610.02916 \[astro-ph.IM\]](https://arxiv.org/abs/1610.02916)
- Since 2011 Founding Member, American Astronomical Society Committee on Sexual Orientation and Gender Minorities in Astronomy
- 2011 Co-Chair, Joint Annual Meeting of National Society of Black Physicists and National Society of Hispanic Physicists
- 2009 University of Waterloo Graduate Representative, Guelph-Waterloo Physics Institute Coordinating Committee
- Since 2008 Executive Committee, National Society of Hispanic Physicists
- Since 2007 Chair, Cosmology, Classical & Quantum Gravity Committee, National Society of Black Physicists
- 2005-2011 Member, Conference Committee and Executive Committee, National Society of Black Physicists

References

Professor Alan Guth
 Department of Physics, M.I.T.
guth@ctp.mit.edu

Professor Ann Nelson
 Department of Physics, University of Washington
anelson@phys.washington.edu

Professor David Kaiser
 Program in Science and Technology Studies & Department of Physics (lecturer), M.I.T.
dikaiser@mit.edu

Dr. Lee Smolin
 Perimeter Institute for Theoretical Physics
lsmolin@perimeterinstitute.ca

Professor Peter Fisher
 Department of Physics, Head, M.I.T.
fisherp@mit.edu