Curriculum Vita and Publication List for Clement Pryke

Dept. of Physics
The University of Minnesota
Room 318 PAN
115 Union Street S.E.
Minneapolis, MN, 55455
Tel: 612-624-7578 Fax: 612-624-4578
email: pryke@physics.umn.edu

Education:

University of Leeds , Leeds, UK
Ph.D Experimental Cosmic Ray Physics - February, 1996
Thesis: "Instrumentation development and experimental design for a next generation detector of the highest energy cosmic rays". Thesis Adviser: Prof. Alan A. Watson.

University of Leeds , Leeds, UK
BSc. (first class) Physics with Electronics and Instrumentation - July, 1992
Thesis: "Single Photon Self Interference". Thesis Adviser: Prof. A.M. Hillas.

Professional History:

5/2018 – present	Professor, Dept. of Physics, University of Minnesota
10/2015 – 5/2016	Visting Scholar, Harvard/Smithsonian CfA
7/2010 – 5/2018	Associate Professor, Dept. of Physics, University of Minnesota
7/2002 – 6/2010	Assistant Professor, Dept. of Astronomy and Astrophysics, University of Chicago
1/2001 – 7/2002	Senior Research Associate, EFI, University of Chicago
4/1999 – 12/2000	Research Scientist, EFI, University of Chicago
4/1996 – 3/1999	McCormick Fellow, EFI, University of Chicago
1988 – 1989	Research Assistant, Thorn EMI Central Research Labs, UK

Awards/Honors:

2016	Made Fellow of the American Physical Society
2005	J. and J. Neubauer Faculty Development Fellowship, College of University of Chicago.
2002	Compton Lecturer, University of Chicago.
1996 – 1999	McCormick Fellow, University of Chicago.
1992 – 1995	Henry Ellison Fellowship, University of Leeds.
1992	Widdington Prize, University of Leeds.

Research Achievements:

BICEP1/BICEP2/Keck-Array/BICEP3/BICEP-Array, March 2008 – present: The BICEP/Keck series of experiments is a bold experimental program seeking to detect gravitational wave B-modes, the "smoking gun" of Inflation, and one of the most exciting and competitive areas in all of contemporary science.

Co-PI on five collaborative awards from NSF (total funding to Pryke $6.2M). Led cryostat design and re-engineering of the DASI mount to accept the new experiment and led on site Keck-Array deployment teams during austral summers 2010/11 to 2012/13. Led the analysis team which announced first

detection of B-mode polarization at degree angular scales and 150 GHz in March of 2014. Also led joint analysis team with Planck which showed that some or all of this signal is due to polarized emission from galactic dust in February 2015. Led recent analysis including 2014 data. Continuing to lead analysis efforts collaboration wide. Led sucessful proposal for next generation of the experimental program called "BICEP Array". Currently leading design efforts for telescope mount and receiver cryostats, as well as efforts to understand the dust foregrounds. Advising graduate students & postdocs and supervising winter over scientist.

QUaD experiment, June 2003 – 2009: QUaD was a bolometric CMB polarimeter sited at the South Pole which produced high precision measurements at smaller angular scales in 2008. These results stood as the world's best for five years until finally being surpassed by ACTpol, SPTpol and Planck.

Co-PI on three collaborative awards from NSF (Total funding to Pryke $1.2M). Led design of interface assembly to DASI mount. Developed innovative one piece secondary support cone made from Zotefoam. Devised novel techniques to measure and align telescope mirrors. Led integration of QUaD receiver into existing DAQ system. Devised observation strategy, calibration procedures and monitoring operations. Supervised telescope operations and winter over scientist. Advised graduate student and post-doc. Led science data analysis resulting in ground breaking scientific results.

SPT/SPTpol/SPT3G experiments, July 2001 – present: SPT is a 10 m millimeter wave telescope now located at the South Pole.

Co-I on successful original grant proposal. Carried out early simulations of cluster finding to determine necessary angular resolution. Designed and implemented computer network used for data acquisition and analysis. Mentor to graduate students and post-docs on team. Continuing to collaborate on data analysis and recently leading joint analysis of BICEP/Keck and SPTpol data to demonstrate delensing.

SZA experiment, Aug 2000 – 2010: SZA was an interferometric array of eight 3.5 m radio telescopes optimized to study galaxy clusters through the SZ effect.

Co-I on successful initial grant proposal. Designed and implemented telescope drive system. Developed pointing model. Led design of telescope electronics modules — phaselocks, receiver bias etc. Conducted early simulations of fake data followed by reanalysis, laying the foundations for development of analysis pipeline. Mentor to graduate students on team.

DASI experiment, August 1998 – September 2004: DASI was a 13 element CMB interferometer at the South Pole which made the first detection of the polarization of the CMB.

Designed and implemented telescope drive system. Led integration of highly complex electronics and DAQ system from RF through to control computer. Deployed systems to Pole and commissioned. Developed pointing model. Automated telescope observations, data transfer and first level data reduction. Led effort to understand and remove contribution of point sources to CMB results. Led cosmological parameter analysis from first season data. Co-I on successful renewal grant proposal.

CASA-BLANCA experiment, October 1996 - June 2000: BLANCA was a system of 144 air Cerenkov detectors to investigate the cosmic ray spectrum and composition in the "Knee" region.

Designed and implemented a portable GPS driven blue LED flasher for in-situ calibration of the phototube array. Led data analysis effort — wrote "first pass" analysis code and worked closely with a graduate student on extensive refinements. Generated a large Monte Carlo air shower event library to allow extraction of physics results and assessment of their model dependence. Co-advisor to graduate student.

Auger experiment, October 1992 – July 1998: Auger is a huge detector system to study the highest energy cosmic rays.

Designed a 100 Mega Sample Per Second flash-ADC system. Developed techniques to allow low cost commercial GPS receivers to provide highly accurate relative timing, and demonstrated 7 ns accuracy over an 11 km baseline. Key contributor to Design Study Group at Fermilab in 1995. Performed detailed simulations of air showers and the detector system to produce "fake data". Analyzed this data to predict experimental performance, and allow detector optimization. Very active

role in securing the considerable funding including multiple presentations to high level committees (NSF/DoE/SAGENAP).

Industrial experience, October 1988 – June 1989: Research Assistant at the Central Laboratories of Thorn EMI — a large commercial and defense electronics corporation.

Designed multi layer circuit boards using workstation CAD system, and assisted in experiments with high frequency ballast units for discharge lamps.

Synergistic Activities:

Meeting "Cosmology with the CMB and its Polarization", Jan 14-16 2015: Conceived and co-organized major meeting of international CMB community in Minneapolis.
See http://www.ftpi.umn.edu/workshops/2014-2015/cmb2015

Meeting "Astrophysics from the South Pole: Status and Future Prospects", April 4-5 2011: Obtained funding for, and organized, a meeting in Washington DC to review status of South Pole science program and produce a white paper to feed into NRC review process. Wrote and edited final report.
See http://find.spa.umn.edu/ pryke/southpolemeeting/

Meeting "The Path to CMBPol - Upcoming Measurements of CMB Polarization", July 1-3 2009: Conceived and organized major meeting of international CMB community in Chicago.
See http://cmbpol.uchicago.edu/workshops/path2009/

Service (ongoing): CMB-S4 Concept Definition Task force (official DOE/NSF advisory committee). CMB-S4 Primordial Gravitational Waves working group coordinator. CMB-S4 workshop scientific organizing committees.

Service (ongoing): Journal paper and research proposal reviews. University of Minnesota Faculty Senate.

Service (ongoing): Wide range of outreach presentations and activities including appearing in full length BBC documentary about BICEP2 — see below for a complete list.

Grants:

PI or Co-PI of the following NSF grants:

- "MSIP: Innovation to Achieve the Full Science Reach of the BICEP Array Stage 3 CMB Polarization Experiment", award number 1836010, 10/01/2018 to 9/30/2022. In collaboration with Harvard, Caltech, Stanford, Chicago, Davis and UIUC. Total funding to Pryke $1,095,098.
- "MRI: Development of a 150 GHz Receiver for the BICEP Array CMB Polarimeter", award number 1726917, 09/01/2017 to 08/31/2020. In collaboration with Harvard, Caltech and Stanford. Total funding to Pryke $537,328.
- "Collaborative Research: Imaging the Beginning of Time from the South Pole: The next Stage of the BICEP Program", award number 1638970, 08/01/2016 to 07/31/2021. In collaboration with Harvard, Caltech and Stanford. Total funding to Pryke $2,384,000.
- "Collaborative Research: Imaging the Beginning of Time from the South Pole: Observations with the Full SPUD Array", award number 1145143, 08/01/2012 to 07/31/2017. In collaboration with Harvard, Caltech and Stanford. Total funding to Pryke $1,261,068 plus supplement of $251,788.
- "Collaborative Research: Science Observation with BICEP3 CMB Polarization Experiment", award number 1313158, 08/15/2013 to 07/31/2016. In collaboration with Harvard, Caltech and Stanford. Total funding to Pryke $303,448

- "Collaborative Research: BICEP2 and SPUD - A Search for Inflation with Degree-Scale Polarimetry from the South Pole", award number 1110087, 05/15/2008 to 04/30/2012. In collaboration with Harvard and Caltech. Total funding to Pryke $1,231,619 plus supplement of $241,015.
- "Proposal for a Meeting: Astrophysics from the South Pole: Status and Future Prospects", award number 1129379, 3/29/2011 to 3/31/2012. Total funds $24,920.
- "Collaborative Research: Analysis of data from the QUaD experiment", award number 0739413, 04/01/2007 to 03/31/2009. In collaboration with Stanford. Total funding to Pryke $69,998.
- "Collaborative Research: Next Generation CMB Polarization Measurements with the QUaD Experiment", award number 0638532, 04/01/2007 to 03/31/2009 (inc. 1 year extension). In collaboration with Stanford and Caltech. Total funding to Pryke $254,807.
- "Collaborative Research: Next Generation CMB Polarization Measurements with the QUEST Experiment on DASI", award number 0338238, 4/15/2004 to 3/31/2008 (inc. 1 year extension). In collaboration with Stanford and Caltech. Total funding to Pryke $918,025.

Graduate Students / Postdocs:

- Postdoc Thomas Culverhouse January 2006 to September 2008. Moved on to UC Berkeley. Now working in industry.
- Graduate student Robert Friedman. Graduated August 2009 with PhD thesis "Measuring the Small Angular Scale Cosmic Microwave Background Temperature Anisotropy With the QUaD Telescope". Now working at Adler Planetarium.
- Graduate student Chris Sheehy. Graduated August 2013 with PhD thesis "Progress Toward a Detection of Inflationary B-modes With The BICEP2 and Keck Array Polarimeters". Moved on to KICP Fellowship at University of Chicago. Now Goldhaber Fellow at Broohaven National Lab.
- Postdoc Stefan Fliescher. November 2011 to 2015. Now working in industry.
- Graduate student Eric Bullock. Graduated March 2018 with PhD thesis "Polarization Angle Calibration and B-mode Characterization with the BICEP and Keck Array CMB Telescopes". Now working in industry.
- Graduate student Justin Willmert. Passed oral exam August 2015. Planning to graduate on Keck-Array and BICEP3 experiments by end of 2018.
- Graduate student Michael Crumrine. Passed oral exam June 2017. Working on Keck-Array, BICEP3 and BICEP-Array experiments.
- Graduate student Kenny Lau. Passed oral exam August 2018. Working on Keck-Array, BICEP3 and BICEP-Array experiments.
- Graduate student James Cheshire. Working on Keck-Array, BICEP3 and BICEP-Array experiments.
- Graduate student Grantland Hall. Working on BICEP-Array experiment.
- Other students informally advised: Joe Fowler (NIST), Matthew Sharp (State Dept).

Classes Taught at University of Chicago:

- "Sketching the Biggest Picture - The Adventure of Experimental Cosmology", Compton Lectures (high profile public lecture series), Spring 2002.

- "Stellar Astronomy and Astrophysics", Undergrad course PHSC 11900, Autumn 2002.
- "Stellar Astronomy and Astrophysics", Undergrad course PHSC 11900, Autumn 2003.
- Astronomy Undergrad Lab Supervisor, Spring 2004.
- "Stellar Astronomy and Astrophysics", Undergrad course PHSC 11900, Autumn 2004.
- Astronomy Undergrad Lab Supervisor, Spring 2005.
- Astronomy Undergrad Lab Supervisor, Winter 2006.
- "The Origin of the Universe and How we Know", Undergrad course PHSC 12000, Spring 2006.
- "Practical Data Analysis", Graduate course ASTR 40100, Fall 2006.
- "The Origin of the Universe and How we Know", Undergrad course PHSC 12000, Spring 2007.
- "Stellar Astronomy and Astrophysics", Undergrad course PHSC 11900, Winter 2008.
- "The Origin of the Universe and How we Know", Undergrad course PHSC 12000 taught at U of C Paris Center for the first time, Spring 2008.
- Astronomy Undergrad Lab Supervisor, Autumn 2008.
- "Evolution of the Universe", Undergrad course NASC 10200, Spring 2009.

Classes Taught at University of Minnesota:

- "Methods of Experimental Physics II", Undergrad course Phys 4052.W, Spring 2011.
- "Analytical Mechanics", Undergrad course Phys 4001, Fall 2011.
- "Methods of Experimental Physics II", Undergrad course Phys 4052.W, Spring 2012.
- "Analytical Mechanics", Undergrad course Phys 4001, Fall 2012.
- "Methods of Experimental Physics II", Undergrad course Phys 4052.W, Spring 2013.
- "Analytical Mechanics", Undergrad course Phys 4001, Fall 2013.
- "Methods of Experimental Physics II", Undergrad course Phys 4052.W, Spring 2014.
- "Methods of Experimental Physics II", Undergrad course Phys 4052.W, Spring 2015.
- "Introductory Physics for Science and Engineering II" (intro. E&M), Undergrad course Phys 1302W, Fall 2016.
- "Methods of Experimental Physics II", Undergrad course Phys 4052.W, Spring 2017.
- "Introductory Physics for Science and Engineering II" (intro. E&M), Undergrad course Phys 1302W, Fall 2017.

Publication List for Clement Pryke

Refereed Journal Publications:

According to Web of Science as of 13 Dec 2018 C. Pryke is an author on 134 articles which have a total of 11,638 citations (10,802 excluding self citations), and an h-index of 54. Pryke's primary BICEP/Keck collaboration switched to alphabetical author lists several years ago, as is now common in many sub-fields of experimental physics where larger collaborations are the norm. However, Pryke was the driving force (and corresponding author) for several of the most highly cited papers in the list below including 40 (907 citations), 28 (562 citations) and 24 (350 citations).

[In submission order]

1. "Cluster Cosmology Constraints from the 2500 deg^2 SPT-SZ Survey: Inclusion of Weak Gravitational Lensing Data from Magellan and the Hubble Space Telescope", S. Bocquet et al, *submitted to ApJ.* (arxiv:1812.01679)
2. "Mass Calibration of Optically Selected DES clusters using a Measurement of CMB-Cluster Lensing with SPTpol Data", S. Raghunathan et al, *submitted to ApJ.* (arxiv:1810.10998)
3. "Measuring Cross-Spectra of the Cosmic Infrared Background from 95 to 1200 GHz", M. P. Viero et al, *submitted to ApJ.* (arxiv:1810.10643)
4. "BICEP2 / Keck Array X: Constraints on Primordial Gravitational Waves using Planck, WMAP, and New BICEP2/Keck Observations through the 2015 Season", Keck Array, BICEP2 Collaborations: P. A. R. Ade et al, *PRL* **121** (2018) 221301. (arXiv:1810.05216)
5. "Dark Energy Survey Year 1 Results: Cross-correlation between DES Y1 galaxy weak lensing and SPT+Planck CMB weak lensing", Y. Omori et al, *submitted to ApJ.* (arxiv:1810.02441)
6. "Dark Energy Survey Year 1 Results: tomographic cross-correlations between DES galaxies and CMB lensing from SPT+Planck", Y. Omori et al, *submitted to ApJ.* (arxiv:1810.02342)
7. "Dark Energy Survey Year 1 Results: Joint Analysis of Galaxy Clustering, Galaxy Lensing, and CMB Lensing Two-point Functions", T. M. C. Abbott et al, *submitted to ApJ.* (arxiv:1810.02322)
8. "Cosmological lensing ratios with DES Y1, SPT and Planck", J. Prat et al, *submitted to MNRAS.* (arxiv:1810.02212)
9. "Maps of the Southern Millimeter-wave Sky from Combined 2500 deg^2 SPT-SZ and Planck Temperature Data", R. Chown et al, *ApJS* **239** (2018) 10. (arxiv:1803.10682)
10. "Constraints on Cosmological Parameters from the Angular Power Spectrum of a Combined 2500 deg^2 SPT-SZ and Planck Gravitational Lensing Map", G. Simard et al, *ApJ* **860** (2018) 137. (arXiv:1712.07541)
11. "A Measurement of CMB Cluster Lensing with SPT and DES Year 1 Data", E.J. Baxter et al, *MNRAS* **476** (2018), 2674. (arXiv:1708.01360)
12. "Measurements of the Temperature and E-Mode Polarization of the CMB from 500 Square Degrees of SPTpol Data", J.W. Henning et al, *ApJ* **852** (2018) 97. (arxiv:1707.09353)
13. "A Comparison of Cosmological Parameters Determined from CMB Temperature Power Spectra from the South Pole Telescope and the Planck Satellite", K. Aylor et al, *ApJ* **850** (2017) 101. (arxiv:1706.10286)
14. "BICEP2 / Keck Array IX: New Bounds on Anisotropies of CMB Polarization Rotation and Implications for Axion-Like Particlrstes and Primordial Magnetic Fields", Keck Array, BICEP2 Collaborations: P. A. R. Ade et al, *Phys. Rev. D* **96** (2017) 102003. (arxiv:1705.02523)

15. "A 2500 square-degree CMB lensing map from combined South Pole Telescope and Planck data", Y. Omori et al, *ApJ* **849** (2017) 124. (arxiv:1705.00743)

16. "A Comparison of Maps and Power Spectra Determined from South Pole Telescope and Planck Data", Z. Hou et al, *ApJ* **853** (2018) 3. (arxiv:1704.00884)

17. "CMB Polarization B-mode Delensing with SPTpol and Herschel", A. Manzotti et al, *ApJ* **846** (2017) 45. (arxiv:1701.04396)

18. "SPT-GMOS: A Gemini/GMOS-South Spectroscopic Survey of Galaxy Clusters in the SPT-SZ Survey", M.B. Bayliss et al, *ApJS* **227** (2016) 3. (arXiv:1609.05211)

19. "BICEP2 / Keck Array VIII: Measurement of gravitational lensing from large-scale B-mode polarization", Keck Array, BICEP2 Collaborations: P. A. R. Ade et al, *ApJ* **833** (2016) 228. (arXiv:1606.01968)

20. "Maps of the Magellanic Clouds from Combined South Pole Telescope and Planck Data", T.M. Crawford et al, *ApJS* **227** (2016) 23. (arXiv:1605.00966)

21. "Millimeter Transient Point Sources in the SPTpol 100 Square Degree Survey", N. Whitehorn et al, *ApJ* **830** (2016) 143. (arXiv:1604.03507)

22. "Cosmological Constraints from Galaxy Clusters in the 2500 square-degree SPT-SZ Survey", T. de Hann et al, *ApJ* **832** (2016) 95. (arXiv:1603.06522)

23. "BICEP2 / Keck Array VII: Matrix based E/B Separation applied to BICEP2 and the Keck Array", Keck Array, BICEP2 Collaborations: P. A. R. Ade et al, *ApJ* **825** (2016) 66. (arXiv:1603.05976)

24. "BICEP2 / Keck Array VI: Improved Constraints On Cosmology and Foregrounds When Adding 95 GHz Data From Keck Array", Keck Array, BICEP2 Collaborations: P. A. R. Ade et al, *PRL* **116** (2016) 031302. (arXiv:1510.09217)

25. "Measurements of Sub-degree B-mode Polarization in the Cosmic Microwave Background from 100 Square Degrees of SPTpol Data", R. Keisler et al, *ApJ* **807** (2015) 151. (arXiv:1503.02315)

26. "BICEP2/Keck Array V: Measurements of B-mode Polarization at Degree Angular Scales and 150 GHz by the Keck Array", Keck Array, BICEP2 Collaborations: P. A. R. Ade et al, *ApJ* **811** (2015) 126. (arXiv:1502.00643)

27. "Antenna-coupled TES bolometers used in BICEP2, Keck array, and SPIDER", P. A. R. Ade et al, *ApJ* **812** (2015) 176. (arXiv:1502.00619)

28. "A Joint Analysis of BICEP2/Keck Array and Planck Data", BICEP2/Keck, Planck Collaborations: P. A. R. Ade et al, *PRL* **114** (2015) 101301. (arXiv:1502.00612)

29. "BICEP2 III: Instrumental Systematics", BICEP2 Collaboration: P. A. R. Ade et al, *ApJ* **814** (2015) 110. (arXiv:1502.00608)

30. "BICEP2/Keck Array IV: Optical Characterization and Performance of the BICEP2 and Keck Array Experiments", BICEP2, Keck Array Collaborations: P. A. R. Ade et al, *ApJ* **806** (2015) 206. (arXiv:1502.00596)

31. "A Measurement of Gravitational Lensing of the Cosmic Microwave Background by Galaxy Clusters Using Data from the South Pole Telescope", E. J. Baxter, *ApJ* **806** (2015) 247. (arXiv:1412.7521)

32. "A Measurement of the Cosmic Microwave Background Gravitational Lensing Potential from 100 Square Degrees of SPTpol Data", K. T. Story et al, *ApJ* **810** (2015) 50. (arXiv:1412.4760)

33. "Measurements of E-Mode Polarization and Temperature-E-Mode Correlation in the Cosmic Microwave Background from 100 Square Degrees of SPTpol Data", A. T. Crites, *ApJ* **805** (2015) 36. (arXiv:1411.1042)

34. "Galaxy Clusters Discovered via the Sunyaev-Zel'dovich Effect in the 2500-square-degree SPT-SZ survey", L. E. Bleem et al, *ApJS* **216** (2015) 27. (arXiv:arXiv:1409.0850)

35. "A measurement of secondary cosmic microwave background anisotropies from the 2500-square-degree SPT-SZ survey", E. M. George et al, *ApJ* **799** (2015) 177. (arXiv:1408.3161)

36. "Analysis of Sunyaev-Zel'dovich Effect Mass-Observable Relations using South Pole Telescope Observations of an X-ray Selected Sample of Low Mass Galaxy Clusters and Groups", J. Liu et al, *MNRAS* **448** (2015), 2085. (arXiv:1407.7520)

37. "Mass Calibration and Cosmological Analysis of the SPT-SZ Galaxy Cluster Sample Using Velocity Dispersion σ_v and X-ray $Y_{\rm X}$ Measurements", S. Bocquet et al, *ApJ* **799** (2015) 214. (arXiv:1407.2942)

38. "The Redshift Evolution of the Mean Temperature, Pressure, and Entropy Profiles in 80 SPT-Selected Galaxy Clusters", M. McDonald et al, *ApJ* **794** (2014) 67. (arXiv:1404.6250)

39. "BICEP2 II: Experiment and Three-Year Data Set", BICEP2 Collaboration: P. A. R. Ade et al, *ApJ* **792** (2014) 62. (arXiv:1403.4302)

40. "BICEP2 I: Detection Of B-mode Polarization at Degree Angular Scales", BICEP2 Collaboration: P. A. R. Ade et al, *PRL* **112** (2014) 241101. (arXiv:1403.3985)

41. "Self-Calibration of BICEP1 Three-Year Data and Constraints on Astrophysical Polarization Rotation", J.P. Kaufman et al, *Phys. Rev. D* **89** (2014) 062006. (arXiv:1312.7877)

42. "Measurement of Galaxy Cluster Integrated Comptonization and Mass Scaling Relations with the South Pole Telescope", B. R. Saliwanchik et al, *ApJ* **799** (2015) 137. (arXiv:1312.3015)

43. "Constraints on the CMB Temperature Evolution using Multi-Band Measurements of the Sunyaev Zel'dovich Effect with the South Pole Telescope", A. Saro et al, *MNRAS* **440** (2014), 2610. (arXiv:1312.2462)

44. "Optical Spectroscopy and Velocity Dispersions of Galaxy Clusters from the SPT-SZ Survey", J. Ruel et al, *ApJ* **792** (2014) 45. (arXiv:1311.4953)

45. "Degree-Scale CMB Polarization Measurements from Three Years of BICEP1 Data", BICEP1 Collaboration: D. Barkats et al, *ApJ* **783** (2014) 67. (arXiv:1310.1422)

46. "Detection of B-mode Polarization in the Cosmic Microwave Background with Data from the South Pole Telescope", D. Hanson et al, *PRL* **111** (2013) 141301. (arXiv:1307.5830)

47. "SPT-CLJ2040-4451: An SZ-Selected Galaxy Cluster at $z = 1.478$ With Significant Ongoing Star Formation", M. B. Bayliss et al, *ApJ* **794** (2014) 12. (arXiv:1307.2903)

48. "A direct measurement of the linear bias of mid-infrared-selected quasars at $z \sim 1$ using cosmic microwave background lensing", J. E. Geach et al, *ApJL* **776** (2013) L41. (arXiv:1307.1706)

49. "Extragalactic millimeter-wave point source catalog, number counts and statistics from 771 square degrees of the SPT-SZ Survey", L. M. Mocanu et al, *ApJ* **779** (2013) 61. (arXiv:1306.3470)

50. "The Growth of Cool Cores and Evolution of Cooling Properties in a Sample of 83 Galaxy Clusters at $0.3 < z < 1.2$ Selected from the SPT-SZ Survey", M. McDonald et al, *ApJ* **774** (2013) 23. (arXiv:1305.2915)

51. "A CMB lensing mass map and its correlation with the cosmic infrared background", G. P. Holder et al, *ApJL* **771** (2013) L16. (arXiv:1303.5048)

52. "A measurement of the secondary-CMB and millimeter-wave-foreground bispectrum using 800 square degrees of South Pole Telescope data", T. M. Crawford et al, *ApJ* **784** (2014) 143. (arXiv:1303.3535)

53. "Constraints on Cosmology from the Cosmic Microwave Background Power Spectrum of the 2500-square degree SPT-SZ Survey", Z. Hou et al, *ApJ* **782** (2014) 74. (arXiv:1212.6267)

54. “Scientific verification of Faraday Rotation Modulators: Detection of diffuse polarized Galactic emission”, S. Moyerman et al, *ApJ* **765** (2013) 64. (arXiv:1212.0133)

55. “A Measurement of the Cosmic Microwave Background Damping Tail from the 2500-square-degree SPT-SZ survey:, K. T. Story et al, *ApJ* **779** (2013) 86. (arXiv:1210.7231)

56. “High-Redshift Cool-Core Galaxy Clusters Detected via the Sunyaev–Zel’dovich Effect in the South Pole Telescope Survey”, D. R. Semler et al, *ApJ* **761** (2012) 183. (arXiv:1208.3368)

57. “A Massive, Cooling-Flow-Induced Starburst in the Core of a Highly Luminous Galaxy Cluster”, M. McDonald et al, em Nature **488** (2012) 349. (arXiv:1208.2962)

58. “Redshifts, Sample Purity, and BCG Positions for the Galaxy Cluster Catalog from the first 720 Square Degrees of the South Pole Telescope Survey”, J. Song et al, *ApJ* **761** (2012) 22. (arXiv:1207.4369)

59. “Submillimeter Observations of Millimeter Bright Galaxies Discovered by the South Pole Telescope”, T. R. Greve et al, *ApJ* **756** (2012) 101. (arXiv:1206.4550)

60. “SPT-CL J0205-5829: A z = 1.32 Evolved Massive Galaxy Cluster in the South Pole Telescope Sunyaev-Zel’dovich Effect Survey”, B. Stalder et al, *ApJ* **763** (2013) 93. (arXiv:1205.6478)

61. “Weak-Lensing Mass Measurements of Five Galaxy Clusters in the South Pole Telescope Survey Using Magellan/Megacam”, F. W. High et al, *ApJ* **758** (2012) 68. (arXiv:1205.3103)

62. “Galaxy clusters discovered via the Sunyaev-Zel’dovich effect in the first 720 square degrees of the South Pole Telescope survey”, C. L. Reichardt et al, *ApJ* **763** (2013) 127. (arXiv:1203.5775)

63. “A Measurement of the Correlation of Galaxy Surveys with CMB Lensing Convergence Maps from the South Pole Telescope”, L. E. Bleem et al, *ApJL* **753** (2012) L9. (arXiv:1203.4808)

64. “Joint analysis of X-ray and Sunyaev Zel’dovich observations of galaxy clusters using an analytic model of the intra-cluster medium”, N. Hasler et al, *ApJ* **748** (2012) 113. (arXiv:1202.2411)

65. “A measurement of gravitational lensing of the microwave background using South Pole Telescope data”, A. van Engelen et al, *ApJ* **756** (2012) 142. (arXiv:1202.0546)

66. “Cosmological Constraints from Sunyaev-Zel’dovich-Selected Clusters with X-ray Observations in the First 178 Square Degrees of the South Pole Telescope Survey”, B. A. Benson et al, *ApJ* **763** (2013) 147. (arXiv:1112.5435)

67. “Frequency Multiplexed SQUID Readout of Large Bolometer Arrays for Cosmic Microwave Background Measurements”, M. A. Dobbs et al, *Review of Scientific Instruments* **83** (2012) 073113. (arXiv:1112.4215)

68. “Comparison of Pressure Profiles of Massive Relaxed Galaxy Clusters using Sunyaev-Zel’dovich and X-ray Data”, M. Bonamente et al, *New Journal of Physics* **14** (2012) 025010. (arXiv:1112.1599)

69. ”The First Public Release of South Pole Telescope Data: Maps of a 95-square-degree Field from 2008 Observations”, K. K. Schaffer et al, *ApJ* **743** (2011) 90. (arXiv:1111.7245)

70. “Cosmic microwave background constraints on the duration and timing of reionization from the South Pole Telescope”, O. Zahn et al, *ApJ* **756** (2012) 65., (arXiv:1111.6386)

71. “A measurement of secondary cosmic microwave background anisotropies with two years of South Pole Telescope observations”, C. L. Reichardt et al, *ApJ* **755** (2012) 70. (arXiv:1111.0932)

72. “LoCuSS: The Sunyaev-Zel’dovich Effect and Weak Lensing Mass Scaling Relation”, Daniel P. Marrone et al, *ApJ* **754** (2012) 119. (arXiv:1107.5115)

73. “A Measurement of the Damping Tail of the Cosmic Microwave Background Power Spectrum with the South Pole Telescope”, R. Keisler et al, *ApJ* **743** (2011) 28. (arXiv:1105.3182)

74. "A Millimeter-Wave Galactic Plane Survey With The BICEP Polarimeter", E. M. Bierman et al, *ApJ* **741** (2011) 81. (arXiv:1103.0289)

75. "South Pole Telescope Detections of the Previously Unconfirmed Planck Early SZ Clusters in the Southern Hemisphere", K. Story et al, *ApJ* **735** (2011) L36. (astro-ph/1102.2189)

76. "An SZ-selected sample of the most massive galaxy clusters in the 2500-square-degree South Pole Telescope survey", R. Williamson et al, *ApJ* **738** (2011) 139. (astro-ph/1101.1290)

77. "Discovery and Cosmological Implications of SPT-CL J2106-5844, the Most Massive Known Cluster at $z > 1$", R. J. Foley et al, *ApJ* **731** (2011) 86. (astro-ph/1101.1286)

78. "Improved constraints on cosmic microwave background secondary anisotropies from the complete 2008 South Pole Telescope data", E. Shirokoff et al, *ApJ* **736** (2011) 61. (astro-ph/1012.4788)

79. "The QUaD Galactic Plane Survey II: A Compact Source Catalog", T. Culverhouse et al, *ApJS* **195** (2011) 8. (astro-ph/1012.4064)

80. "Cosmological Constraints from a 31 GHz Sky Survey with the Sunyaev-Zel'dovich Array", S. Muchovej et al, *ApJ* **732** (2011) 28. (astro-ph/1012.1610)

81. "Sunyaev Zel'dovich Effect Observations of Strong Lensing Galaxy Clusters: Probing the Over-Concentration Problem", M. Gralla et al, *ApJ* **737** (2011) 74. (astro-ph/1011.6341)

82. "Galaxy Clusters at $z \geq 1$: Gas Constraints from the Sunyaev-Zel'dovich Array", T. L. Culverhouse et al, *ApJ* **723** (2010) L78. (astro-ph/1007.2853)

83. "SPT-CL J0546-5345: A Massive $z > 1$ Galaxy Cluster Selected Via the Sunyaev-Zel'dovich Effect with the South Pole Telescope", M. Brodwin et al, *ApJ* **721** (2010) 90. (astro-ph/1006.5639)

84. "X-ray Properties of the First SZE-selected Galaxy Cluster Sample from the South Pole Telescope", K. Andersson et al, *ApJ* **738** (2011) 48. (astro-ph/1006.3068)

85. "Optical Redshift and Richness Estimates for Galaxy Clusters Selected with the Sunyaev-Zel'dovich Effect from 2008 South Pole Telescope Observations", F. W. High et al, *ApJ* **723** (2010) 1736. (astro-ph/1003.0005)

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87. "The QUaD Galactic Plane Survey 1: Maps And Analysis of Diffuse Emission", T. Culverhouse et al, *ApJ* **722** (2010) 1057. (astro-ph/1001.1333)

88. "Measurements of Secondary Cosmic Microwave Background Anisotropies with the South Pole Telescope", M. Lueker et al, *ApJ* **719** (2010) 1045. (astro-ph/0912.4317)

89. "Angular Power Spectra of the Millimeter Wavelength Background Light from Dusty Star-forming Galaxies with the South Pole Telescope", N. R. Hall et al, *ApJ* **718** (2010) 632. (astro-ph/0912.4315)

90. "Extragalactic millimeter-wave sources in South Pole Telescope survey data: source counts, catalog, and statistics for an 87 square-degree field", J. D. Vieira et al, *ApJ* **719** (2010) 763. (astro-ph/0912.2338)

91. "Radio Sources from a 31 GHz Sky Survey with the Sunyaev-Zel'dovich Array", S. Muchovej et al, *ApJ* **716** (2010) 512. (astro-ph/0912.2335)

92. "Sunyaev-Zel'dovich Cluster Profiles Measured with the South Pole Telescope", T. Plagge et al, *ApJ* **716** (2010) 1118. (astro-ph/0911.2444)

93. "Parameter Estimation from Improved Measurements of the CMB from QUaD", S. Gupta et al, *ApJ* **716** (2010) 1040. (astro-ph/0909.1621)

94. "Characterization of the Millimeter-Wave Polarization of Centaurus A with QUaD", M. Zemcov et al, *ApJ* **710** (2010) 1541. (astro-ph/0907.4445)

95. "The 10 Meter South Pole Telescope", J. E. Carlstrom et al, *PASP* **123** (2011) 903. (astro-ph/0907.4445)

96. "LoCuSS: A Comparison of Sunyaev-Zel'dovich Effect and Gravitational Lensing Measurements of Galaxy Clusters", D. P. Marrone et al, *ApJ* **701** (2009) L114. (astro-ph/0907.1687)

97. "Characterization of the BICEP Telescope for High-Precision Cosmic Microwave Background Polarimetry", Y. D. Takahashi et al, *ApJ* **711** (2010) 1141. (astro-ph/0906.4069)

98. "Measurement of CMB Polarization Power Spectra from Two Years of BICEP Data", H. C. Chiang et al, *ApJ* **711** (2009) 1123. (astro-ph/0906.1181)

99. "Improved measurements of the temperature and polarization of the CMB from QUaD", M. L. Brown et al, *ApJ* **705** (2009) 978. (astro-ph/0906.1003)

100. "A Measurement of Arcminute Anisotropy in the Cosmic Microwave Background with the Sunyaev-Zel'dovich Array", M. Sharp et al, *ApJ* **713** (2010) 82. (astro-ph/0901.4342)

101. "Small Angular Scale Measurements of the CMB Temperature Power Spectrum from QUaD", R. Friedman et al, *ApJ* **700** (2009) L187. (astro-ph/0901.4334)

102. "Cosmological Parameters from the QUaD CMB polarization experiment", P. G. Castro et al, *ApJ* **701** (2009) 857. (astro-ph/0901.0810)

103. "Parity violation constraints using 2006-2007 QUaD CMB polarization spectra", E. Y. S. Wu et al, *PRL* **102** (2009) 161302, (astro-ph/0811.0618)

104. "Galaxy clusters discovered with a Sunyaev-Zel'dovich effect survey", Z. Staniszewski et al, *ApJ* **701** (2009) 32, (astro-ph/0810.1578)

105. "Application of a Self-Similar Pressure Profile to Sunyaev-Zel'dovich Effect Data from Galaxy Clusters", T. Mroczkowski et al, *ApJ* **694** (2009) 1034. (astro-ph/0809.5077)

106. "Second and third season QUaD CMB temperature and polarization power spectra", C. Pryke et al, *ApJ* **692** (2009) 1247. (astro-ph/0805.1944)

107. "QUaD: A High-Resolution Cosmic Microwave Background Polarimeter", J. Hinderks et al, *ApJ* **692** (2009) 1221. (astro-ph/0805.1990)

108. "First season QUaD CMB temperature and polarization power spectra", P. Ade et al, *ApJ* **674** (2008) 22. (astro-ph/0705.2359)

109. "Observations of High-Redshift X-Ray Selected Clusters with the Sunyaev-Zel'dovich Array", S. Muchovej et al, *ApJ* **663** (2007) 708. (astro-ph/0610115)

110. "Polarization Observations with the Cosmic Background Imager", A.C.S. Readhead et al, *Science* **306** (2004) 836. (astro-ph/0409569)

111. " Degree Angular Scale Interferometer 3 Year Cosmic Microwave Background Polarization Results", Erik M. Leitch, J.M. Kovac, N.W. Halverson, J.E. Carlstrom, C. Pryke, M.W.E. Smith, *ApJ* **624** (2005) 10. (astro-ph/0409357)

112. "Properties and performance of the prototype instrument for the Pierre Auger Observatory", J. Abraham et al, *NIMA* **523** (2004) 50.

113. "Scientific optimization of a ground-based CMB polarization experiment", M. Bowden at al, *MNRAS* **349** (2004), 321. (astro-ph/0309610)

114. "Detection of Polarization in the Cosmic Microwave Background using DASI", J. Kovac, E.M. Leitch, C. Pryke, J.E. Carlstrom, N.W. Halverson, W.L. Holzapfel, em Nature **420** (2002) 772. (astro-ph/0209478)

115. "Measuring Polarization with DASI", E.M. Leitch, J.M. Kovac, C. Pryke, B. Reddall, E.S. Sandberg, M. Dragovan, J.E. Carlstrom, N.W. Halverson, W.L. Holzapfel, *Nature* **420** (2002) 763. (astro-ph/0209476)

116. "The Anisotropy of the Microwave Background to l = 3500: Mosaic Observations with the Cosmic Background Imager", T.J. Pearson et al, *ApJ* **591** (2003) 556. (astro-ph/0205388)

117. "The Anisotropy of the Microwave Background to l = 3500: Deep Field Observations with the Cosmic Background Imager", B.S. Mason et al, *ApJ* **591** (2003) 540. (astro-ph/0205384)

118. "The Composition of Cosmic Rays at the Knee", S.P. Swordy at al, (Knee workshop paper) *Astroparticle Physics* **18** (2002) 129. (astro-ph/0202159)

119. "Cosmological Parameter Extraction from the First Season of Observations with DASI", C. Pryke, N.W. Halverson, E.M. Leitch, J. Kovac, J.E. Carlstrom, W.L. Holzapfel, M. Dragovan, *ApJ* **568** (2002) 46-51. (astro-ph/0104490)

120. "DASI First Results: A Measurement of the Cosmic Microwave Background Angular Power Spectrum", N.W. Halverson, E.M. Leitch, C. Pryke, J. Kovac, J.E. Carlstrom, W.L. Holzapfel, M. Dragovan, J.K. Cartwright, B.S. Mason, S. Padin, T.J. Pearson, M.C. Shepherd, A.C.S. Readhead, *ApJ* **568** (2002) 38. (astro-ph/0104489)

121. "Experiment Design and First Season Observations with the Degree Angular Scale Interferometer", E.M. Leitch, C. Pryke, N.W. Halverson, J. Kovac, G. Davidson, S. LaRoque, E. Schartman, J. Yamasaki, J.E. Carlstrom, W.L. Holzapfel, M. Dragovan, J.K. Cartwright, B.S. Mason, S. Padin, T.J. Pearson, M.C. Shepherd, A.C.S. Readhead, *ApJ* **568** (2002) 28. (astro-ph/0104488)

122. "A Measurement of the Cosmic Ray Spectrum and Composition at the Knee", J.W. Fowler, L.F. Fortson, C.C.H. Jui, D.B. Kieda, R.A. Ong, C.L. Pryke, P. Sommers, *Astroparticle Physics* **15** (2001) 49. (astro-ph/0003190)

123. "A Comparative Study of the Depth of Maximum of Simulated Air Shower Longitudinal Profiles", C.L. Pryke, *Astroparticle Physics* **14** (2001) 319. (astro-ph/0003442)

124. "A new air-Cherenkov array at the South Pole", J.E. Dickinson, J.R. Gill, G.C. Jill, J.A. Hinton, J. Lloyd-Evans, D. Potter, C. Pryke, K. Rochester, R. Schwarz, A.A. Watson, *Nucl. Instr. and Meth. in Phys. Res. A.* **440** (2000) 114.

125. "Testing of a GPS based event time tagging system over an 11 km baseline", C.L. Pryke, *Nucl. Instr. and Meth. in Phys. Res. A.* **394** (1997) 420.

126. "The Lateral Distribution of Extensive Air Showers Produced by Cosmic Rays above 10^{19} eV as Measured by Water-Čerenkov Detectors", R.N. Coy, G. Cunningham, C.L. Pryke, A.A. Watson, *Astroparticle Phys.* **6** (1997) 263.

127. "A high performance GPS based autonomous event time-tagging system with application in a next generation Extensive Air Shower array", C.L. Pryke, J. Lloyd-Evans, *Nucl. Instr. and Meth. in Phys. Res. A* **354** (1995) 560-566.

Selected Conference Proceedings and Other Publications:

1. "CMB Polarization with BICEP2 and Keck-Array", C. Pryke, "IAU Symposium 288 - Astrophysics from Antarctica", Beijing, China, 20-24 August 2012 Proc. of the Int. Ast. Union, Cambridge University Press, ISSN 1743-9213.

2. "The Quest for Gravity Wave B-modes", C. Pryke, Moriond Cosmology, La Thuile, Italy, March 2012. *Editions Frontieres*

3. "Systematics in the QUaD Experiment", C. Pryke for the QUaD Collaboration, Inflation Probe Systematics Workshop, Annapolis Maryland, July 2008. *New Astronomy Reviews*.

4. "The QUaD experiment", C. Pryke for the QUaD Collaboration, Irvine CMB Meeting, Irvine, USA, March 2006. *New Astronomy Reviews*, **50** (2006) 984.

5. "Some Effects of First Proton-Air Interactions on Development of Giant Air Showers", C. Pryke, L. Voyvodic, 10th Int. Symp. on VHE Cosmic Ray Interactions, LNGS, Assergi, Italy, July 1998. *Nuclear Physics B (Proc. Suppl.)* **75A** (1999) 365.

6. "Composition Results at the Knee from CASA-BLANCA", L.F. Fortson, J.W. Fowler, C.H. Jui, D. Kieda, R.A. Ong, C.L. Pryke, P. Sommers, 26th International Cosmic Ray Conference, Salt Lake City, Utah, USA, August 1999. *Proceedings* **3** p125.

7. "Auger: What, Why and How?", C.L. Pryke, Owl Meeting, College Park, Maryland, USA, November 1997. *AIP Conf. Proc.* **433** (1998) p312.

8. "Simulated Performance Of The Auger Observatory Water Cherenkov Arrays", C.L. Pryke, 25th International Cosmic Ray Conference, Durban, South Africa, July 1997. *Proceedings* **5** p209.

9. "Chemical Composition Studies With A Hybrid Detector", C.L. Pryke, VHE Phenomena in the Universe, Les Arcs, France, January 1997. *Editions Frontieres* p239, ISBN 2-86332-217-6.

10. "Simulations of the proposed Auger water Cerenkov ground array", C.L. Pryke, Int. Symp. on EHE Cosmic Rays, Tokyo, Japan, October 1997. *Proceedings* p286.

11. "The Pierre Auger Project — Design Report", The Auger Collaboration, *FNAL*, October 1995.

Colloquia, Seminars and Conference Presentations:

1. "Studying the Beginning of the Universe from the Bottom of the World", Physics Department Colloquium, University of Illinois, Nov 7 2018.

2. "Searching for Primordial Gravitational Waves with the BICEP/Keck Telescopes", UMN Cosmology Seminar, Oct 29 2018.

3. "Searching for Primordial Gravitational Waves with the BICEP/Keck Telescopes", Tenerife Foregrounds Workshop, Oct 15 2018.

4. "Pursing the shadows of gravitational waves from the beginning of time with BICEP/Keck and future experiments", Windows on the Universe (25th Anniversary of the Rencontres de Vietnam), Aug 8 2018.

5. "Searching for Primordial Gravitational Waves with BICEP/Keck", Kavli Center Seminar, University of Cambridge, July 26 2018.

6. "r Forecast Data Challenge Maps for PICO", Minneapolis PICO Workshop, May 2 2018.

7. "BICEP/Keck Data Constrains Dust Models at High Latitude (and 150 GHz)", San Diego Foregrounds Workshop, Nov 29 2017.

8. "Studying the Beginning of the Universe from the Bottom of the World", UMN Physics Colloquium, Oct 12 2017.

9. "Searching for Gravitational Waves from Inflation with BICEP/Keck", NORDITA CMB Conference, Stockholm, Sweden, July 17 2017.

10. "Searching for Gravitational Waves from Inflation with BICEP/Keck", Seminar, KEK Accelerator Lab, Japan, June 13 2017.

11. "Searching for Gravitational Waves from Inflation with BICEP/Keck", Seminar, IPMU, University of Tokyo, June 12 2017, pdf

12. "Searching for Gravitational Waves from Inflation with BICEP/Keck", Physics Department Colloquium, University of California Irvine, May 18 2017.

13. "The Search for Inflationary B-modes: Latest Results from BICEP/Keck", Blois Conference, France, June 1 2016.

14. "The CMB-S3 Landscape (US ground based)", IHEP, Beijing, May 23 2016.

15. "The CMB-S3 Landscape (US ground based)", CERN Workshop on future CMB space mission, May 17 2016.

16. "B-mode Polarization Results From BICEP2 and Keck-Array", ITC Seminar, Harvard/CfA. Oct 30 2015.

17. "Current and Future Suborbital CMB Experiments Including BICEP2 and Keck-Array", Planck Symposium at IAU General Assembly, Honolulu, Aug 12 2015.

18. "CMB Polarization Measurements With The BICEP/Keck Array Experiments", Kavli Center Seminar, Cambridge, July 28 2015.

19. "CMB Polarization Measurements With The BICEP/Keck Array Experiments", Chalonge Colloquium, Paris, July 24 2015.

20. "CMB Experiment", CMB@50 Conference, Princeton, June 11 2015.

21. "Detection of B-modes at 150 GHz and Degree Angular Scales by BICEP2 and Keck Array", Physics Colloquium, University of Colorado Bolder, Apr 8 2015.

22. "Detection of B-modes at 150 GHz and Degree Angular Scales by BICEP2 and Keck Array", Physics Colloquium, Purdue University, Mar 26 2015.

23. "Detection of B-modes at 150 GHz and Degree Angular Scales by BICEP2 and Keck Array", Physics Colloquium, University of Wisconsin Madison, Feb 27 2015.

24. "Results from Joint analysis of BICEP2/Keck and Planck data", Cosmology Seminar, University of Minnesota, Feb 16 2015.

25. "Detection of B-modes at Degree Angular Scales and 150GHz", Physics Colloquium, University of Washington, Oct 20 2014.

26. "Detection of B-modes at Degree Angular Scales and 150GHz", Physics Colloquium, University of Minnesota, Oct 15 2014.

27. "Detection of B-modes at Degree Angular Scales", Astrophysics Seminar, University of Manchester UK, June 25 2014.

28. "Detection of B-modes at Degree Angular Scales", Physics Colloquium, Max Planck Institute for Physics, June 24 2014.

29. "Detection of B-modes at Degree Angular Scales", Physics Colloquium, University College London UK, June 19 2014.

30. "Detection of B-modes at Degree Angular Scales", Astrophysics Seminar, Oxford University UK, June 17 2014.

31. "Detection of B-modes at Degree Angular Scales", Astrophysics Seminar, Saclay Paris, June 12 2014.

32. "Detection of B-modes at Degree Angular Scales", Cosmological frontiers in Fundamental physics workshop, APC Paris, June 10 2014.

33. "Detection of B-modes at Degree Angular Scales", Physics Colloquium, Imperial College UK, June 4 2014.

34. "Detection of B-modes at Degree Angular Scales", MIfA Colloquium, University of Minnesota, April 18 2014.

35. "Detection of B-modes at Degree Angular Scales", Special Colloquium, Princeton University, April 17 2014.

36. "Detection of B-modes at Degree Angular Scales", Special Colloquium, APC Paris, March 31 2014.

37. "Evidence for Inflationary Gravitational Waves", Moriond QCD Conference, La Thuile Italy, March 28 2014.

38. "Detection of B-modes at Degree Angular Scales", Moriond Cosmology Conference, La Thuile Italy, March 27 2014.

39. "Detection of B-modes at Degree Angular Scales", IoA Colloquium, University of Cambridge UK, March 24 2014.

40. "Detection of B-modes at Degree Angular Scales", Special Colloquium, University of Chicago, March 19 2014.

41. "Detection of B-modes at Degree Angular Scales", BICEP2 data release, Harvard/CfA, March 17 2014.

42. "Keck Array and BICEP2 data analysis", Primordial Cosmology Workshop, KITP, Santa Barbara, June 26 2013.

43. "CMB polarization results from BICEP2 and Keck Array", IAU Symposium - Astrophysics from Antarctica, Beijing China, August 21 2012.

44. "The Quest for Gravity Wave B-Modes", Moriond Cosmology Conference, La Thuile, Italy, March 13 2012.

45. "Searching for CMB B-mode Polarization from the Ground", Pre-Plankian Inflation Workshop, Minneapolis, October 3 2011.

46. "SPUD (aka The Keck-Array)", Astrophysics from the South Pole: Status and Future Prospects Workshop, Washington DC, April 4 2011.

47. "QUaD, BICEP, BICEP2, Keck-Array program of CMB polarization experiments at South Pole", Snowpac Meeting, Snowbird Utah, 28 March 2010.

48. "Viewing the Beginning of the Universe from the Bottom of the World", Fermilab Joint Seminar, 12 March 2010.

49. "Viewing the Beginning of the Universe from the Bottom of the World", Physics Colloquium, University of Illinois Chicago, 11 November 2009.

50. "Viewing the Beginning of the Universe from the Bottom of the World", Physics Colloquium, Northwestern University, 2 October 2009.

51. "Systematics in QUaD", CMB Polarization Experiment Workshop, Chicago, 1 July 2009.

52. "New results on CMB Polarization from BICEP and QUaD", KICP Friday Lunch Seminar, University of Chicago, 5 June 2009.

53. "New CMB Polarization Results From QUaD", Astrophysics Seminar, Northwestern University, 7 April 2009.

54. "Viewing the Beginning of the Universe from the Bottom of the World", Astrophysics Seminar, University of Minnesota, 5 March 2009.

55. "Viewing the Beginning of the Universe from the Bottom of the World", Physics Colloquium, Illinois Institute of Technology, Chicago, 25 February 2009.

56. "New CMB Polarization Results From QUaD", Physics Colloquium, University of Victoria, Canada, 26 November 2008.

57. "New CMB Polarization Results From QUaD", CITA Seminar, University of Toronto, 30 October 2008.

58. "New CMB Polarization Results From QUaD", Seminar, Perimeter Institute, Waterloo Canada, 23 September 2008.

59. "New CMB Polarization Results From QUaD", Gravity Group Seminar, Princeton, 19 September 2008.

60. "Suitability of On Axis Reflector Designs for Space", Inflation Probe Technology Workshop, Bolder, 28 August 2008.

61. "Analysis of QUaD Data", Cosmo08 Conference, Madison, 26 August 2008.

62. "Survey of CMB Polarization Experiments", IUCAA Workshop, Pune India, 4 August 2008.

63. "New CMB Polarization Results From QUaD", IUCAA Workshop, Pune India, 2 August 2008.

64. "Systematics in QUaD", Inflation Probe Systematics Workshop, Annapolis Maryland, 28 July 2008.

65. "New CMB Polarization Results from QUaD", KICP Colloquium, University of Chicago, 21 May 2008.

66. "CMB Polarization Measurements with QUaD", Aspen CMB Meeting, 31 Jan 2008.

67. "CMB Polarization Measurements with QUaD", Cosmic Cartography Meeting, Chicago, 3 December 2007.

68. "QUaD - Polarization of the CMB", ObsCos Seminar, Caltech, 16 October 2007.

69. "QUaD - Polarization of the CMB", MIT Astrophysics Colloquium, 2 October 2007.

70. "Measuring the CMB from the South Pole", Cavendish Astrophysics Seminar, University of Cambridge, 22 Sept 2006.

71. "QUaD - a CMB Polarimeter", Irvine CMB Meeting, Irvine, 24 March 2006.

72. "Surveys for Clusters of Galaxies using the SZ Effect", KIPAC Seminar, SLAC, 16 March 2006.

73. "Surveys for clusters using the SZ effect", Ringberg Cluster Meeting, Germany, 27 October 2005.

74. "What we are learning from the CMB", Astrophysics Seminar, Northwestern University, 18 October 2005.

75. "The Sunyaev-Zel'dovich Array (SZA)", Kona Cluster Meeting, Hawaii, March 2005.

76. "QUAD: a Next Generation CMB Polarimeter", Astronomy and Astrophysics Colloquium, University of Chicago, November 2004.

77. "CMB and the Golden Age of Cosmology", Alan Watson Retirement Symposium, University of Leeds UK, July 2004.

78. "The SZ Array (SZA) Project - Status and Prospects", CfCP SZ Meeting, University of Chicago, September 2003.

79. "The SZ Array Project - Status and Prospects", Great Lakes Cosmology Workshop, University of Michigan Ann Arbor, May 2003.

80. "Measuring the Cosmic Microwave Background at the South Pole with DASI", HEP Seminar, Brookhaven National Lab, 3 April 2003.

81. "Measuring the Cosmic Microwave Background at the South Pole with DASI", HEP Seminar, Cornell University, 4 April 2003.

82. "Probing the Nature of the Universe Using the CMB", Astronomy Colloquium, University of Michigan at Ann Arbor, October 2001.

83. "Probing the Nature of the Universe Using the CMB", Physics Colloquium, Iowa State University, October 2001.

84. "Results from DASI: Interferometric Observations of the First Three Acoustic Peaks", A New Era in Cosmology Meeting, Durham, UK, September 2001.

85. "Probing the Nature of the Universe Using the CMB", Physics Colloquium, University of Leeds, UK, September 2001.

86. "The DASI CMB Anisotropy Experiment", Rencontre de Blois, Blois, France, June 2001.

87. "Probing the Nature of the Universe Using the CMB", Astrophysics Lunch Talk, Columbia University, March 2001.

88. "Probing the Nature of the Universe Using the CMB", Astronomy and Astrophysics Colloquium, University of Chicago, March 2001.

89. "Probing the Nature of the Universe Using the CMB", Physics Colloquium, UC Santa Cruz, February 2001.

90. "Interferometric Observations of the CMB from the South Pole with DASI", URSI National Radio Science Meeting, Denver Colorado, January 2001.

91. "Interferometric Observations of the CMB from the South Pole with DASI", Astrophysics Seminar, University of Wisconsin at Madison, October 2000.

92. "Interpreting the Data from BLANCA", Workshop on the High Energy Composition of Cosmic Rays, Adler Planetarium, Chicago, June 2000.

93. "Imaging the Cosmic Microwave Background with DASI", EFI Mini-Symposium on Antarctic Research, University of Chicago, May 2000.

94. "Measuring 10^{15} eV Cosmic Rays through the Air Showers They Produce", Kellogg Laboratory Seminar, CalTech, May 2000.

95. "How to Measure Cosmic Ray Composition through Air Showers: Interpreting the Data from BLANCA/CASA/MIA", HEP Seminar, University of Chicago, May 2000.

96. "Some Problems are Just Hard: Capabilities and Limitations of Air Shower Experiments", LASR Seminar, Chicago, March 1999.

97. "The Highest Energy Cosmic Rays and the Auger Project", Physics Colloquium, University of Wisconsin at Madison, March 1998.

98. "The Auger Project", Aspen Winter Conference on Particle Physics, Jan 1998.

99. "Experimental Techniques and Extensive Air Shower Dynamics", Lecture Series, School on Cosmic Ray Physics, Hanoi Vietnam, Dec 1997.

Selected Outreach Presentations and Activities:

1. "Pursuing the Shadows of Gravitational Waves from the Beginning of Time from the South Pole", ALCON Planetarium Association Meeting, Minneapolis, July 13 2018.
2. "Viewing the Birth of the Universe from the Bottom of the World", Physics Department Open House, Minneapolis, Nov 11 2016.
3. "Viewing the Birth of the Universe from the Bottom of the World", American Association of University Women, Minneapolis, Oct 12 2015.
4. "Viewing the Birth of the Universe from the Bottom of the World", Ninth grade science class presentation, Blake School, Minneapolis, Oct 9 2015.
5. "Detection of B-modes at 150 GHz and Degree Angular Scales by BICEP2 and Keck Array", Minnesota Astronomical Society, Apr 2 2015.
6. "Aftershock: The Hunt for Gravitational Waves", Full length BBC "Horizon" documentary about BICEP2, first broadcast 11 March 2015.
7. "Spotlight Live: Looking Back in Time - Oldest Light in Existence Offers Insight into the Universe", Kavli Foundation Webcast with George Efstathiou and Paul Steinhardt, Feb 28 2015.
8. "Viewing the Birth of the Universe from the Bottom of the World", MIfA Inaugural Public Lecture, Bell Museum UMN, Oct 30 2014.
9. "Detection of B-modes at Degree Angular Scales", Plenary at American Association of Physics Teachers annual meeting, UMN, July 29 2014.
10. "The Cosmic Microwave Background", Cafe Scientifique presentation, Bryant-Lake Bowl, 2 February 2014.
11. "Viewing the Birth of the Universe from the Bottom of the World", South Pole Sunday Science Lecture, January 2013.
12. "The Universe's Baby Picture", Presentation to 5th grade, St. Paul Academy, 4 May 2012.
13. "Viewing the Birth of the Universe from the Bottom of the World", South Pole Sunday Science Lecture, 15 January 2012.
14. "Viewing the Birth of the Universe from the Bottom of the World", Minnesota Astronomical Society 1 September 2011.
15. "Viewing the Birth of the Universe from the Bottom of the World", South Pole Sunday Science Lecture, Antractica, 16 January 2011.
16. "Viewing the Beginning of the Universe from the Bottom of the World", Science Chicago event, Adler Planetarium Space Visualization Lab, 17 January 2009.
17. "The Biggest Map in the Universe: Superlative Mapping at the Bottom of the Globe", Cafe Scientifique presentation, Map Room (bar), 17 December 2007.
18. "Current map of the Early Universe: CMB Observations", KICP Cosmology Short Course for Planetarium Staff, University of Chicago, 8 December 2007.
19. "Journey Through the Universe", Interviewed by Kolb and Turner as part of live event at Art Institute of Chicago, 5 December 2007.

20. "The History of the Universe and the Return of Einstein's Biggest Blunder", Great Lakes Planetarium Society, 25 October 2006.

21. "The History of the Universe and the Return of Einstein's Biggest Blunder", University of Chicago Emeritus Club, 17 October 2006.

22. "The History of the Universe and the Return of Einstein's Biggest Blunder", University of Chicago "Beyond Einstein" Alumni Weekend, 28 January 2006.

23. "The History of the Universe and the Return of Einstein's Biggest Blunder", South Pole Sunday Science Lecture, 4 December 2005.

24. "CMB experiments at the South Pole", Organized and appeared in Beyond Einstein Webcast segment from South Pole, 1 December 2005.

25. "The History of the Universe and the Return of Einstein's Biggest Blunder", Bolton Public Lecture at University of Leeds, 1 November 2005.

26. "A Grand Tour of Modern Cosmology", KICP Cosmology Short Course for Planetarium Staff, University of Chicago, September 2005.

27. "The Adventure of Modern Cosmology, Part I - Introduction and the CMB", CfCP Public Lecture Course, Adler Planetarium, March 2004.

28. "A Grand Tour of Modern Cosmology", CfCP Cosmology Short Course for Planetarium Staff, University of Chicago, September 2003.

29. "Sketching the Biggest Picture - The Adventure of Experimental Cosmology", Compton Lecture Series, University of Chicago, April –June 2002 (10 lectures).

30. "Seeing Sound Waves in the Early Universe with DASI", Acoustical Society of America, Chicago, June 2001.

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