Curriculum Vitae

Cora Dvorkin

Contact Address: Department of Physics, Harvard University
                17 Oxford Street, Lyman 334
                Cambridge, MA 02138
Telephone (773) 915-3857
Email: cdvorkin@g.harvard.edu
Website: https://dvorkin.physics.harvard.edu/
         https://www.physics.harvard.edu/people/facpages/dvorkin
Citizenship: Argentina

EDUCATION

July, 2011: Doctor of Philosophy in Physics University of Chicago
   Dissertation: “On the Imprints of Inflation in the Cosmic Microwave Background”
   Advisor: Prof. Wayne Hu
September, 2006: Master of Science in Physics University of Chicago
June, 2005: Diploma in Physics (M.S. equivalent) University of Buenos Aires
            (Summa cum laude)

POSITIONS HELD

July, 2019 - present Department of Physics, Harvard University
Associate Professor
July, 2015 - June, 2019 Department of Physics, Harvard University
Assistant Professor
2014-2015 ITC - Center for Astrophysics, Harvard University
    NASA Hubble Fellow and ITC Fellow
2011-2014 Institute for Advanced Study (Princeton), School of Natural Sciences
    Postdoctoral Member
2006-2011 University of Chicago, Department of Physics
    Research Assistant at Kavli Institute for Cosmological Physics (KICP)

RESEARCH INTERESTS

I am a theoretical cosmologist. My areas of interest are: the nature of dark matter, neutrinos and other light relics, and the physics of the early universe. I use observables such as the Cosmic Microwave Background (CMB), the large-scale structure of the universe, and strong gravitational lensing to shed light on these questions.
HONORS AND AWARDS

2022  Voted “favorite professor” at Harvard University
       by the Harvard senior Class of 2023
2019  DOE Early Career award
2018-2019  Radcliffe Institute Fellowship
           awarded by the Radcliffe Institute for Advanced Study at Harvard University
2018  “2018 Scientist of the Year” award
       awarded by the Harvard Foundation (with support from Harvard students):
       “For Salient Contributions to Physics, Cosmology and STEM Education”
2018  Star Family Challenge prize recipient for Promising Scientific Research,
       seed funding for high-risk and high-impact research projects at Harvard University
2017  Visiting Associate Professorship (during June 2017)
       awarded by the Physics Department at University of Buenos Aires (Argentina)
2015-2019  Shutzer Assistant Professorship
           awarded by the Radcliffe Institute for Advanced Study at Harvard University
2014  Kavli Frontiers of Science Fellowship
       awarded by the US National Academy of Sciences and the Kavli Foundation
2014-2017  Hubble Fellowship
           awarded by NASA
2014-2017  ITC - Harvard Fellowship
           awarded by Harvard University
2014  Einstein Fellowship (declined)
       awarded by NASA
2014  Theoretical Astrophysics Center - Berkeley Fellowship (declined)
       awarded by UC Berkeley
2014  McGill Trottier Fellowship (declined)
       awarded by McGill University
2012  “Martin and Beate Block Award”
       awarded to the “best young physicist”
       Aspen Center for Physics
2011-2014  IAS Postdoctoral Fellowship
           awarded by the Institute for Advanced Study
2011  Lyman Spitzer Postdoctoral Fellowship (declined)
       awarded by Princeton University
2011  KIPAC Postdoctoral Fellowship (declined)
       awarded by Stanford University
2011  Moore Postdoctoral Scholarship (declined)
       awarded by Caltech
2011  CIFAR Junior Fellowship (declined)
       awarded by the Canadian Institute for Advanced Research
2011  CITA Postdoctoral Fellowship (declined)
       awarded by the Canadian Institute for Theoretical Astrophysics
2011  Perimeter Institute Postdoctoral Fellowship (declined)
2011  McGill Trottier Fellowship and CITA National Fellowship (declined)
       awarded by McGill University
2011  NASA Postdoctoral Fellowship (declined)
2009-2010  “Sidney Bloomenthal Fellowship”
           awarded for “outstanding performance in research”,
           from University of Chicago, Department of Physics
2004-2005  “Stimulus Fellowship”
           fellowship for undergraduate research,
           from University of Buenos Aires
SERVICE AND PROFESSIONAL ACTIVITIES AT HARVARD

- **Harvard Representative at the Institute for Artificial Intelligence and Fundamental Interactions (IAIFI) Board** (2020-2025). This is a 5-year, $20 million award, jointly with colleagues at Harvard, MIT, Tufts, and Northeastern. The goal is to solve problems in fundamental physics and astrophysics using AI, while at the same time improving the AI foundations.
- **IAIFI Colloquia Chair** (2022-2023)
- **Member** of the Graduate Admissions Committee at Harvard University, Physics Department (2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023)
- **Founder and Organizer** of a bi-weekly Cosmology Journal Club together with Prof. Finkbeiner and Prof. Kovac, at the Harvard Physics Department (2016 - present)
- **Member** of the Committee for appointment of Professor in Residence at Harvard University, Physics Department (2021)
- Member of the IAIFI Fellowship Committee (2020)
- Colloquium Organizer at Harvard University, Physics Department (2020-2021)
- **Co-Organizer** of a bi-monthly Dark Matter Meeting, jointly with the Center for Astrophysics at Harvard and the Physics Department at MIT (2015-2018)
- **Member** of the Physics Newsletter Committee at Harvard University (2019)
- **Member** of the Inclusion Committee at Harvard University, Physics Department (2018-2019)
- **Co-Organizer** of a weekly Machine Learning seminar series, jointly with the Center for Astrophysics at Harvard (2018)
- **Member** of the Planning Committee for Gravitational Waves Astrophysics and Physics at Harvard (2018)
- **Member** of the Colloquium Committee at the Physics Department at Harvard (2016-2018)
- **Member** of the Loeb and Lee Lectures Committee at the Physics Department at Harvard (2015-2017)
- **Member** of the Faculty Search Committee at Harvard University, Physics Department (2016)
- Harvard-ITC Postdoctoral Fellowship Selection Committee (2014)

SERVICE AND PROFESSIONAL ACTIVITIES OUTSIDE HARVARD

- **Leader** of the Dark Matter Physics from the CMB-S4 Experiment Snowmass White paper (2022)
- **Leader** of the Light Relics Snowmass White paper (2022)
- **Leader** of the Machine Learning and Cosmology Snowmass White paper (2022)
- **Leader** of the Inflation/Primordial Density Perturbations Analysis group in the CMB-S4 Collaboration (2018-2019)
- **Member** of the Election and Voting Board of the CMB-S4 Collaboration (2018-2020)
- **Leader** of the Dark Matter team in the CMB-S4 Collaboration (2015-2017)
- **Full Member** of the Vera Rubin Observatory’s LSST Dark Energy Science Collaboration (DESC)
- **Member** of the Nancy Grace Roman Space Telescope (formerly known as WFIRST) science investigation team
- **Member** of the PIXIE (Primordial Inflation Explorer) mission
• **Member** of the Hubble Space Telescope (HST) Fundamental Physics advising team (2017). As a result of our recommendation, a new category on Fundamental Physics was added to the HST proposal cycles (2018)

• **Member** of the US team of the CORE Space Mission (2016-2017)

• **Member** of the joint BICEP2/Planck collaboration (2014).

• **Leader** of the Neutrino Science White paper for the Decadal Survey (2018)

• Cosmology Seminar Organizer, joint IAS/Princeton University (winter 2013-summer 2014)

• Astrophysics Seminar Organizer at the IAS (winter 2012-winter 2013)

• **Member** of the Inflation Working Group at the CMB Polarization Workshop: Theory and Foregrounds

• **Member** of the Admissions Committee at the University of Chicago, Physics Department (2008)

• Proposal **Reviewer** for the National Science Foundation (NSF), the Department of Energy (DOE), the Hubble Space Telescope (HST), NASA, the Sloan Foundation, the John Templeton Foundation, the Argentine Agency of Physical, Mathematical and Astronomical Sciences (FONCyT)

• **Referee** for Physical Review Letters (PRL), Physical Review D (PRD), The Astrophysical Journal (ApJ), The Monthly Notices of the Royal Astronomical Society (MNRAS), Journal of Cosmology and Astroparticle Physics (JCAP), Physics Letters B (PLB), NeurIPS Machine Learning and Physical Sciences workshop, Europhysics Letters

• Named “Science Ambassador” of the **National Society of Black Physicists**

• **Member** of the **National Society of Black Physicists**

• **Member** of the **American Physical Society**

• **Member** of the **American Astronomical Society**

**ORGANIZATION OF CONFERENCES/MEETINGS AT HARVARD**

• “Learning the Wider Universe”, Radcliffe Exploratory seminar workshop, at the Radcliffe Institute for Advanced Study at Harvard, October 2018.

• CMB-S4 Collaboration workshop, at the Physics Department at Harvard, August 2017.

**ORGANIZATION OF CONFERENCES/MEETINGS OUTSIDE HARVARD**

• Elected Vice Chair of the upcoming Gordon Research Conference “String Theory and Cosmology” to be held in 2023, and Chair of the meeting to be held in 2024.

• “New Physics from the sky” workshop, held at Galileo Galilei Institute for Theoretical Physics in Florence, in 2021.

• Co-organizer of the international [BSM PANDEMIC Seminars series](https://bsm-pandemic.org), a virtual seminar series, which was created to support the cosmology and particle physics communities - especially its most junior members - through the COVID pandemic (2020-2021).

• Latin American Workshop on Observational Cosmology, held in ICTP-SAIFR, Sao Paulo (taking place virtually due to COVID19), on December 2020.

• KITP Program: “Probing Effective Theories of Gravity in Strong Fields and Cosmology”, at the Kavli Institute for Theoretical Physics at UC Santa Barbara (taking place virtually due to COVID19), August -September 2020.

• “New England Theoretical Cosmology, Gravity and Fields” Workshop taking place virtually due to COVID19, July 2020.
• [“Tensions in the ΛCDM Paradigm” workshop] at the Mainz Institute for Theoretical Physics, Germany, May 2018.

CHAIR OF PH.D. COMMITTEES AT HARVARD

• Chair of the Ph.D. Qualifying Exam Committee of Gemma Zhang, graduate student at the Physics Department at Harvard, working under my supervision (October, 2022).
• Chair of the Ph.D. Qualifying Exam Committee of Prish Chakraborty, graduate student at the Physics Department at Harvard, working under my supervision (March, 2022).
• Chair of the Ph.D. Qualifying Exam Committee of Shu-Fan Chen, graduate student at the Physics Department at Harvard, working under my supervision (June, 2021).
• Chair of the Ph.D. Thesis Committee of Ana Diaz Rivero, graduate student at the Physics Department at Harvard, working under my supervision (October, 2020).
• Chair of the Ph.D. Qualifying Exam Committee of Arthur Tsang, graduate student at the Physics Department at Harvard, working under my supervision (September, 2020).
• Chair of the Ph.D. Qualifying Exam Committee of A. Çağan Şengil, graduate student at the Physics Department at Harvard, working under my supervision (September, 2020).
• Chair of the Ph.D. Thesis Committee of Nick Langellier, graduate student at the Physics Department at Harvard, working under my supervision (August, 2020).
• Chair of the Ph.D. Qualifying Exam Committee of Nick DePorzio, graduate student at the Physics Department at Harvard, working under my supervision (February, 2020).
• Chair of the Ph.D. Qualifying Exam Committee of Nick Langellier, graduate student at the Physics Department at Harvard, working with Dr. Ronald Walsworth (November, 2019).
• Chair of the Ph.D. Thesis Committee of Aakash Ravi, graduate student at the Physics Department at Harvard, working with Dr. Ronald Walsworth (October, 2019).
• Chair of the Ph.D. Thesis Committee of Andrew Chael, graduate student at the Physics Department at Harvard, working with Prof. Ramesh Narayan and Dr. Shep Doeleman (April, 2019).
• Chair of the Ph.D. Qualifying Exam Committee of Ana Diaz Rivero, graduate student at the Physics Department at Harvard, working under my supervision (April, 2018).
• Chair of the Ph.D. Qualifying Exam Committee of Andrew Chael, graduate student at the Physics Department at Harvard, working with Prof. Ramesh Narayan and Dr. Shep Doeleman (August, 2016).

MEMBER OF PH.D. COMMITTEES AT HARVARD

• Member of the Ph.D. Qualifying Exam Committee of Nayantara Mudur, graduate student at the Physics Department at Harvard, working with Prof. Doug Finkbeiner (May, 2022).
• Member of the Ph.D. Qualifying Exam Committee of Ian Davenport, graduate student at the Physics Department at Harvard, working with Prof. L. Mahadevan (May, 2022).
• Member of the Ph.D. Qualifying Exam Committee of Christopher Shallue, graduate student at the Astrophysics Department at Harvard, working with Prof. Daniel Eisenstein (May, 2022).
• Member of the Ph.D. Thesis Committee of Xiaohan Wu, graduate student at the Astrophysics Department at Harvard, working with Prof. Daniel Eisenstein (April, 2022).
• Member of the Ph.D. Thesis Committee of Georges Obied, graduate student at the Physics Department at Harvard, working under my supervision and Prof. Cumrun Vafa’s supervision (April, 2022).
• **Member** of the Ph.D. Thesis Committee of Aditya Parikh, graduate student at the Physics Department at Harvard, working with Prof. Matthew Reece (April, 2022).

• **Member** of the Ph.D. Qualifying Exam Committee of Justina Yang, graduate student at the Physics Department at Harvard, working with Prof. Doug Finkbeiner (April, 2022).

• **Member** of the Ph.D. Qualifying Exam Committee of Hengameh Bagherian, graduate student at the Physics Department at Harvard, working with Prof. Matthew Reece (April, 2022).

• **Member** of the Ph.D. Qualifying Exam Committee of Xiaoyuan Zhang, graduate student at the Physics Department at Harvard, working with Prof. Matthew Schwartz (February, 2022).

• **Member** of the Ph.D. Qualifying Exam Committee of Ana Maria Delgado, graduate student at the Astrophysics Department at Harvard, working with Prof. Lars Hernquist (December, 2021).

• **Member** of the Ph.D. Qualifying Exam Committee of Xiaoyuan Zhang, graduate student at the Physics Department at Harvard, working with Prof. Matthew Schwartz (February, 2022).

• **Member** of the Ph.D. Qualifying Exam Committee of Ana Maria Delgado, graduate student at the Astrophysics Department at Harvard, working with Prof. Lars Hernquist (December, 2021).

• **Member** of the Ph.D. Thesis Committee of Ioana Zelko, graduate student at the Astrophysics Department at Harvard, working with Prof. Doug Finkbeiner (June, 2021).

• **Member** of the Ph.D. Qualifying Exam Committee of Jacob Zavatone-Veth, graduate student at the Physics Department at Harvard, working with Prof. Pehlevan (June, 2021).

• **Member** of the Ph.D. Thesis Committee of Weishuang (Linda) Xu, graduate student at the Physics Department at Harvard, working with Prof. Lisa Randall’s and my supervision (May, 2021).

• **Member** of the Ph.D. Thesis Committee of Victor Alonso Rodriguez, graduate student at the Physics Department at Harvard, working with Prof. Xi Yin (April, 2021).

• **Member** of the Ph.D. Advisory Committee of Christopher Shallue, graduate student at the Astrophysics Department at Harvard, working with Prof. Daniel Eisenstein (April, 2021).

• **Member** of the Ph.D. Advisory Committee of Ana Maria Delgado, graduate student at the Astrophysics Department at Harvard, working with Prof. Lars Hernquist (April, 2021).

• **Member** of the Ph.D. Thesis Committee of Hofie Hannesdottir, graduate student at the Physics Department at Harvard, working with Prof. Matthew Schwartz (April, 2021).

• **Member** of the Ph.D. Advisory Committee of Michael ‘Misha’ Rashkovetskyi, graduate student at the Astrophysics Department at Harvard, working with Prof. Daniel Eisenstein (April, 2021).

• **Member** of the Ph.D. Qualifying Exam Committee of Noah Miller, graduate student at the Physics Department at Harvard, working with Prof. Andrew Strominger (November, 2020).

• **Member** of the Ph.D. Thesis Committee of Louis Baum, graduate student at the Physics Department at Harvard, working with Prof. John Doyle (May, 2020).

• **Member** of the Ph.D. Qualifying Exam Committee of Tanveer Karim, graduate student at the Astrophysics Department at Harvard, working with Prof. Daniel Eisenstein (April, 2020).

• **Member** of the Ph.D. Qualifying Exam Committee of Nicolo Foppiani, graduate student at the Physics Department at Harvard, working with Prof. Roxanne Guenette (March, 2020).

• **Member** of the Ph.D. Qualifying Exam Committee of Alek Bedroya, graduate student at the Physics Department at Harvard, working with Prof. Cumrun Vafa (November, 2019).

• **Member** of the Ph.D. Qualifying Exam Committee of Xiaohan Wu, graduate student at the Astrophysics Department at Harvard, working with Prof. Daniel Eisenstein (November, 2019).
• Member of the Ph.D. Qualifying Exam Committee of Sruthi Narayanan, graduate student at the Physics Department at Harvard, working with Prof. Andrew Strominger (September, 2019).

• Member of the Ph.D. Thesis Committee of Victor Buza, graduate student at the Physics Department at Harvard, working with Prof. John Kovac (May, 2019).

• Member of the Ph.D. Qualifying Exam Committee of Houri C. Tarazi, graduate student at the Physics Department at Harvard, working with Prof. Cumrun Vafa (May, 2019).

• Member of the Ph.D. Thesis Committee of Jennifer Roloff, graduate student at the Physics Department at Harvard, working with Prof. John Huth (May, 2019).

• Member of the Ph.D. Thesis Committee of Lehman Garrison, graduate student at the Astrophysics Department at Harvard, working with Prof. Daniel Eisenstein (May, 2019).

• Member of the Ph.D. Qualifying Exam Committee of Qianshu Lu, graduate student at the Physics Department at Harvard, working with Prof. Matthew Reece (April, 2019).

• Member of the Ph.D. Qualifying Exam Committee of Georges Obied, graduate student at the Physics Department at Harvard, working under my supervision and Prof. Cumrun Vafa’s supervision (May, 2018).

• Member of the Ph.D. Qualifying Exam Committee of Hofie Hannesdottir, graduate student at the Physics Department at Harvard, working with Prof. Matthew Schwartz (May, 2018).

• Member of the Ph.D. Qualifying Exam Committee of Aditya Parikh, graduate student at the Physics Department at Harvard, working with Prof. Matthew Reece (April, 2018).

• Member of the Ph.D. Qualifying Exam of Ioana Zelko, graduate student at the Astrophysics Department at Harvard, working with Prof. Doug Finkbeiner (November, 2017).

• Member of the Ph.D. Qualifying Exam of Lehman Garrison, graduate student at the Astrophysics Department at Harvard, working with Prof. Daniel Eisenstein (September, 2017).

• Member of the Ph.D. Qualifying Exam Committee of Weishuang (Linda) Xu, graduate student at the Physics Department at Harvard, working with Prof. Lisa Randall and Prof. Cora Dvorkin (May, 2017).

• Member of the Ph.D. Thesis Committee of Rebecca Krall, graduate student at the Physics Department at Harvard, working with Prof. Matthew Reece and Prof. Cora Dvorkin (May, 2017).

• Member of the Ph.D. Qualifying Exam Committee of Jennifer Roloff, graduate student at the Physics Department at Harvard, working with Prof. John Huth (May, 2017).

• Member of the Ph.D. Qualifying Exam Committee of Victor Alonso Rodriguez, graduate student at the Physics Department at Harvard, working with Prof. Xi Yin (December, 2016).

• Member of the Ph.D. Qualifying Exam Committee of Victor Buza, graduate student at the Physics Department at Harvard, working with Prof. John Kovac (September, 2016).

• Member of the Ph.D. Qualifying Exam Committee of Louis Baum, graduate student at the Physics Department at Harvard, working with Prof. John Doyle (September, 2016).

• Member of the Ph.D. Thesis Committee of Zachary Slepian, graduate student at the Astrophysics Department at Harvard, working with Prof. Daniel Eisenstein (April, 2016).

**MEMBER OF PH.D. COMMITTEES OUTSIDE HARVARD**

• Member of the Ph.D. Thesis Committee (as an external examiner) of Nicolas Chartier, a graduate student at Laboratoire de Physique de l’Ecole Normale Superieure, working with Prof. B. Wandelt and Prof. N. Kaiser (October, 2022).
• **Member** of the Ph.D. Thesis Committee (as an external examiner) of Anirban Roy, a graduate student at SISSA (Scuola Internazionale Superiore di Studi Avanzati, Italy), working with Prof. Carlo Baccigalupi and Prof. David Spergel (September, 2019).

**OUTREACH (at Harvard/Boston area)**

• I participated in the Harvard annual Latinx Convocation to welcome the incoming students (2022).
• I participated in a pre-orientation program for first-generation, low-income, and underrepresented incoming undergraduate students at Harvard (2022).
• I participated in a panel discussion about jobs with postdocs at the Physics Department at Harvard University (2022).
• I gave an invited public talk at the Radcliffe Institute for Advanced Study at Harvard, “Probing Fundamental Physics with Cosmological Observations” in Cambridge, MA (2019).
• Keynote speaker at the Harvard Science Research Conference for high school students (2018).
• I gave two cosmology lectures for K-3 and Grades 4-6 students in the Boston area at the “Albert Einstein Science Conference: Advancing Minorities and Women in Science, Mathematics, and Engineering” (2018).
• I participated in a panel discussion about jobs (“How to give a job talk”) with postdocs at the Physics Department at Harvard University (2017).
• Keynote speaker at the Harvard Science Research Conference for high school students (2017).
• I participated in a public event in Cambridge that aimed to explore the connection between arts and sciences through a discussion on creativity in cosmology and music, and through lectures that I gave followed by music pieces inspired by my work in cosmology (2017).
• I participated in a panel discussion with postdocs talking about my teaching experience at the Physics Department at Harvard University (2017).
• I participated in a panel discussion about jobs with postdocs at the Physics Department at Harvard University (2016).
• I participated in Science cafes in Cambridge, where I talked about Dark Matter (2016).
• I gave an invited talk at the “Next in Science” event for all public at the Radcliffe Institute for Advanced Study, in Cambridge (2016).
• I gave a cosmology lecture for Grades 5-12 students in the Boston area at the “Albert Einstein Science Conference: Advancing Minorities and Women in Science, Mathematics, and Engineering” (2016).
• I was a collaborator at the “Cambridge Explores the Universe” event, as part of the Cambridge Science Festival (2015).

**OUTREACH (outside Harvard/Boston area)**

• I gave an invited public talk organized by the National Academy of Sciences in Argentina (2022).
• I gave an invited keynote talk at the National Society of Black Physicists (NSBP) annual Conference, November (2021).
• I gave a public (virtual) talk “From Cosmological Observations to Fundamental Physics” for students in rural areas of India. This event was organized to motivate women to pursue a career in science (2021).

• I gave an invited public lecture “From Cosmological Observations to Fundamental Physics: Past, Present, and Future” presented by the Aspen Center for Physics at the Wheeler Opera House in Aspen, CO (2019).

• I taught a lecture on Dark Energy at the Evergreen forum (at the Princeton Senior Resource Center) in Princeton (2014).

• I was a collaborator during the “Physics Week” event for High School students at University of Buenos Aires, 2001-2005.

GRANTS
Current Support:
Title: Discovering Dark Matter Clumps and Primordial Particles with Galaxies
Sponsor: DOE
Award Number: DOE Early Career Research Program
Total Funding: $750,000 (single PI)
Period of Performance: 09/01/2019 to 08/31/2024 (5 years)
Person Months Committed to Project: Calendar: 2.0

Current Support:
Title: AI Institute: The Institute for Artificial Intelligence and Fundamental Interactions
Sponsor: NSF
Total Funding: $3,471,534 (at Harvard) (Dvorkin: $523,629)
Period of Performance: 11/01/2020-10/31/2025 (5 years)
Person Months Committed to Project: Calendar: 1.0

Past Support:
Title: Discovering New Physics Beyond the Standard Model with Cosmological Data Sets
Sponsor: NSF
Award Number: AST-1813694
Total Funding: $346,632 (single PI)
Period of Performance: 07/01/2018-06/30/2021 (3 years)
Person Months Committed to Project: Calendar: 1.0

Past Support:
Title: Exploring New Physics on Cosmological Scales
Sponsor: DOE
Award Number: DE-SC0019018
Total Funding: $146,000 (single PI)
Period of Performance: 06/07/2018-05/31/2021 (3 years)

Past Support:
Title: Efficient Estimators for Probing the Physics of the Early Universe in Large-Scale Structure Data
Sponsor: FY19 Dean’s Competitive Fund for Promising Scholarship
Total Funding: $50,000 (single PI)
Period of Performance: 12/06/2018-...(unlimited time)
Past Support:
Title: Foreground Separation in the Search of Primordial Gravitational Waves
Sponsor: Star Family Challenge for Promising Scientific Research
Total Funding: $53,753 (single PI)
Period of Performance: 04/24/2018-...(unlimited time)

Past Support:
Title: Probing Massive Particles with Spin during Inflation with Cosmological Data Sets
Sponsor: FY18 Dean’s Competitive Fund for Promising Scholarship
Total Funding: $50,000 (single PI)
Period of Performance: 11/30/2017-...(unlimited time)

Past Support:
Title: Probing the Nature of Dark Matter through Strong Gravitational Lensing
Sponsor: FY17 Dean’s Competitive Fund for Promising Scholarship
Total Funding: $36,289 (single PI)
Period of Performance: 05/18/2017-...(unlimited time)

Past Support:
Title: Probing Fundamental Physics with Cosmological Data Sets
Sponsor: Radcliffe Fellow Research Fund
Total Funding: $5,000 (single PI)
Period of Performance: 07/31/2018-...(unlimited time)

Past Support:
Title: Learning the Wider Universe
Sponsor: Academic Ventures Exploratory Seminar Program at Radcliffe Institute
Total Funding: $21,142 (shared with another PI)
Period of Performance: 2018 (1 year)

Past Support:
Title: Tensions in the ΛCDM Paradigm
Sponsor: Mainz Institute for Theoretical Physics at the Johannes Gutenberg-Universitat
Total Funding: $50,000 (shared with 3 more PIs)
Period of Performance: 2018 (1 year)

ADVISEES
I dedicate a specific effort to maintain a diverse population of students and postdocs in my group.

Graduate students (former):

- Dr. Ana Diaz Rivero: primary advisor (→ D. E. Shaw as a Quantitative Researcher).
- Dr. Georges Obied: co-advisor with Prof. Cumrun Vafa (→ Oxford University as a postdoctoral fellow)
- Dr. Weishuang (Linda) Xu: co-advisor with Prof. Lisa Randall (→ UC Berkeley as a postdoctoral fellow).

Graduate students (current):

- Aizhan Akhmetzhanova (first-year graduate student): primary advisor.
- Priyesh (Prish) Chakraborty (Ph.D. candidate; second-year graduate student): co-advisor with Prof. Matthew Reece.
Shu-Fan Chen (Ph.D. candidate; third-year graduate student): primary advisor.
Nicholas (Nick) DePorzio (Ph.D. candidate; fifth-year graduate student): primary advisor.
A. Çağan Şengül (Ph.D. candidate; fourth-year graduate student): primary advisor.
Arthur Tsang (Ph.D. candidate; fourth-year graduate student): primary advisor.
Gemma Zhang (Ph.D. candidate; second-year graduate student): primary advisor.

Postdocs (former):
- Dr. Francis-Yan Cyr-Racine (→ University of New Mexico as an Assistant Professor).
- Dr. Hayden Lee (→ KICP (Kavli Institute for Cosmological Physics)/University of Chicago as a KICP postdoctoral fellow).
- Dr. Azadeh Moradinezhad Dizgah (→ University of Geneva as a Senior Research Associate).
- Dr. Julian Muñoz (→ UT Austin as an Assistant Professor).
- Dr. Bryan Ostdiek (→ Microsoft as a Data and Applied Scientist).

Postdocs (current):
- Dr. Siddharth Mishra-Sharma (IAIFI fellow).
- Dr. Georgios Valogiannis.

Undergraduate research supervision:
- Maya Burhanpurkar (→ Oxford University as a Rhodes scholar).
- Lucia Gordon (→ Harvard University as a Computer Science Ph.D. student).
- Sebastian Wagner-Carena (→ Stanford University as a Physics Ph.D. student).

Academic advisees:
- Undergraduate concentration advisor for: Kirstin Anderson, Will Dey, Danielle Frostig (now a Ph.D. student at the MIT Kavli Institute), Juliana Garcia-Mejia (now a Ph.D. student at the CfA at Harvard), Kaitlyn Lee, Mike Miccioli (now a Ph.D. student at University of Chicago), Victoria Ono, Maya Skarbinski, and Natalia Villanueva.
- Graduate academic advisor for: Aizhan Akhmetzhanova, Andrew Chael (Ph.D. 2019, now Einstein Fellow at Princeton University), Prish Chakraborty, Chandrika Chandrashekar, Betty Hu, Alexander Johnson, Sruthi Narayanan, and Justina Yang.

I have also worked with students and postdocs outside my group (and outside Harvard):

Now at faculty positions:
- Elisa Chisari: we wrote 4 papers together while she was a student at Princeton University and then a postdoc at Oxford University. She is now a (permanent) Assistant Professor at the Department of Physics at Utrecht University.
- Tansu Daylan (graduate student in Physics at Harvard, under the supervision of Prof. Finkbeiner): we wrote 1 paper together. Tansu is now a Kavli postdoctoral research fellow at MIT. He is soon moving to the Department of Physics at Washington University in St. Louis as an Assistant Professor.
- Simone Ferraro: we wrote 1 paper together while he was a student at Princeton University. He is now a tenure-track scientist at Lawrence Berkeley National Laboratory.
- Vivian Miranda: we wrote 5 papers together while she was a student at University of Chicago and then a postdoc at UPenn and University of Arizona. Vivian is now an Assistant Professor at the Department of Physics and Astronomy at Stony Brook University.
- Katelin Schutz: we wrote 2 papers together while she was a student at Berkeley and then a postdoc at MIT. Katelin is now an Assistant Professor at the Department of Physics at McGill.
Now at postdoctoral and data science positions:

- Andrew Chael (graduate student in Physics at Harvard, under the supervision of Prof. Ramesh Narayan): we wrote 1 paper together. Andrew is now an Einstein Fellow at Princeton University.
- Rebecca Krall (graduate student in Physics at Harvard, under the supervision of Prof. Matthew Reece): we wrote 1 paper together. Rebecca is now a Research Data Scientist at Facebook.

Now a Ph.D. student:

- Michael ‘Misha’ Rashkovetskyi (graduate student in Astrophysics at Harvard, working under the supervision of Prof. Daniel Eisenstein): we wrote 1 paper together.

STUDENTS’ AWARDS

- Maya Burhanpurkar (undergraduate student) was accepted into 4 out of the 4 postgraduate programs she applied for at University of Oxford (2022).
- Georges Obied (Ph.D. student) received postdoctoral fellowship offers from University of Oxford and CERN (2021).
- Maya Burhanpurkar (undergraduate student) was awarded a Rhodes scholarship (2021).
- Shu-Fan Chen (Ph.D. student) was awarded a “Government Scholarship to Study Abroad” by the Ministry of Education of Taiwan (2021).
- Maya Burhanpurkar (undergraduate student) won the Lemelson-MIT Student Prize (2021).
- Ana Diaz Rivero (Ph.D. student) received postdoctoral fellowship offers from KIPAC - Stanford Data Science joint fellowship, Simons Foundation (as a Simons Fellow), and the University of Toronto (CITA) (2021).
- Linda Xu (Ph.D. student) received postdoctoral fellowship offers from UC Berkeley, UC Irvine, the University of Toronto (CITA), and Fermilab (2021).
- Maya Burhanpurkar (undergraduate student) was awarded the Harvard College Research Program award (2020).
- Ana Diaz Rivero (Ph.D. student) was awarded the GSAS Merit Fellowship for “outstanding graduate students” (2020).
- Georges Obied (Ph.D. student) was awarded the Goldhaber Prize to “the most outstanding current Ph.D. students in the Department based on their research accomplishments” (2019).
- Lucia Gordon (undergraduate student) was awarded the PRISE fellowship (2019).
- Nick DePorzio (Ph.D. student) was awarded a National Physical Science Consortium fellowship (2018).
TEACHING EXPERIENCE
At Harvard University as an Assistant/Associate Professor

Fall, 2022  Introductory Electromagnetism and Statistical Physics (Physics 15b), undergraduate-level course at the Physics Department.
Spring, 2022  Freshman Seminar (51T): “The Universe: Its Origin, Evolution, and Major Puzzles”.
Fall, 2021  Introductory Electromagnetism and Statistical Physics (Physics 15b), undergraduate-level course at the Physics Department.
Spring, 2021  New Freshman Seminar (51T): “The Universe: Its Origin, Evolution, and Major Puzzles”
This is a new freshman seminar, which I designed and started teaching this semester.
Fall, 2020  Cosmology (Physics 212), graduate-level course at the Physics Department.
Spring, 2020  Introductory Electromagnetism and Statistical Physics (Physics 15b), undergraduate-level course at the Physics Department.
Fall, 2019  Cosmology (Physics 212), graduate-level course at the Physics Department.
Spring, 2018  Wave Phenomena (Physics 15c), undergraduate-level course at the Physics Department.
Fall, 2017  Cosmology (Physics 212), graduate-level course at the Physics Department.
Spring, 2017  Wave Phenomena (Physics 15c), undergraduate-level course at the Physics Department.
Fall, 2016  Cosmology (Physics 212), new graduate-level course at the Physics Department.
This is a new course at the Physics Department, which I designed and started teaching this semester.
Spring, 2016  Wave Phenomena (Physics 15c), undergraduate-level course at the Physics Department.
Fall, 2015  Cosmology Module in “Topics in Contemporary Astrophysics”
(Astronomy 215hf), graduate-level course at the Astrophysics Department.
Guest Lectures at Harvard University

Fall, 2022  Guest lecture for the course “Topics in Current Research” (Physics 95), at the Physics Department at Harvard.

Fall, 2021  Guest lecture for the course “Topics in Current Research” (Physics 95), at the Physics Department at Harvard.

Fall, 2020  Guest lecture for the Freshman Seminar 23Y, “All of Physics in 13 Days”, at the Physics Department at Harvard.

Fall, 2019  Guest lecture for the course “Topics in Current Research” (Physics 95), at the Physics Department at Harvard.

Fall, 2018  Guest lecture for the course “Topics in Current Research” (Physics 95), at the Physics Department at Harvard.

Fall, 2018  Guest lecture for the course “Topics in Astrostatistics” (Stat 310), at the Statistics Department at Harvard.

Fall, 2017  Guest lecture for the course “Topics in Current Research” (Physics 95), at the Physics Department at Harvard.

Fall, 2017  Guest lecture for the course “Research Tutorial in Astrophysics”, at the Astrophysics Department at Harvard.

Spring, 2017  Guest lecture for the course “Physics and Big Questions”, at the Physics Department at Harvard.

Fall, 2016  Guest lecture for the course “Topics in Current Research” (Physics 95), at the Physics Department at Harvard.

Fall, 2016  Guest lecture for the course “Research Tutorial in Astrophysics”, at the Astrophysics Department at Harvard.

Spring, 2016  Guest lecture for the course “Inverse Problems in Science and Engineering”, at the School of Engineering and Applied Sciences at Harvard.

Fall, 2015  Guest lecture for the course “Topics in Current Research” (Physics 95), at the Physics Department at Harvard.

Fall, 2015  Guest lecture for the course “Elementary Particle Physics”, at the Physics Department at Harvard.

Fall, 2015  Guest lecture for the course “Physics and Big Questions”, at the Physics Department at Harvard.
Guest Courses outside Harvard

July 2023  Invited course at the ICPT-TRIESTE/University of Buenos Aires, Cosmology Winter School: “Statistical Methods in Cosmology”.

July 2019  Invited lectures at the ICTP-SAIFR International School on Observational Cosmology: “Introduction to CMB Theory”.

August 2018  Invited course at the XXIII Special Courses at the National Observatory of Brazil (Rio de Janeiro, Brazil): “Physical Cosmology” (Physics of the Early Universe, Evidence for Dark Matter, Accelerated Expansion of the Universe).

July 2018  Invited course as a visiting Professor, at Shenzhen University (Shenzhen, China): “Fundamental Physics”.

June 2017  Invited course as a visiting Professor, at the Department of Physics at the University of Buenos Aires (Argentina): “Large-Scale Structure of the Universe: Connecting Theory with Observations”.

April 2016  “Cosmology after Planck: what is next?”, Les Houches, France.

University of Chicago, Physics Department

Spring, 2006  Teaching Assistant for the course “Waves, optics and Introduction to modern physics”.

Winter, 2006  Teaching Assistant for the course “Electricity and Magnetism”.

Fall, 2005  Teaching Assistant for the course “Classical Mechanics”.

Fall 2005-Winter 2006  Lab Instructor in classical mechanics, electromagnetism, waves and optics.

University of Buenos Aires, Physics Department

Winter 2003-Summer 2005  Teaching Assistant for courses on quantum and modern physics, electromagnetism, waves, optics, and thermodynamics.

Spring 2003  Conducted and taught the admission Physics course to University of Buenos Aires for physics and engineering students.

POPULAR PRESS

• I was interviewed by the Harvard Gazette about my undergraduate student Maya Burhanpurkar being awarded the Rhodes scholarship, together with 2 other students in the Physics Department (2022).

• I participated in a new BBC/NOVA series “NOVA Universe revealed: Big Bang” (2021).

• I was interviewed by the Harvard College Magazine (2021).

• I gave a TED talk on detecting dark matter with machine learning (2020).

• I made short videos and podcasts as supplementary material to my TED talk (2020).

• I was interviewed by Quanta Magazine about my research (2020).

• I was interviewed by the Harvard Gazette about my research (2020).

• I was interviewed for the Harvard University, Department of Physics’s Newsletter (2020).

• I was interviewed by the Harvard Gazette about our NSF-funded Institute for Artificial Intelligence and Fundamental Interactions (IAIFI) (2020).

• I was interviewed by the Harvard Gazette about my DOE Early Career Award (2019).

• I was interviewed by the Harvard Crimson about my research and the “Scientist of the Year” award (2018).

• I was interviewed by an Argentine radio program about my research (2018).
• I was interviewed by an Argentine newspaper about my research (2018).
• I was interviewed for a new PBS NOVA documentary about Dark Matter (2017).
• I was interviewed by Science Magazine on the CMB-S4 proposed experiment (2017).
• I was interviewed for the Harvard University, Department of Physics Newsletter, together with Prof. Stubbs and Prof. Finkbeiner (2016).
• I was interviewed for the Harvard University, Department of Physics Newsletter (2015).
• I was interviewed for the Swedish television (“The World of Science”) on primordial gravitational waves and CMB B-modes (2014).
• I was interviewed by an Argentine newspaper (Pagina/12) on the detection of CMB B-mode polarization at Degree Angular Scales by the BICEP2 team (2014).
PUBLICATIONS
Statistics: 116 publications, h-index=45 (h-index=42 since 2017), from Google Scholar.

- G. Zhang, S. Mishra-Sharma, and C. Dvorkin, “Inferring subhalo effective density slopes from strong lensing observations with neural likelihood-ratio estimation”, accepted for publication in MNRAS (2022) [arXiv:2208.13796]
- S. Adhikari et al. (including C. Dvorkin), “Astrophysical Tests of Dark Matter Self-Interactions” (2022) [arXiv:2207.10638]
- A. C. Sengul and C. Dvorkin, “Probing Dark Matter with Strong Gravitational Lensing through an Effective Density Slope”, MNRAS, Vol. 516, Issue 1 (2022) [arXiv:2206.10635]
- G. Valogiannis and C. Dvorkin, “Going Beyond the Galaxy Power Spectrum: an Analysis of BOSS Data with Wavelet Scattering Transforms”, accepted for publication in Phys. Rev. D (2022) [arXiv:2204.13717]
- P. Chakraborty, S.-F. Chen, and C. Dvorkin, “Skewing the CMBxLSS: a Fast Method for Bispectrum Analysis”, JCAP07(2022)038 (2022) [arXiv:2202.11724]
- D. Munshi, H. Lee, C. Dvorkin, and J. McEwen, “Weak Lensing Trispectrum and Kurt-Spectra”, accepted for publication in JCAP (2021) [arXiv:2112.05155]
- A. C. Sengul, C. Dvorkin, B. Ostdiek, and A. Tsang, “Substructure Detection Reanalyzed: Dark Perturber shown to be a Line-of-Sight Halo”, MNRAS, Vol. 515, Issue 3 (2022) [arXiv:2112.00749]
- K. Rogers, C. Dvorkin, and H. Peiris, “New limits on light dark matter - proton cross section from the cosmic large-scale structure”, Phys. Rev. Lett. 128, 171301 (2022) [arXiv:2111.10386]
- G. Valogiannis and C. Dvorkin, “Towards an Optimal Estimation of Cosmological Parameters with the Wavelet Scattering Transform”, Phys. Rev. D 105, 103534 (2022) [arXiv:2108.07821]
- M. Rashkovetskyi, J. Muñoz, D. Eisenstein, and C. Dvorkin, “Small-scale Clumping at Recombination and the Hubble Tension”, Phys. Rev. D 104, 103517 (2021) [arXiv:2108.02747]
- W. L. Xu, J. Muñoz, and C. Dvorkin, “Cosmological Constraints on Light (but Massive) Relics”, Phys. Rev. D 105, 095029 (2022) [arXiv:2107.09664]
- S.-F. Chen, H. Lee, and C. Dvorkin, “Precise and Accurate Cosmology with CMBxLSS Power Spectra and Bispectra”, JCAP05(2021)030 (2021) [arXiv:2103.01229]
- C. Dvorkin, T. Lin, and K. Schutz, “The cosmology of sub-MeV dark matter freeze-in”, Phys. Rev. Lett. 127, 111301 (2021) [arXiv:2011.08186]
- B. Ostdiek, A. Diaz Rivero, and C. Dvorkin, “Extracting the Subhalo Mass Function from Strong Lens Images with Image Segmentation”, ApJ 927 83 (2022) [arXiv:2009.06639]
- B. Ostdiek, A. Diaz Rivero, and C. Dvorkin, “Image segmentation for analyzing galaxy-galaxy strong lensing systems”, A&A 657, Letters 14 (2022) [arXiv:2009.06663]
- K. Abazajian et al. (including C. Dvorkin), “CMB-S4: Forecasting Constraints on Primordial Gravitational Waves”, ApJ 926 54 (2022) [arXiv:2006.09380]
- W. L. Xu, N. DePorzio, J. Muñoz, and C. Dvorkin, “Finding eV-scale Light Relics with Cosmological Observables”, Phys. Rev. D 103, 023504 (2021) [arXiv:2006.09395]
- A. C. Sengul, A. Tsang, A. Diaz Rivero, C. Dvorkin (Harvard), H.-M. Zhu, U. Seljak (Berkeley), “Quantifying the Line-of-Sight Halo Contribution to the Dark Matter Convergence Power Spectrum from Strong Gravitational Lenses”, Phys. Rev. D 102, 063502 (2020) [arXiv:2006.07383]
• H. Lee and C. Dvorkin, “Cosmological Angular Trispectra and Non-Gaussian Covariance”, JCAP05(2020)044 (2020) [arXiv:2001.00584]

• J. Muñoz, C. Dvorkin, and F.Y. Cyr-Racine, “Probing the Small-Scale Matter Power Spectrum with Large-Scale 21-cm Data”, Phys. Rev. D 101, 063526 (2020) [arXiv:1911.11144]

• A. Moradinezhad Dizgah, H. Lee, M. Schmittfull, and C. Dvorkin, “Capturing Non-Gaussianity of the Large-Scale Structure with Weighted Skew-Spectra”, JCAP04(2020)011 (2020) [arXiv:1911.05763]

• S. Wagner-Carena, M. Hopkins, A. Diaz Rivero, and C. Dvorkin, “A Novel CMB Component Separation Method: Hierarchical Generalized Morphological Component Analysis”, MNRAS, Vol. 494, Issue 1 (2020) [arXiv:1910.08077]

• A. Diaz Rivero and C. Dvorkin, “Direct Detection of Dark Matter Substructure in Strong Lens Images with Convolutional Neural Networks”, Phys. Rev. D 101, 023515 (2020) [arXiv:1910.00015]

• A. Diaz Rivero, V. Miranda, and C. Dvorkin, “Observable Predictions for Massive-Neutrino Cosmologies with Model-Independent Dark Energy”, Phys. Rev. D 100, 063504 (2019) [arXiv:1903.03125]

• C. Dvorkin, T. Lin, and K. Schutz, “Making dark matter out of light: freeze-in from plasma effects”, Phys. Rev. D 99, 115009 (2019) [arXiv:1902.08623] (Editors’ Suggestion)

• P. Ade et al. (including C. Dvorkin), “Constraints on Primordial Gravitational Waves using Planck, WMAP, and New BICEP2/Keck Observations through the 2015 Season”, Phys. Rev. Lett. 121, 221301 (2018) [arXiv:1810.05216]

• A. Diaz Rivero, C. Dvorkin, F.-Y. Cyr-Racine, J. Zavala, and M. Vogelsberger, “Gravitational Lensing and the Power Spectrum of Dark Matter Substructure: Insights from the ETHOS N-body Simulations”, Phys. Rev. D D 98, 103517 (2018) [arXiv:1809.00004]

• P. Ade et al. (including C. Dvorkin), “Measurements of Degree-Scale B-mode Polarization with the BICEP/Keck Experiments at South Pole” (2018) [arXiv:1807.02199]

• J. Muñoz and C. Dvorkin, “Efficient Computation of Galaxy Bias with Neutrinos and Other Relics”, Phys. Rev. D 98, 043503 (2018) [arXiv:1805.11623]

• J. Muñoz, C. Dvorkin, and A. Loeb, “21-cm Fluctuations from Charged Dark Matter”, Phys. Rev. Lett. 121, 121301 (2018) [arXiv:1804.01092]

• G. Obied, C. Dvorkin, C. Heinrich, W. Hu, and V. Miranda, “Inflationary vs. Reionization Features from Planck 2015 Data” (2018), Phys. Rev. D 98, 043518 (2018) [arXiv:1803.01858]

• W. L. Xu, C. Dvorkin, and A. Chael, “Probing sub-GeV Dark Matter-Baryon Scattering with Cosmological Observables”, Phys. Rev. D 97, 103530 (2018) [arXiv:1802.06788]

• A. Moradinezhad Dizgah, H. Lee, J. Muñoz, and C. Dvorkin, “Galaxy Bispectrum from Massive Spinning Particles”, JCAP05(2018)013 (2018) [arXiv:1801.07265]

• N. Dalal, C. Dvorkin, J. Heyl, B. Jain, M. Kamionkowski, P. Marshall, and D. Weinberg, “Fundamental Physics with the Hubble Space Telescope” (2017) [arXiv:1712.04928]

• V. Miranda and C. Dvorkin, “Model-Independent Predictions for Smooth Cosmic Acceleration Scenarios”, Phys. Rev. D 98, 043537 (2018) [arXiv:1712.04289]

• A. Moradinezhad Dizgah and C. Dvorkin, “Scale-Dependent Galaxy Bias from Massive Particles with Spin during Inflation”, JCAP01(2018)010 (2018) [arXiv:1708.06473]

• A. Diaz Rivero, F.-Y. Cyr-Racine, and C. Dvorkin, “On the Power Spectrum of Dark Matter Substructure in Strong Gravitational Lenses”, Phys. Rev. D 97, 023001 (2018) [arXiv:1707.04590]
- G. Obied, C. Dvorkin, C. Heinrich, W. Hu, and V. Miranda, “Inflationary Features and Shifts in Cosmological Parameters from Planck 2015 Data”, Phys. Rev. D 96, 083526 (2017) [arXiv: 1706.09412]
- T. Daylan, F.-Y. Cyr-Racine, A. Diaz Rivero, C. Dvorkin, and D. Finkbeiner, “Probing the Small-Scale Structure in Strongly Lensed Systems via Transdimensional Inference”, ApJ 854, 2 (2018) [arXiv: 1706.06111]
- R. Krall, F.-Y. Cyr-Racine, and C. Dvorkin, “Wandering in the Lyman-alpha Forest: A Study of Dark Matter-Dark Radiation Interactions”, JCAP09(2017)003 (2017) [arXiv: 1705.08894]
- P. Ade et al. (including C. Dvorkin), “BICEP2 / Keck Array IX: New Bounds on Anisotropies of CMB Polarization Rotation and Implications for Axion-Like Particles and Primordial Magnetic Fields”, Phys. Rev. D96, 102003 (2017) [arXiv:1705.02523]
- N. E Chisari, C. Dvorkin, F. Schmidt, and D. Spergel, “Multitracing Anisotropic Non-Gaussianity with Galaxy Shapes”, Phys. Rev. D 94, 123507 (2016) [arXiv:1607.05232]
- P. Ade et al. (including C. Dvorkin), “BICEP2/Keck Array VIII: Measurement of gravitational lensing from large-scale B-mode polarization”, ApJ 833, 2 (2016) [arXiv:1606.01968]
- X. Chen, C. Dvorkin, Z. Huang, M. H. Namjoo, and L. Verde, “The Future of Primordial Features with Large-Scale Structure Surveys”, JCAP11(2016)014 (2016) [arXiv:1605.09365]
- P. Ade et al. (including C. Dvorkin), “BICEP2/Keck Array VII: Matrix based E/B Separation applied to BICEP2 and the Keck Array”, ApJ 825, 1 (2016) [arXiv:1603.05976]
- P. Ade et al. (including C. Dvorkin), “BICEP2/Keck Array VI: Improved Constraints On Cosmology and Foregrounds When Adding 95 GHz Data From Keck Array”, Phys. Rev. Lett. 116, 031302 (2016) [arXiv:1510.09217]
- F. Schmidt, N. E. Chisari, and C. Dvorkin, “Imprints of inflation on galaxy shape correlations”, JCAP10(2015)032 (2015) [arXiv:1506.02671]
- P. Ade et al. (including C. Dvorkin), “BICEP2/Keck Array V: Measurements of B-mode Polarization at Degree Angular Scales and 150 GHz by the Keck Array”, ApJ 811, 126 (2015) [arXiv:1502.00643]
- P. Ade et al. (including C. Dvorkin), “A Joint Analysis of BICEP2/Keck Array and Planck Data”, Phys. Rev. Lett. 114, 101301 (2015) [arXiv:1502.00612]
- V. Miranda, W. Hu and C. Dvorkin, “Polarization Predictions for Inflationary CMB Power Spectrum Features”, Phys. Rev. D 91, 063514 (2015) [arXiv:1411.5956]
- L. Boyle, K. M. Smith, C. Dvorkin, and N. Turok, “On testing and extending the inflationary consistency relation for tensor modes”, Phys. Rev. D 92, 043504 (2015) [arXiv:1408.3129]
- N. E. Chisari, C. Dvorkin, F. Schmidt, “Can weak lensing surveys confirm BICEP2?”, Phys. Rev. D 90, 043527 (2014), [arXiv:1406.4871]
- K. M. Smith, C. Dvorkin, L. Boyle, N. Turok, M. Halpern, G. Hinshaw, B. Gold, “On quantifying and resolving the BICEP2/Planck tension over gravitational waves”, Phys. Rev. Lett. 113, 031301 (2014), [arXiv:1404.0373] ( "Editors’ Suggestion")
- C. Dvorkin, M. Wyman, D. H. Rudd, and W. Hu, “Neutrinos help reconcile Planck measurements with both Early and Local Universe”, Phys. Rev. D 90, 083503 (2014), [arXiv:1403.8049]
- W. Wu, J. Errard, C. Dvorkin, C. L. Kuo, A. Lee, P. McDonald, A. Slosar, O. Zahn, “A Guide to Designing Future Ground-based CMB Experiments”, ApJ 788 138 (2014), [arXiv:1402.4108]
- C. Dvorkin, K. Blum, and M. Kamionkowski, “Constraining Dark Matter-Baryon Scattering with Linear Cosmology”, Phys. Rev. D 89, 023519 (2014) [arXiv:1311.2937]
• N. E. Chisari and C. Dvorkin, “Cosmological Information in the Intrinsic Alignments of Luminous Red Galaxies”, JCAP12(2013)029 (2013) [arXiv:1308.5972]

• P. Meerburg, C. Dvorkin and D. Spergel, “Probing patchy reionization through tau-21 cm correlation statistics”, ApJ 779 124 (2013) [arXiv:1303.3887]

• C. Dvorkin, K. Blum and M. Zaldarriaga, “Perturbed Recombination from Dark Matter Annihilation”, Phys. Rev. D 87, 103522 (2013) [arXiv:1302.4753]

• J. Bovy and C. Dvorkin, “Low-mass suppression of the satellite luminosity function due to the supersonic baryon–cold-dark-matter relative velocity”, ApJ 768 70 (2013) [arXiv:1205.2083]

• P. Adshead, C. Dvorkin, W. Hu and E. Lim, “Non-Gaussianity from Step Features in the Inflationary Potential”, Phys. Rev. D 85, 023531 (2012) [arXiv:1110.3050]

• S. Ferraro, K.M. Smith and C. Dvorkin, “Supersonic baryon-CDM velocities and CMB B-mode polarization”, Phys. Rev. D 85, 043523 (2012) [arXiv:1110.2182]

• C. Dvorkin, M. Wyman and W. Hu, “Cosmic String constraints from WMAP and the South Pole telescope data”, Phys. Rev. D 84,12359 (2011) [arXiv:1109.4947]

• C. Dvorkin and W. Hu, “Complete WMAP Constraints on Bandlimited Inflationary Features”, Phys. Rev. D 84,063515 (2011) [arXiv:1106.4016]

• P. Adshead, W. Hu, C. Dvorkin and H.V.Peiris, “Fast Computation of Bispectrum Features with Generalized Slow Roll”, Phys. Rev. D 84,043519 (2011) [arXiv:1102.3435]

• C. Dvorkin and W. Hu, “CMB Constraints on Principal Components of the Inflaton Potential”, Phys. Rev. D 82,043513 (2010) [arXiv:1007.0215]

• C. Dvorkin and W. Hu, “Generalized Slow Roll for Large Power Spectrum Features”, Phys. Rev. D 81,023518 (2010) [arXiv:0910.2237]

• M.J.Mortonson, C. Dvorkin, H.V.Peiris, and W. Hu, “CMB polarization features from inflation versus reionization”, Phys. Rev. D 79,103519 (2009) [arXiv:0903.4920]

• C. Dvorkin, W. Hu, and K.M. Smith, “B-mode CMB Polarization from Patchy Screening during Reionization”, Phys. Rev. D 79,107302 (2009) [arXiv:0902.4413]

• C. Dvorkin and K.M. Smith, “Reconstructing Patchy Reionization from the Cosmic Microwave Background”, Phys. Rev. D 79,043003 (2009) [arXiv:0812.1566]

• C. Dvorkin, H.V.Peiris, and W. Hu, “Testable polarization predictions for models of CMB isotropy anomalies”, Phys. Rev. D 77, 063008 (2008) [arXiv:0711.2321]

**WHITE PAPERS: INVITED TO LEAD**

• C. Dvorkin et al., “Machine Learning and Cosmology” (2022) [arXiv:2203.08056]

• C. Dvorkin et al., “The Physics of Light Relics” (2022) [arXiv:2203.07943]

• C. Dvorkin et al., “Dark Matter Physics from the CMB-S4 Experiment” (2022) [arXiv:2203.07064]

• C. Dvorkin, M. Gerbino, D. Alonso, N. Battaglia, S. Bird, A. Diaz Rivero, A. Font-Ribera, G. Fuller, M. Lattanzi, M. Loverde, J. B. Muñoz, B. Sherwin, A. Slosar, and F. Villaescusa-Navarro, “Neutrino Mass from Cosmology: Probing Physics Beyond the Standard Model” (2019) [arXiv:1903.03689]

• M. Alvarez, C. Dvorkin, et al., “Unique Probes of Reionization with the CMB: From the First Stars to Fundamental Physics” (2019), Bulletin of the American Astronomical Society, Vol. 51, Issue 3, id. 482.

**WHITE PAPERS: INVITED TO WRITE**

• R. Brito et al. (including C. Dvorkin), “Snowmass2021 Cosmic Frontier White Paper: Probing dark matter with small-scale astrophysical observations” (2022) [arXiv:2203.15954]
• C. Chang et al. (C. Dvorkin), “Snowmass2021 Cosmic Frontier: Cosmic Microwave Background Measurements White Paper” (2022) [arXiv:2203.07638]
• K. Abazajian et al. (including C. Dvorkin), “Snowmass 2021 CMB-S4 White Paper” (2022) [arXiv:2203.08024]
• K. Bechtol et al. (including C. Dvorkin), “Snowmass2021 Cosmic Frontier White Paper: Dark Matter Physics from Halo Measurements” (2022) [arXiv:2203.07354]
• Y-Y Mao et al. (including C. Dvorkin), “Snowmass2021: Vera C. Rubin Observatory as a Flagship Dark Matter Experiment” (2022) [arXiv:2203.07252]
• K. Abazajian et al. (including C. Dvorkin), “CMB-S4 Decadal Survey APC White Paper” (2019) [arXiv:1908.01062]
• K. Abazajian et al. (including C. Dvorkin), “CMB-S4 Science Case, Reference Design, and Project Plan” (2019) [arXiv:1907.04473]
• S. Shandera et al. (including C. Dvorkin), “Probing the origin of our Universe through cosmic microwave background constraints on gravitational waves” (2019) [arXiv:1903.04700];
• A. Slosar, X. Chen, C. Dvorkin, D. Green, P.D. Meerburg, E. Silverstein, and B. Wallisch, “Scratches from the Past: Inflationary Archaeology through Features in the Power Spectrum of Primordial Fluctuations” (2019) [arXiv:1903.09883]
• V. Gluscevic et al. (including C. Dvorkin), “Cosmological Probes of Dark Matter Interactions: The Next Decade” (2019) [arXiv:1903.05140]
• K. Bechtol et al. (including C. Dvorkin), “Dark Matter Science in the Era of LSST” (2019) [arXiv:1903.04425]
• P. D. Meerburg et al. (including C. Dvorkin), “Primordial Non Gaussianity” (2019) [arXiv:1903.04409]
• M. Ntampka et al. (including C. Dvorkin), “The Role of Machine Learning in the Next Decade of Cosmology” (2019) [arXiv:1902.10159]
• A. Drlica-Wagner et al. (including C. Dvorkin), “Probing the Fundamental Nature of Dark Matter with the Large Synoptic Survey Telescope” (2019) [arXiv:1902.01055]
• O. Doré et al. (including C. Dvorkin), “Science Impacts of the SPHEREx All-Sky Optical to Near-Infrared Spectral Survey II: Report of a Community Workshop on the Scientific Synergies Between the SPHEREx Survey and Other Astronomy Observatories” (2018) [arXiv:1805.05489]
• J. Delabrouille et al. (including C. Dvorkin), “Exploring Cosmic Origins with CORE: Survey requirements and mission design” (2017) [arXiv:1706.04516]
• E. Di Valentino et al. (including C. Dvorkin), “Exploring Cosmic Origins with CORE: Cosmological Parameters”, JCAP04(2018)017 (2016) [arXiv:1612.00021]
• K. Abazajian et al. (including C. Dvorkin), “CMB-S4 Science Book, First Edition” (2016) [arXiv:1610.02743]
• D. Baumann et al. (including C. Dvorkin), “CMBPol Mission Concept Study: Probing Inflation with CMB Polarization”, AIP Conf.Proc.1141:10-120 (2009) [arXiv:0811.3919]
UPCOMING INVITED TALKS (in 2022 and 2023)

February 2023  Argonne’s AI Distinguished Lecture Series (invited talk).
November 2022  Colloquium at the Physics Department at Yale (invited talk).

PREVIOUS INVITED TALKS (On average: ∼20 invited talks per year.)

October 2022  “The Universe as a Lab for New Physics Across Cosmic Times” (invited talk),
High-Energy Theory Seminar at Brookhaven National Laboratory.
October 2022  “The Universe as a Lab for New Physics” (invited talk),
Seminar at the Center for Cosmology and Particle Physics at NYU.
October 2022  “The Universe as a Lab for New Physics Across Cosmic Times” (invited talk),
Colloquium at the Physics Department at Northeastern University.
August 2022  “The Universe as a Lab for Dark Matter Physics” (invited Plenary talk),
TeVPA (TeV Particle Astrophysics) Conference, Kingston, Canada.
August 2022  “Mining Cosmological Data: Looking for Physics Beyond the Standard Model”
(invited Plenary talk), Institute for Artificial Intelligence and Fundamental Interactions
(IAIFI) summer workshop, Cambridge, MA.
July 2022  “Going Beyond the Galaxy Power Spectrum: an Analysis of BOSS data
with Wavelet Scattering Transforms” (invited talk),
“Intriguing inconsistencies in the growth of structure over cosmic time” workshop, Sesto.
July 2022  “Unlocking New Physics out of Astrophysical Data Sets (at small scales)” (invited talk),
cosmology workshop organized by Berkeley Center for Cosmological Physics, Slovenia.
July 2022  “Unlocking New Physics out of Astrophysical Data Sets” (invited talk),
“Summiting the Unknown: New Physics, New Opportunities, New Voices” workshop
at University of Washington.
July 2022  Colloquium at Georgia Tech (invited talk; postponed).
June 2022  CIFAR’s (Canadian Institute for Advanced Research) Workshop on Cosmology
and Artificial Intelligence (invited talk).
June 2022  Colloquium at UC Riverside (invited talk; postponed).
May 2022  “Unlocking New Physics out of Astrophysical Data Sets” (invited talk),
Colloquium at CERN.
May 2022  “Dark Matter Physics from the CMB-S4 Experiment” (invited talk),
CMB-S4 collaboration workshop.
May 2022  “New Era in Cosmology” (invited Plenary talk),
PHENO 2022 Conference, Pittsburgh, PA.
May 2022  “Unlocking New Physics out of Astrophysical Data Sets” (invited talk),
Seminar at the Physics Department at Johns Hopkins University.
May 2022  Plenary talk at the “33rd Rencontres de Blois - Dark Universe” Conference
(invited talk; declined).
May 2022  Seminar at the Center for Cosmology and Particle Physics Phenomenology
at the University of Southern Denmark (invited talk; declined).
March 2022  “Unlocking New Physics out of Astrophysical Data Sets” (invited talk),
Colloquium at the Institut d’Astrophysique de Paris (IAP).
March 2022  “Unlocking New Physics out of Astrophysical Data Sets” (invited talk),
Colloquium at the CfA, Harvard University.
March 2022  “Cosmological searches for dark matter” Aspen Conference (invited talk; declined).
February 2022  “Unlocking the Nature of Dark Matter with Gravitational Lensing” (invited talk),
Seminar at the “Nature of Dark Matter on Small Scales” seminar series at Yale University,
via zoom
December 2021  “Unlocking Dark Matter Physics out of Astrophysical Data Sets” (invited talk),
Seminar at the Physics Department at McGill University, via zoom
November 2021  “Unlocking Dark Matter Physics out of Astrophysical Data Sets” (invited talk), Seminar at the Physics Department at Columbia University, via zoom
November 2021  “Unlocking Dark Matter Physics out of Astrophysical Data Sets” (invited talk), Colloquium at the Department of Physics and Astronomy at UCLA, via zoom
November 2021  Colloquium at the University of Maryland (invited talk; postponed).
November 2021  Seminar at the Physics Department at Penn State University (invited talk; postponed).
November 2021  “Unlocking Dark Matter Physics out of Astrophysical Data Sets” (invited talk), Latin American Symposium on High Energy Physics, via zoom
November 2021  “Unlocking Dark Matter Physics out of Astrophysical Data Sets” (invited talk), Keynote talk at the National Society of Black Physicists (NSBP) Annual Conference, given via zoom
October 2021  “Unlocking Dark Matter Physics out of Astrophysical Data Sets” (invited talk), at the Copernicus Webinar series, via zoom
September 2021  “Unlocking the Nature of Dark Matter with Gravitational Lensing” (invited talk), at Cosmo@ar Argentine workshop on Cosmology, via zoom
May 2021  “Novel Probes of Dark Matter” (invited talk), Seminar at the Physics and Astronomy Department at the University of Padova, via zoom
May 2021  “Unlocking the Nature of Dark Matter with Gravitational Lensing” (invited talk), IAS/Princeton Cosmology Seminar, via zoom
May 2021  “Discovering New Physics with Cosmological Data Sets” (invited Plenary talk), International Particle Physics and Cosmology (PPC) Conference, via zoom
May 2021  “Detecting Dark Matter Substructure in Strong Lens Images with Machine Learning” (invited talk), LSST DESC seminar, via zoom
April 2021  “Discovering New Physics with Cosmological Data Sets” (invited talk), Seminar at the Max Planck Institute for Gravitational Physics, via zoom
April 2021  “Discovering New Physics with Cosmological Data Sets” (invited talk), Colloquium at the Astronomy Department at University of Arizona, via zoom
April 2021  “Discovering New Physics with Cosmological Data Sets” (invited talk), Colloquium at the Physics and Astronomy Department at Dartmouth, via zoom
March 2021  “Discovering New Physics with Cosmological Data Sets” (invited talk), Seminar at Fermilab’s Cosmic Physics Center, via zoom
March 2021  “Discovering New Physics with Cosmological Data Sets” (invited talk), Seminar at the Center for Theoretical Physics at MIT, via zoom
March 2021  “Discovering New Physics with Cosmological Data Sets” (invited talk), Israel Physics Colloquium (Physics Departments across all universities in Israel and the Israel Physical Society), via zoom
February 2021  “Discovering New Physics with Cosmological Data Sets” (invited talk), Colloquium at the Physics Department at University of Chicago, via zoom
December 2020  “Eclipse Conference 2020” Conference at Buenos Aires, Argentina, cancelled due to COVID19
November 2020  “Novel Probes of Dark Matter” (invited talk), Colloquium at the Physics Department at UIUC, via zoom
November 2020  “Unveiling the Nature of Dark Matter with Cosmological Observables” (invited talk), Colloquium at Cornell University, via zoom
October 2020  “Unveiling the Nature of Dark Matter with Cosmological Observables” (invited talk), Colloquium at the South African National Institute for Theoretical Physics (NITheP), given via zoom
October 2020  “Unveiling the Nature of Dark Matter with Cosmological Observables” (invited talk), Seminar at TUBITAK (the Scientific and Technological Research Council of Turkey), given via zoom
September 2020  “Unveiling the Nature of Dark Matter with Cosmological Observables” (invited talk), Colloquium at the GRAPPA Institute at the University of Amsterdam, via zoom
August 2020  “Finding eV-scale Light Relics with Cosmological Observables” (invited talk), CMB-S4 collaboration workshop, via zoom
August 2020  “New Discoveries in the Era of High-Resolution, Low-Noise CMB Experiments” Aspen summer workshop (invited talk), cancelled due to COVID19
August 2020  “Dark Matter from the Laboratory to the Cosmos” Aspen summer workshop (invited talk), cancelled due to COVID19
June 2020  “Dark Sector Theory Confronts Reality” workshop (invited talk), at the Mainz Institute for Theoretical Physics (in Mainz, Germany, cancelled due to COVID19
June 2020  “Unveiling the Nature of Dark Matter with Cosmological Observables” (invited talk), Seminar at the Centre for Theoretical Cosmology, DAMTP, University of Cambridge, given via zoom
May 2020  International Particle Physics and Cosmology (PPC) Conference (invited Plenary talk), cancelled due to COVID19
May 2020  “Astrophysical signatures of particle dark matter” Symposium (invited talk), at University of Michigan, cancelled due to COVID19
April 2020  Colloquium at University of Illinois at Urbana-Champaign (invited talk), cancelled due to COVID19
April 2020  Scott Dodelson’s 60th birthday workshop at Carnegie Mellon University (invited talk), cancelled due to COVID19
April 2020  “Lighting new Lampposts for DM and Beyond the SM” workshop (invited talk), at the Simons Center for Geometry and Physics, Stony Brook University, cancelled due to COVID19
December 2019  “Unveiling the Nature of Dark Matter with Cosmological Observables” (invited talk), “CoSyne: Cosmological Synergies in the upcoming decade” conference, Institut d’Astrophysique de Paris (IAP), Paris, France
December 2019  “Unveiling the Nature of Dark Matter with Cosmological Observables” (invited talk), Seminar at LBNL, Berkeley
November 2019  “Unveiling the Nature of Dark Matter with Cosmological Observables” (invited talk), Seminar at the Physics Department at University of Washington
November 2019  “Unveiling the Nature of Dark Matter with Cosmological Observables” (invited talk), Colloquium at the MIT Kavli Institute
October 2019  Panel on Data-Driven Scientific Discovery (invited), at the Harvard Data Science Initiative Conference at Harvard University
October 2019  “Novel Probes of Dark Matter” (invited talk), “Cosmic Controversies” Conference, KICP, The University of Chicago
September 2019  “Hunting for Dark Matter with Cosmological Observations” (invited Plenary talk), “Particle Physics and Cosmology in the 2020’s”, Brookhaven Forum 2019, Brookhaven National Laboratory
September 2019  “Efficient Algorithms for Non-Gaussianity in Large-Scale Structure” (invited talk), “The Non-Gaussian universe” workshop, Centre for Theoretical Cosmology, DAMTP, University of Cambridge
July 2019  “Unveiling the Nature of Dark Matter with Cosmological Observables” (invited Plenary talk), “Understanding Cosmological Observations” workshop, Benasque, Spain
| Month  | Event                                                                                           | Details                                                                                          |
|--------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| July 2019 | “Unveiling the Nature of Dark Matter with Cosmological Observables” (invited talk),              | Colloquium at the International Center for Theoretical Physics (ICTP),                            |
|        |                                                                                                 | Universidade Estadual Paulista, Sao Paulo, Brazil                                                |
| July 2019 | “Deciphering the Early Universe: from Large-Scale Structure Observations to Fundamental Physics” (invited talk), | 2019 Simons Summer Workshop: “Cosmology and String Theory”,                                       |
|        |                                                                                                 | at the Simons Center for Geometry and Physics at Stony Brook University                         |
| June 2019 | “Deciphering the Dark Side of Structure Formation with Cosmological Data” (invited talk),       | 2019 String Theory and Cosmology Gordon Research Conference,                                     |
|        |                                                                                                 | “New Physics in the Era of Precision Cosmology”,                                                 |
|        |                                                                                                 | Casteldefels, Spain                                                                             |
| June 2019 | “New Frontiers in Cosmology” (invited Plenary talk),                                          | Canadian Association of Physicists (CAP) Congress,                                               |
|        |                                                                                                 | Burnaby, BC, Canada                                                                             |
| March 2019 | “Unveiling the Nature of Dark Matter with Cosmological Observables” (invited talk),            | “In Pursuit of New Particles and Paradigms” Conference at the Aspen Center for Physics           |
| March 2019 | “Deciphering the Dark Side of Structure Formation with Cosmological Data” (invited Plenary talk), | “Accelerating Universe in the Dark” Conference at Kyoto University                              |
| February 2019 | “Deciphering the Dark Side of Structure Formation with Cosmological Data” (invited talk),      | “Concordances and Challenges in Cosmology after Planck” workshop,                               |
|        |                                                                                                 | Sesto, Italy                                                                                    |
| February 2019 | “New Frontiers in Cosmology” (invited talk),                                                  | Colloquium at the Physics Department at Harvard University                                      |
| January 2019 | “Inverse Problems in Cosmology” (invited talk),                                               | “Data Science at the Frontier of Discovery: Machine Learning in the Physical World”,            |
|        |                                                                                                 | Symposium at the Institute for Applied Computational Science,                                   |
|        |                                                                                                 | SEAS, Harvard University                                                                        |
| January 2019 | “Cosmological Probes of Dark Matter: Current Status and Prospects                             | “Novel Ideas for Dark Matter” workshop,                                                         |
|        |                                                                                                 | at the Physics Department, Princeton University                                                  |
| December 2018 | “Deciphering the Dark Side of Structure Formation with Cosmological Data: Current Status and Future Prospects” (invited Plenary talk), | “Cosmology in the LSST Era” workshop,                                                          |
|        |                                                                                                 | at the International Center for Theoretical Physics (ICTP), Sao Paulo, Brazil                    |
| December 2018 | “Cosmological Probes of the Dark Sector” (collaboration talk),                                | CMB-S4 Decadal Survey Report Review, Washington, DC                                              |
| November 2018 | “Looking for Dark Matter off the Beaten Track” (invited talk),                               | “Current Challenges in Cosmology” workshop,                                                     |
|        |                                                                                                 | at Antonio Nariño University, Bogota, Colombia                                                   |
| October 2018 | “Looking for Dark Matter off the Beaten Track” (invited talk),                                | Seminar at the Canadian Institute for Theoretical Astrophysics (CITA),                          |
|        |                                                                                                 | at the University of Toronto                                                                   |
| October 2018 | “Looking for Dark Matter off the Beaten Track” (invited talk),                                | Colloquium at the Physics Department at McGill University                                       |
| October 2018 | “Novel Probes of Dark Matter” (invited talk),                                                  | Seminar at the Physics Department at Columbia University                                        |
| September 2018 | “Novel Probes of Dark Matter” (invited talk),                                                  | Seminar at the Physics Department at Princeton University                                       |
September 2018  “Cosmological Probes of Dark Matter: Current Status and Future Prospects” (invited talk),
“Analytics, Inference and Computation in Cosmology” workshop,
at Henri Poincaré Institute, Paris, France

September 2018  “Inverse Problems in Early Universe Cosmology” (invited talk),
Seminar at the Statistics Department at Harvard University

September 2018  “Inflationary vs. Reionization Features from Current and Future Data” (invited talk),
CMB-S4 collaboration workshop,
Physics Department, Princeton University

August 2018  “Novel Probes of Dark Matter” (invited talk)
LSST DESC seminar

August 2018  “Searching for Dark Matter at Different Scales: Current Status and Future Prospects”
(invited talk),
Seminar at the National Observatory of Brazil, Rio de Janeiro, Brazil

July 2018  “Discovering New Physics with Cosmological Data Sets” (invited talk),
Colloquium at the Physics Department at Shenzhen University, Shenzhen, China

May 2018  “Unveiling the Nature of Dark Matter with Cosmological Observables” (invited talk),
“Cosmic Structure beyond WIMPs” workshop at Technion, Haifa, Israel

May 2018  “New Frontiers in Cosmology” (invited talk),
Seminar at the Physics Department at Caltech

March 2018  “Looking for Signatures of New Physics in Cosmological Data Sets” (invited talk),
Seminar at the Physics Department at Boston University

February 2018  “New Frontiers in Cosmology” (invited talk),
Colloquium at the Physics Department at Brown University

December 2017  “New Frontiers in Cosmology” (invited talk),
Seminar at the Institute for Advanced Study, Princeton

December 2017  “The Early and the Late Universe: Inflationary Features
and Implications for Cosmological Parameters” (invited talk),
“B-mode from Space” workshop at Berkeley

November 2017  “Discovering New Physics Beyond the Standard Model with Cosmological Data Sets”
(invited talk),
Seminar at the Center for Theoretical Physics, MIT

October 2017  “Discovering New Physics Beyond the Standard Model with Cosmological Data Sets”
(invited talk),
Seminar at the Center for Cosmology and Particle Physics, New York University

October 2017  Panel discussion on the current, past, and future status of cosmology (invited),
at the “New England Cosmology workshop” at MIT

September 2017  “Discovering New Physics Beyond the Standard Model with Cosmological Data Sets”
(invited talk),
Seminar at Lawrence Berkeley National Laboratory (LBNL), Physics Division

August 2017  “Fundamental Physics from Large-Scale CMB E-modes”,
CMB-S4 collaboration workshop,
Physics Department, Harvard University

July 2017  “Inflationary Features and Shifts in Cosmological Parameters from Planck 2015 Data”
(invited talk),
“Advances in Theoretical Cosmology in Light of Data”, Conference at NORDITA,
Stockholm, Sweden

June 2017  “Looking for the Fingerprints of Dark Matter: from its interactions to
its distribution in the Universe” (invited talk),
Institute of Astronomy and Physics of Space, University of Buenos Aires, Colloquium

June 2017  “Reconstructing the Physics of the Early Universe with Cosmology” (invited talk),
Department of Physics, University of Buenos Aires, Colloquium
| Month       | Title                                                                 | Event                                                                 |
|------------|-----------------------------------------------------------------------|----------------------------------------------------------------------|
| May 2017   | “Primordial Gravitational Waves: outstanding questions and prospects for the future” (invited talk), Panel discussion on Gravitational waves, ITC seminar series, Harvard University |
| January 2017 | “New Frontiers in Cosmology” (invited Plenary talk), APS Conference, Washington, DC |
| November 2016  | “New Frontiers in Cosmology” (invited talk), Joint Tufts/MIT Cosmology Seminar |
| October 2016   | “Deciphering the Early Universe: Connecting Theory with Observations” (invited talk), “Next in Science: Astronomy and Astrophysics” Lecture series, Radcliffe Institute for Advanced Study, Harvard |
| September 2016  | “Probing Inflation with the CMB and the Large-Scale Structure” (invited talk), “Creative Ideas” panel, “Future of Cosmic Surveys”, University of Chicago |
| September 2016  | “CMB-S4-Science Book, Chapter 5: Dark Matter” (invited talk), “The CMB-S4 Collaboration” workshop, University of Chicago |
| September 2016  | “Deciphering the Early Universe” (invited talk), “The New England Theoretical Cosmology and Gravity” workshop, Brown University |
| August 2016    | “Traces of the Early Universe in the CMB and the Large-Scale Structure” (invited Plenary talk), “COSMO 2016” Conference, University of Michigan |
| May 2016       | “Measuring Anisotropic Non-Gaussianity without Cosmic Variance” (invited talk), “Cosmological Probes of Fundamental Physics” workshop, Weizmann Institute of Science, Rehovot, Israel |
| May 2016       | “New Frontiers in Cosmology” (invited talk), Colloquium at NASA Goddard Space Flight Center, Greenbelt, MD |
| April 2016     | “Fingerprints of Dark Matter in the Early Universe” (invited talk), “Rethinking Dark Matter” workshop, Radcliffe Institute for Advanced Study, Harvard |
| January 2016   | “Traces of the Early Universe in the CMB and the Large-Scale Structure” (invited talk), Seminar at the APC, France |
| January 2016   | “Traces of the Early Universe in the CMB and the Large-Scale Structure” (invited talk), Seminar at the Physics Department, Imperial College London, UK |
| January 2016   | “Traces of the Early Universe in the CMB and the Large-Scale Structure” (invited talk), Seminar at the Physics Department, University of Oxford, UK |
| December 2015  | “New Physics from an All-Sky Polarization Experiment” (invited talk), “B-modes from Space” workshop, Kavli, IPMU, Japan |
| November 2015  | “Deciphering the Early Universe: Connecting Theory with Observations” (invited talk), Colloquium at the Department of Physics, Ohio State University |
| November 2015  | “Fingerprints of the Early Universe” (invited talk), Colloquium at the Department of Physics, Brandeis University |
| October 2015   | “Probing New Physics Beyond the Standard Model with Cosmology” (invited talk), Theory Seminar, Department of Physics, Columbia University |
| July 2015      | “Deciphering the Early Universe: Connecting Theory with Observations” (invited talk), “Marcel Grossmann”, Conference, Rome, Italy |
| Month       | Title                                                                 | Location                                                                 |
|------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------|
| May 2015   | “From Cosmological Observations to Fundamental Physics: Past, Present, and Future” (invited Plenary talk), “The Olympian Symposium 2015”, Cosmology Conference, Paralia Katerini’s, Greece |                                                                              |
| May 2015   | “Probing New Physics Beyond the Standard Model with Cosmology” (invited talk), KICP Seminar, University of Chicago |                                                                              |
| May 2015   | “Probing New Physics Beyond the Standard Model with Cosmology” (invited talk), Seminar at the Center for Particle Astrophysics at Fermilab |                                                                              |
| April 2015 | “Probing Fundamental Physics with Cosmology” (invited talk), TAP Colloquium, University of Arizona |                                                                              |
| April 2015 | “ΛCDM Cosmology: Successes and Remaining Challenges” (invited talk), American Physical Society (APS) meeting, Baltimore, MD |                                                                              |
| March 2015 | “Planck 2015 Results: Cosmological Parameters” (invited talk), The LHC Results Forum |                                                                              |
| March 2015 | “Deciphering the Early Universe: Connecting Theory with Observations” (invited talk), Hubble Fellows Symposium, Space Telescope Science Institute, Baltimore, MD |                                                                              |
| March 2015 | “Deciphering the Early Universe” (invited talk), YCAA Seminar, Department of Physics, Yale University |                                                                              |
| February 2015 | “Probing New Physics Beyond the Standard Model with Cosmology” (invited talk), Department of Physics Seminar, Harvard University |                                                                              |
| February 2015 | “A Joint Analysis of BICEP2/Keck Array and Planck Data” (invited talk), ITC Luncheon, Harvard University |                                                                              |
| December 2014 | “Probing Fundamental Physics with CMB B-modes”, “The Primordial Universe After Planck” conference, Institut d’Astrophysique de Paris (IAP) |                                                                              |
| November 2014 | “Primordial Gravitational Waves: Connecting Theory with Observations” (invited Introductory talk) | National Academy of Sciences Kavli Frontiers of Science symposium, Irvine, CA |
| November 2014 | “Probing Fundamental Physics with CMB B-modes” | Harvard University, Center for Astrophysics, Postdoc symposium               |
| October 2014 | “Hunting for Dark Matter with Cosmology” (invited talk) | University of Washington, Particle Theory Seminar                             |
| October 2014 | “Probing Dark Matter with the CMB and Large-Scale Structure” (invited talk), ITC Luncheon, Harvard University |                                                                              |
| October 2014 | “From cosmological observations to fundamental physics: past, present, and future” (invited Gravitation and Cosmology review talk) | American Physical Society (APS) Mid-Atlantic meeting, Penn State University |
| September 2014 | “Hunting for Dark Matter with Cosmology” (invited talk) | Cornell University, Department of Physics Seminar                               |
| August 2014 | “Probing Dark Matter with the CMB and Large-Scale Structure” “COSMO 2014” Conference, University of Chicago |                                                                              |
| August 2014 | “Probing Fundamental Physics with CMB B-modes” (invited talk), “Status and Future of Inflationary Theory” workshop, KICP, University of Chicago |                                                                              |
July 2014  “Looking for the Fingerprints of Dark Matter in the CMB and Large-Scale Structure” (invited talk),
Colloquium, University of Buenos Aires, Department of Physics

March 2014  “Hunting for Dark Matter with Cosmology” (invited talk),
University of Illinois at Urbana-Champaign Colloquium

February 2014  “Probing Dark Matter with the CMB and Large-Scale Structure” (invited talk),
University of Rochester Colloquium

February 2014  “Probing Dark Matter with the CMB and Large-Scale Structure” (invited talk),
Johns Hopkins University Colloquium

February 2014  “Probing Dark Matter with the CMB and Large-Scale Structure” (invited talk),
Michigan Center for Theoretical Physics Seminar, University of Michigan

January 2014  “Probing Dark Matter with the CMB and Large-Scale Structure” (invited talk),
Caltech Colloquium

October 2013  “Probing Dark Matter with the CMB and Large-Scale Structure” (invited talk),
UC Davis Colloquium

October 2013  “Probing Dark Matter with the CMB and Large-Scale Structure” (invited talk),
UC Berkeley Seminar

October 2013  “Probing Dark Matter with the CMB and Large-Scale Structure” (invited talk),
KIPAC Seminar, Stanford University

September 2013  “Probing Dark Matter Interactions with the CMB and Large-Scale Structure” (invited talk),
Center for Cosmology and Particle Physics, New York University

September 2013  “Probing Dark Matter with the CMB and Large-Scale Structure” (invited talk),
“Cosmology After Planck” workshop, University of Michigan

September 2013  “Traces of Dark Matter Annihilation in the CMB”,
“COSMO 2013” Conference,
Centre for Theoretical Cosmology, Cambridge, UK

July 2013  “Probing Fundamental Physics with the Cosmic Microwave Background” (invited talk),
Seminar at the Undergraduate Summer Research Program, Astrophysics Department at Princeton University

May 2013  “Traces of Dark Matter Annihilation in the CMB” (invited talk),
Seminar at the Center for Particle Astrophysics, Fermilab

April 2013  Talk at “Implications for Early Universe Theory” Panel (invited),
at “Observations and Theoretical Challenges in Primordial Cosmology” Conference, KITP, Santa Barbara

April 2013  “Perturbed Recombination from Dark Matter Annihilation” (invited talk),
“Cosmology Beyond the Power Spectrum” workshop,
Berkeley Center for Cosmological Physics

March 2013  “CMB Non-Gaussianity from Recombination and Hints for Dark Matter” (invited talk)
Seminar at the McWilliams Center for Cosmology,
Carnegie Mellon University
February 2013  “CMB Non-Gaussianity from Recombination and Fingerprints of Dark Matter” (invited talk)
Particle/Astrophysics Seminar, Case Western Reserve University

February 2013  “Perturbed Recombination from Dark Matter Annihilation” (invited talk)
Gravity Group Seminar, Princeton University

February 2013  “Traces of Dark Matter Annihilation in the CMB” (invited talk)
Astrophysics and Cosmology Seminar, University of Pennsylvania

December 2012  “Impact of the Supersonic Relative Velocity Between Baryons and Cold Dark Matter on the Structure of the Universe” (invited talk)
ITC Luncheon, Harvard

December 2012  “Traces of Dark Matter Annihilation in the CMB” (invited talk)
ITC Colloquium, Harvard

November 2012  “Traces of Dark Matter Annihilation in the CMB” (invited talk)
Theory Group Seminar, University of Texas at Austin

February 2012  “Constraints on Inflationary Features from the CMB”
Aspen Winter Conference,
Inflationary Theory and its Confrontation with the Planck Era

October 2011  “Constraints on Inflationary Features from the CMB” (invited talk)
Seminar, Institute for Advanced Study, Princeton

September 2011  “Complete WMAP Constraints on Inflationary Features” (invited talk)
The Future of Astronomy, Conference, Northwestern University/CIERA

July 2011  “On the Imprints of Inflation in the Cosmic Microwave Background”
Ph.D. thesis defense, University of Chicago

March 2011  “Model-Independent Constraints on Inflation from the CMB” (invited talk)
Colloquium, University of Buenos Aires, Department of Physics

January 2011  “Model-Independent Constraints on Inflation from the CMB” (invited talk)
Theoretical Astrophysics and Relativity Seminar, Caltech

January 2011  “Model-Independent Constraints on Inflation from the CMB” (invited talk)
Cosmology Seminar, Canadian Institute for Theoretical Astrophysics, Toronto

January 2011  “Model-Independent Constraints on Inflation from the CMB” (invited talk)
Joint High Energy and Astrophysics Seminar, McGill University

December 2010  “Model-Independent Constraints on Inflation from the CMB” (invited talk)
Joint Harvard/MIT/Tufts Cosmology Seminar

October 2010  “Model-Independent Constraints on Inflation from the CMB” (invited talk)
Cosmology and Gravitation Seminar, Perimeter Institute, Waterloo, Canada

October 2010  “Model-Independent Constraints on Inflation from the CMB” (invited talk)
Cosmology Seminar, UC Berkeley

June 2010  “Generalized Slow Roll and CMB Constraints on the Inflaton Potential”
(contributed talk)
10th Great Lakes Cosmology Workshop, Chicago, IL

February 2010  “Inflationary Features: Polarization Predictions and Model Independent Constraints”
(invited talk)
Workshop on Low $\ell$/Large Angle Cosmology, Case Western Reserve University

February 2010  “Polarization Predictions for models of CMB Isotropy Anomalies” (invited talk)
Workshop on Low $\ell$/Large Angle Cosmology,
Case Western Reserve University, Cleveland, OH

January 2010  “Generalized Slow Roll for Large Power Spectrum Features” (contributed talk)
Essential Cosmology for the Next Generation, Conference, Playa del Carmen, Mexico

July 2009  “Reionization and the CMB” (invited talk)
Santa Fe ’09 LANL Cosmology Summer Workshop, Santa Fe, NM
March 2008  “Testable polarization predictions for models of CMB isotropy anomalies”
(invited talk)
Jet Propulsion Laboratory, Planck Seminar, Pasadena, CA

October, 2022