

# Wai Ling Kimmy Wu

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CURRENT POSITION	<b>Assistant Professor of Physics</b> California Institute of Technology	<b>September 2025 –</b>
PREVIOUS POSITIONS	<b>Panofsky Fellow   Associate Scientist</b> SLAC National Accelerator Laboratory, Kavli Institute for Particle Astrophysics and Cosmology	<b>September 2020 – Aug 2025</b>
	<b>KICP Fellow</b> University of Chicago, Kavli Institute for Cosmological Physics	<b>September 2017 – Aug 2020</b>
	<b>Croucher Postdoctoral Fellow</b> University of California, Berkeley	<b>October 2015 – Aug 2017</b>
EDUCATION	<b>Stanford University</b> , Stanford, California Ph.D. in Physics, September 2015 Advisor: Chao-Lin Kuo Dissertation: BICEP3 and CMB-S4: current and future CMB polarization experiments to probe fundamental physics	<b>2009 – 2015</b>
	<b>University of Michigan – Ann Arbor</b> , Ann Arbor, Michigan B.S. Physics (Highest Honors) B.S. Mathematics Advisor: Timothy McKay	<b>2004 – 2008</b>
	<b>University of St Andrews</b> , St Andrews, Scotland Study Abroad program	<b>2007</b>
RESEARCH INTERESTS	Cosmology, cosmic microwave background, inflation, gravitational lensing, machine learning	
HONORS AND AWARDS	<b>Early Career Award</b> , Department of Energy Office of Science	<b>2024–2029</b>
	<b>Panofsky Fellowship</b> , SLAC National Accelerator Laboratory	<b>2020–2025</b>
	<b>KICP Fellowship</b> , KICP, University of Chicago	<b>2017–2020</b>
	<b>Croucher Fellowship</b> , Croucher Foundation	<b>2015–2017</b>
	<b>Stanford Science Graduate Fellowship</b> , Stanford University	<b>2011–2013</b>
	<b>Allison-Wesley Book Award</b> , University of Michigan Physics Dept.	<b>2008</b>
	<b>Phi Beta Kappa</b>	<b>2008</b>
	<b>Hellman Family Endowment Award</b> , University of Michigan Honors Program	<b>2006</b>

**Sigma Phi Sigma National Physics Honor Society**

**2006**

**Frank Sevcik Faculty Award in Physics, University of Michigan Physics Dept.**

**2005**

PUBLICATIONS

Summary statistics: 11309+ citations,  $h$ -index = 48,  $i10$ -index = 82; source: [google scholar](#)  
\*\* *very significant contribution (main author/main advisor to students)*; \* *significant contribution (small group of key authors/advice students)*

89. \* A.S. Maniyar, ..., W. L. K. Wu et al. [108 authors], “SPT-3G D1: COMPTON-Y MAPS USING DATA FROM THE SPT-3G AND PLANCK SURVEYS,” *submitted*, arXiv:2602.11279
88. S. Raghunathan, ..., W. L. K. Wu et al. [142 authors], “MEASUREMENT OF THE FULL SHAPE OF THE THERMAL SUNYAEV-ZELDOVICH POWER SPECTRUM FROM SOUTH POLE TELESCOPE AND HERSCHEL-SPIRE OBSERVATIONS,” *submitted*, arXiv:2602.10107
87. T. de Haan, ..., W. L. K. Wu et al. [104 authors], “CHARACTERIZATION OF THE POLARIZATION BEAM RESPONSE OF SPT-3G USING POINT SOURCES,” *submitted*, arXiv:2602.06334
86. P. Chaubal, ..., W. L. K. Wu et al. [107 authors], “SPT-3G D1: A MEASUREMENT OF SECONDARY COSMIC MICROWAVE BACKGROUND ANISOTROPY POWER,” *submitted*, arXiv:2601.20551
85. \* L. Balkenhol, E. Camphuis, F. Finelli, K. Benabed, F. R. Bouchet, J. Carron, S. Galli, E. Hivon, A. R. Khalife, L. Knox, C. L. Reichardt, A. Vitrier, W. L. K. Wu, “INFLATION AT THE END OF 2025: CONSTRAINTS ON  $r$  AND  $n_s$  USING THE LATEST CMB AND BAO DATA,” *submitted*, arXiv:2512.10613
84. \*\* Y. Nakato, W. L. K. Wu, A.C. Silva Oliveira, Y. Omori, A.S. Maniyar, “FOREGROUND MITIGATION FOR CMB LENSING WITH THE GLOBAL MINIMUM VARIANCE QUADRATIC ESTIMATOR,” *JCAP accepted*, arXiv:2512.08908
83. A. Vitrier, ..., W. L. K. Wu et al. [98 authors], “TOWARDS CONSTRAINING COSMOLOGICAL PARAMETERS WITH SPT-3G OBSERVATIONS OF 25% OF THE SKY,” *submitted*, arXiv:2510.24669
82. A.R. Polish, ..., W. L. K. Wu et al. [92 authors], “IMPROVED ABSOLUTE POLARIZATION CALIBRATOR FOR BICEP CMB POLARIMETERS,” *submitted*, arXiv:2510.13032
81. \* BICEP/Keck collaboration: P.A.R. Ade, ..., W. L. K. Wu et al. [93 authors], “BICEP/KECK XX: COMPONENT-SEPARATED MAPS OF POLARIZED CMB AND THERMAL DUST EMISSION USING PLANCK AND BICEP/KECK OBSERVATIONS THROUGH THE 2018 OBSERVING SEASON,” *submitted*, arXiv:2509.21648
80. A.R. Khalife, ..., W. L. K. Wu et al. [95 authors], “SPT-3G D1: AXION EARLY DARK ENERGY WITH CMB EXPERIMENTS AND DESI,” *submitted*, arXiv:2507.23355
79. E. Camphuis, ..., W. L. K. Wu et al. [97 authors], “SPT-3G D1: CMB TEMPERATURE AND POLARIZATION POWER SPECTRA AND COSMOLOGY FROM 2019 AND 2020 OBSERVATIONS OF THE SPT-3G MAIN FIELD,” *PRD submitted*, arXiv:2506.20707

78. \* T-L Chou, ..., W. L. K. Wu et al. [62 authors], “MEASUREMENTS OF THE TEMPERATURE AND E-MODE POLARIZATION OF THE COSMIC MICROWAVE BACKGROUND FROM THE FULL 500-SQUARE-DEGREE SPTPOL DATASET,” *PRD 111 (2025) 12*, 123513, arXiv:2501.06890
77. \*\* M. Mebratu, W. L. K. Wu, “WAVELET FLOW FOR EXTRAGALACTIC FOREGROUND SIMULATIONS,” *JCAP 01 (2026) 011*, arXiv:2505.21220
76. \* J.A. Zebrowski, ..., W. L. K. Wu et al. [98 authors], “CONSTRAINTS ON INFLATIONARY GRAVITATIONAL WAVES WITH TWO YEARS OF SPT-3G DATA,” *PRD 112 (2025) 12*, 123520, arXiv:2505.02827
75. \*\* F. Qu, F. Ge, W. L. K. Wu et al. [145 authors], “UNIFIED AND CONSISTENT STRUCTURE GROWTH MEASUREMENTS FROM JOINT ACT, SPT AND *Planck* CMB LENSING,” *PRL 136 (2026) 2*, 021001, arXiv:2504.20038
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73. S. Bocquet, ..., W. L. K. Wu et al. [217 authors], “MULTIPROBE COSMOLOGY FROM THE ABUNDANCE OF SPT CLUSTERS AND DES GALAXY CLUSTERING AND WEAK LENSING,” *PRD 111 (2025) 6*, 063533, arXiv:2412.07765
72. \* M. Doohan, M. Millea, S. Raghunathan, F. Ge, L. Knox, K. Prabhu, C.L. Reichardt, W. L. K. Wu, “QUANTIFYING BIAS DUE TO NON-GAUSSIAN FOREGROUNDS IN AN OPTIMAL RECONSTRUCTION OF CMB LENSING AND TEMPERATURE POWER SPECTRA,” *JCAP 09 (2025) 048*, arXiv:2502.20801
71. \*\* F. Bianchini, D. Beck, W. L. K. Wu et al., “CMB-S4: Foreground-Cleaning Pipeline Comparison for Measuring Primordial Gravitational Waves,” *ApJ 993 (1)*, 105, arXiv:2502.04300
70. BICEP/Keck collaboration: P.A.R. Ade, ..., W. L. K. Wu et al. [92 authors], “BICEP/KECK XIX: EXTREMELY THIN COMPOSITE POLYMER VACUUM WINDOWS FOR BICEP AND OTHER HIGH THROUGHPUT MILLIMETER WAVE TELESCOPES,” *submitted*, arXiv:2411.10428
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68. BICEP/Keck collaboration: P.A.R. Ade, ..., W. L. K. Wu et al. [85 authors], “BICEP/KECK XVIII: MEASUREMENT OF BICEP3 POLARIZATION ANGLES AND CONSEQUENCES FOR CONSTRAINING COSMIC BIREFRINGENCE AND INFLATION,” *PRD 111 (2025) 6*, 063505, arXiv:2410.12089
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60. \* BICEP/Keck collaboration: P.A.R. Ade, ..., W. L. K. Wu et al. [93 authors], “LINE OF SIGHT DISTORTION ANALYSIS: ESTIMATES OF GRAVITATIONAL LENSING, ANISOTROPIC COSMIC BIREFRINGENCE, PATCHY REIONIZATION, AND SYSTEMATIC ERRORS,” *ApJ* 949 (2), 43, arXiv:2210.08038
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57. T.M.C. Abbott, ..., W. L. K. Wu et al. [171 authors], “JOINT ANALYSIS OF DES YEAR 3 DATA AND CMB LENSING FROM SPT AND PLANCK III: COMBINED COSMOLOGICAL CONSTRAINTS,” *PRD* 107 (2), 023531, arXiv:2206.10824
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55. K. Ferguson, ..., W. L. K. Wu et al. [81 authors], “SEARCHING FOR AXIONLIKE TIME-DEPENDENT COSMIC BIREFRINGENCE WITH DATA FROM SPT-3G,” *PRD* 106, 4, 042011 (2022), arXiv:2203.16567
54. C. Chang, ..., W. L. K. Wu et al. [163 authors], “JOINT ANALYSIS OF DES YEAR 3 DATA AND CMB LENSING FROM SPT AND PLANCK II: CROSS-CORRELATION MEASUREMENTS AND COSMOLOGICAL CONSTRAINTS,” *PRD* 107 (2), 023530, arXiv:2203.12440

53. \* Y. Omori, ..., W. L. K. Wu et al. [163 authors], “JOINT ANALYSIS OF DES YEAR 3 DATA AND CMB LENSING FROM SPT AND PLANCK I: CONSTRUCTION OF CMB LENSING MAPS AND MODELING CHOICES,” *PRD* 107 (2), 023529, arXiv:2203.12439
52. \*\* SNOWMASS: A. Achucarro, ..., W. L. K. Wu et al. [22 authors], “INFLATION: THEORY AND OBSERVATIONS,” arXiv:2203.08128
51. SNOWMASS: CMB-S4 collaboration K. Abazajian, ..., W. L. K. Wu et al. [356 authors], “SNOWMASS 2021 CMB-S4 WHITE PAPER,” arXiv:2203.08024
50. BICEP/Keck collaboration: P.A.R. Ade, ..., W. L. K. Wu et al. [91 authors], “THE BICEP3 COSMIC MICROWAVE BACKGROUND POLARIMETER AND THE FIRST THREE-YEAR DATA SET,” *ApJ* 927, 1, 77 (2022), arXiv:2110.00482
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47. \* BICEP/Keck collaboration: P.A.R. Ade, ..., W. L. K. Wu et al. [91 authors], “IMPROVED CONSTRAINTS ON PRIMORDIAL GRAVITATIONAL WAVES USING PLANCK, WMAP, AND BICEP/KECK OBSERVATIONS THROUGH THE 2018 OBSERVING SEASON,” *PRL* 127, 15, 151303 (2021), arXiv:2110.00483
46. \* Z. Lin, N. Huang, C. Avestruz, W. L. K. Wu, S Trivedi, J. Caldeira, B. Nord, “DEEPSZ: IDENTIFICATION OF SUNYAEV-ZEL’DOVICH GALAXY CLUSTERS USING DEEP LEARNING,” *MNRAS* 507, 3, 4149-4164 (2021), arXiv: 2102.13123
45. J. Sobrin, ..., W. L. K. Wu et al. (SPT-3G Collaboration) [123 authors], “THE DESIGN AND INTEGRATED PERFORMANCE OF SPT-3G,” *ApJ Supp.* 258 (2022), 2, 42, arXiv:2106.11202
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43. \* L Balkenhol, ..., W. L. K. Wu et al. (SPT-3G Collaboration) [120 authors], “CONSTRAINTS ON  $\Lambda$ CDM EXTENSIONS FROM THE SPT-3G 2018 EE AND TE POWER SPECTRA,” *PRD* 104, (8), 083509 (2021), arXiv: 2103.13618
42. BICEP2 and Keck Array Collaborations: P.A.R. Ade, ..., W. L. K. Wu et al [91 authors], “IMPROVED CONSTRAINTS ON AXION-LIKE POLARIZATION OSCILLATIONS IN THE COSMIC MICROWAVE BACKGROUND,” *PRD Phys. Rev. D* 105, 022006 (2022), arXiv:2108.03316
41. \* D. Dutcher, ..., W. L. K. Wu et al. (SPT-3G Collaboration) [121 authors], “MEASUREMENTS OF THE  $Q$ -MODE POLARIZATION AND TEMPERATURE-MODE CORRELATION OF THE CMB FROM SPT-3G 2018 DATA,” *PRD* 104, (2), 022003 (2021), arXiv: 2101.01684

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39. \* M. Millea, ..., W. L. K. Wu et al. [69 authors], “OPTIMAL CMB LENSING RECONSTRUCTION AND PARAMETER ESTIMATION WITH SPTPOL DATA,” *ApJ* (2021) *992* (2), 259, arXiv: 2012.01709
38. \*\* SPTpol and BICEP/Keck collaborations: P.A.R. Ade, ..., W. L. K. Wu et al. [139 authors], “A DEMONSTRATION OF IMPROVED CONSTRAINTS ON PRIMORDIAL GRAVITATIONAL WAVES WITH DELENSING,” *PRD* *103* (2), 022004 (2020), arXiv:2011.08163
37. BICEP2 and Keck Array Collaborations: P.A.R. Ade, ..., W. L. K. Wu et al. [81 authors], “BICEP / KECK XII: CONSTRAINTS ON AXION-LIKE POLARIZATION OSCILLATIONS IN THE COSMIC MICROWAVE BACKGROUND,” *PRD* *103*, (4) 042002 (2021), arXiv:2011.03483
36. \* CMB-S4 Collaboration [230 authors] , “CMB-S4: FORECASTING CONSTRAINTS ON PRIMORDIAL GRAVITATIONAL WAVES,” *ApJ* (2022) *926* (1), 54, arXiv: 2008.12619
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26. \*\* W. L. K. Wu et al. [70 authors], "A MEASUREMENT OF THE COSMIC MICROWAVE BACKGROUND LENSING POTENTIAL AND POWER SPECTRUM FROM 500 DEG<sup>2</sup> OF SPT-POL TEMPERATURE AND POLARIZATION DATA," *ApJ* 884 (2019) 70, arXiv: 1905.05777
25. \* L. M. Mocanu, ..., W. L. K. Wu et al. [45 authors], "CONSISTENCY OF COSMIC MICROWAVE BACKGROUND TEMPERATURE MEASUREMENTS IN THREE FREQUENCY BANDS IN THE 2500-SQUARE-DEGREE SPT-SZ SURVEY," *JCAP* 07, 038 (2019), arXiv: 1904.12995
24. BICEP2 and Keck Array Collaborations: P.A.R. Ade, ..., W. L. K. Wu et al. [65 authors], "BICEP2 / KECK ARRAY XI: BEAM CHARACTERIZATION AND TEMPERATURE-TO-POLARIZATION LEAKAGE IN THE BK15 DATASET," *ApJ* 884 (2019) 114, arXiv: 1904.01640
23. \*\* K. Aylor, M. Joy, L. Knox, M. Millea, S. Raghunathan, W. L. K. Wu, "SOUNDS DISCORDANT: CLASSICAL DISTANCE LADDER & LCDM-BASED DETERMINATIONS OF THE COSMOLOGICAL SOUND HORIZON," *ApJ*, 874:4 (2019), arXiv: 1811.00537
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20. BICEP2 and Keck Array Collaborations: P.A.R. Ade, ..., W. L. K. Wu et al. [65 authors], "BICEP2 / KECK ARRAY X: CONSTRAINTS ON PRIMORDIAL GRAVITATIONAL WAVES USING PLANCK, WMAP, AND NEW BICEP2/KECK OBSERVATIONS THROUGH THE 2015 SEASON," *Phys. Rev. Letters*, 121, 22 (2018), arXiv: 1810.05216
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15. E. Baxter, ..., W. L. K. Wu et al. [94 authors], “DARK ENERGY SURVEY YEAR 1 RESULTS: METHODOLOGY AND PROJECTIONS FOR JOINT ANALYSIS OF GALAXY CLUSTERING, GALAXY LENSING, AND CMB LENSING TWO-POINT FUNCTIONS,” *Phys. Rev. D*, 99, 2 (2019), arXiv: 1802.05257
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13. DES Collaboration: T. M. C. Abbott, ..., W. L. K. Wu et al. [90 authors], “DARK ENERGY SURVEY YEAR 1 RESULTS: A PRECISE H0 MEASUREMENT FROM DES Y1, BAO, AND D/H DATA,” *MNRAS* 480 (3), 3879-3888, arXiv: 1711.00403
12. J. W. Henning, ..., W. L. K. Wu et al. [67 authors], “MEASUREMENTS OF THE TEMPERATURE AND E-MODE POLARIZATION OF THE CMB FROM 500 SQUARE DEGREES OF SPTPOL DATA,” *ApJ*, 852, 97 (2018), arXiv: 1707.09353
11. BICEP2 and Keck Array Collaborations: P.A.R. Ade, ..., W. L. K. Wu et al. [65 authors], “BICEP2 / KECK ARRAY IX: NEW BOUNDS ON ANISOTROPIES OF CMB POLARIZATION ROTATION AND IMPLICATIONS FOR AXION-LIKE PARTICLES AND PRIMORDIAL MAGNETIC FIELDS,” *Phys. Rev. D*, 96, 102003 (2017), arXiv: 1705.02523
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9. \* CMB S4 Consortium: K. N. Abazajian, ..., W. L. K. Wu et al. [86 authors], “CMB-S4 SCIENCE BOOK, FIRST EDITION,” arXiv: 1610.02743
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6. \*\* W. L. K. Wu et al. [52 authors], “INITIAL PERFORMANCE OF BICEP3: A DEGREE ANGULAR SCALE 95 GHz BAND POLARIMETER,” *J. Low Temp Phys* 184:765 (2016). arXiv:1601.00125
5. BICEP2 and Keck Array Collaborations: P.A.R. Ade, ..., W. L. K. Wu et al. [59 authors], “BK-VI: IMPROVED CONSTRAINTS ON COSMOLOGY AND FOREGROUNDS WHEN ADDING 95 GHz DATA FROM KECK ARRAY,” *Phys. Rev. Lett.* 116, 031302 (2015). arXiv:1510.09217

4. \*\* W. L. K. Wu, J. Errard, C. Dvorkin, C. L. Kuo, A. T. Lee, P. McDonald, A. Slosar, O. Zahn, "A GUIDE TO DESIGNING FUTURE GROUND-BASED CMB EXPERIMENTS," *ApJ*, 788, 138 (2014). arXiv:1402.4108
3. \* CMB S4 Consortium: K. N. Abazajian, ..., W. L. K. Wu et al. [76 authors], "NEUTRINO PHYSICS FROM THE COSMIC MICROWAVE BACKGROUND AND LARGE SCALE STRUCTURE," *Astropart.Phys.* 63 (2015) 66-80. arXiv:1309.5383
2. \* CMB S4 Consortium: K. N. Abazajian, ..., W. L. K. Wu et al. [93 authors], "INFLATION PHYSICS FROM THE COSMIC MICROWAVE BACKGROUND AND LARGE SCALE STRUCTURE," *Astropart.Phys.* 63 (2015) 55-65. arXiv:1309.5381
1. \*\* Jannis Bielefeld, W. L. Kimmy Wu, Robert R. Caldwell, Olivier Dore, "FREEZING OUT EARLY DARK ENERGY," *Phys. Rev. D* 88, 103004 (2013). arXiv:1305.2209

CONFERENCE  
PROCEEDINGS

12. A. N. Bender, ..., W. L. K. Wu et al. [89 authors], "YEAR TWO INSTRUMENT STATUS OF THE SPT-3G COSMIC MICROWAVE BACKGROUND RECEIVER," , arXiv: 1809.00036
11. A. Soliman, ..., W. L. K. Wu et al. [78 authors], "DESIGN AND PERFORMANCE OF WIDE-BAND CORRUGATED WALLS FOR THE BICEP ARRAY DETECTOR MODULES AT 30/40 GHZ," , arXiv: 1808.00571
10. J. H. Kang, ..., W. L. K. Wu et al. [77 authors], "2017 UPGRADE AND PERFORMANCE OF BICEP3: A 95GHZ REFRACTING TELESCOPE FOR DEGREE-SCALE CMB POLARIZATION," , arXiv: 1808.00557
9. D. Barkats, ..., W. L. K. Wu et al. [78 authors], "ULTRA-THIN LARGE-APERTURE VACUUM WINDOWS FOR MILLIMETER WAVELENGTHS RECEIVERS," , arXiv: 1808.00570
8. M. Crumrine, ..., W. L. K. Wu et al. [77 authors], "BICEP ARRAY CRYOSTAT AND MOUNT DESIGN," , arXiv: 1808.00569
7. H. Hui, ..., W. L. K. Wu et al. [78 authors], "BICEP ARRAY: A MULTI-FREQUENCY DEGREE-SCALE CMB POLARIMETER," , arXiv: 1808.00568
6. BICEP2 and Keck Array Collaborations: P.A.R. Ade, ..., W. L. K. Wu et al. [79 authors] , "MEASUREMENTS OF DEGREE-SCALE B-MODE POLARIZATION WITH THE BICEP/KECK EXPERIMENTS AT SOUTH POLE," *Moriond Proceedings*, arXiv: 1807.02199
5. H. Hui, ..., W. L. K. Wu et al. [58 authors], "BICEP3 FOCAL PLANE DESIGN AND DETECTOR PERFORMANCE," *Proceedings of SPIE Volume 9914 (2016)*, arXiv: 1607.06861
4. J. A. Grayson, ..., W. L. K. Wu et al. [58 authors], "BICEP3 PERFORMANCE OVERVIEW AND PLANNED KECK ARRAY UPGRADE," *Proceedings of SPIE Volume 9914 (2016)*, arXiv: 1607.04668
3. K. S. Karkare, ..., W. L. K. Wu et al. [58 authors], "OPTICAL CHARACTERIZATION OF THE BICEP3 CMB POLARIMETER AT THE SOUTH POLE," *Proceedings of SPIE Volume 9914 (2016)*, arXiv: 1607.04567

2. Z. Ahmed, ..., W. L. K. Wu et al. [32 authors], “BICEP3: A 95 GHz REFRACTING TELESCOPE FOR DEGREE-SCALE CMB POLARIZATION,” *Proceedings of SPIE Volume 9153 (2014)*. arXiv:1407.5928
1. R. O’ Brient, ..., W. L. K. Wu et al. [53 authors], “ANTENNA-COUPLED TES BOLOMETERS FOR THE KECK ARRAY, SPIDER, AND POLAR-1,” *Proceedings of SPIE Volume 8452 (2012)*. arXiv: 1208.1247

TALKS, SEMINARS,  
POSTER  
PRESENTATIONS

86. KITP conference, “MULTI-TRACER LENSING TEMPLATE FOR THE SOUTH POLE OBSERVATORY,” Santa Barbara, Feb 2026
85. KITP workshop, “NEW CMB LENSING MEASUREMENTS FROM SPT-3G,” Santa Barbara, Jan 2026
84. Texas Symposium, “TESTING INFLATION WITH CMB OBSERVATIONS: UPDATES FROM THE SOUTH POLE OBSERVATORY,” ASU, Dec 2025
83. **(Invited talk)** University of Arizona TAP colloquium, “TESTING INFLATION AND THE STANDARD COSMOLOGICAL MODEL WITH THE COSMIC MICROWAVE BACKGROUND,” Tucson, March 2025
82. APS Global Physics Summit, “SPT-3G CMB LENSING POWER SPECTRUM WITH 2019 AND 2020 TEMPERATURE AND POLARIZATION DATA,” Santa Ana, March 2025
81. **(Invited talk)** CMB B-mode NEXT workshop, “BICEP/KECK AND THE SOUTH POLE OBSERVATORY: RESULTS AND STATUS ON  $r$ ,” KEK Japan, Jan 2025
80. CUHK seminar: “TESTING INFLATION AND CONSTRAINING COSMOLOGY WITH THE OLDEST PHOTONS,” Hong Kong, Jan 2025
79. Multi-color Universe conference: “CMB SECONDARIES FROM SPT-3G: OPPORTUNITIES FOR LIM CROSS-CORRELATIONS,” Heidelberg, Germany, Dec 2024
78. **(Invited talk)** University of Michigan HEP-Astro Seminar, “PRECISION COSMOLOGY WITH CMB LENSING USING DATA FROM SPT-3G,” Ann Arbor, Nov 2024
77. New Physics from Old Light Workshop, “GENERATIVE MODELING OF CMB SECONDARIES,” Cambridge, UK, Sep 2024
76. **(Invited talk)** New Physics from Old Light Workshop, “LENSING OVERVIEW,” Cambridge, UK, Sep 2024
75. DPF-Pheno: “RESULTS AND PROGRESS OF CMB LENSING MEASUREMENTS USING SPT-3G DATA,” Pittsburg, May 2024
74. **(Invited talk)** SFSU Physics and Astronomy Colloquium: “TESTING INFLATION AND CONSTRAINING COSMOLOGY WITH THE OLDEST PHOTONS,” SFSU, Feb 2024
73. AI+Astro meeting: “PRECISE AND ACCURATE INFERENCE WITH MM-WAVE DATA USING GENERATIVE MODELING,” KIPAC Stanford, Nov 2023

72. **(Invited talk)** KIPAC@20 conference: “COSMIC MICROWAVE BACKGROUND: FOUNDATION AND FRONTIER OF COSMOLOGY,” KIPAC Stanford, Sep 2023
71. **(Invited talk)** SJSU Physics and Astronomy Colloquium: “NEW INFLATION CONSTRAINT FROM THE SOUTH POLE,” SJSU, Mar 2022
70. **(Invited talk)** UC Santa Cruz Physics Colloquium: “NEW INFLATION CONSTRAINT FROM THE SOUTH POLE,” UC Santa Cruz, Nov 2021
69. **(Invited talk)** Cosmo-21 Plenary talk : “CMB CONSTRAINTS ON INFLATION,” Cosmo-21 conference (remote), Aug 2021
68. **(Invited talk)** Perimeter Institute Seminar: “IMPROVED CONSTRAINT ON PRIMORDIAL GRAVITATIONAL WAVES WITH DELENSING,” Perimeter Institute (remote), May 2021
67. **(Invited talk)** Southern Methodist University Physics Colloquium: “IMPROVED CONSTRAINT ON PRIMORDIAL GRAVITATIONAL WAVES WITH DELENSING,” SMU (remote), April 2021
66. **(Invited talk)** Yale University NPA Seminar: “IMPROVED CONSTRAINT ON PRIMORDIAL GRAVITATIONAL WAVES WITH DELENSING,” Yale University (remote), Feb 2021
65. **(Invited talk)** University of Toronto Astronomy Colloquium: “IMPROVED CONSTRAINT ON PRIMORDIAL GRAVITATIONAL WAVES WITH DELENSING,” University of Toronto (remote), Jan 2021
64. **(Invited talk)** CMB systematics and calibration workshop: “IMPROVED  $r$  CONSTRAINT WITH DELENSING: SYSTEMATICS CONSIDERATIONS,” IPMU (remote), December 2020
63. **(Invited talk)** Duke University Cosmology Seminar: “IMPROVED CONSTRAINT ON PRIMORDIAL GRAVITATIONAL WAVES WITH DELENSING,” Duke University (remote), December 2020
62. **(Invited talk)** Michigan State University High Energy Physics Seminar: “TESTING INFLATION PHYSICS WITH THE BICEP/KECK ARRAY AND SOUTH POLE TELESCOPE,” MSU (remote), October 2020
61. **(Invited talk)** Cornell LEPP Journal Club: “CMB LENSING, COSMIC TENSIONS, AND PRIMORDIAL GRAVITATIONAL WAVES,” Cornell University (remote), October 2020
60. Argonne-KICP cosmology group meeting: “HUBBLE CONSTANT TENSION BETWEEN CMB LENSING AND BAO MEASUREMENTS,” Argonne (remote), May 2020
59. **(Invited interview)** Cosmology Talks: “HUBBLE CONSTANT TENSION BETWEEN CMB LENSING AND BAO MEASUREMENTS,” [Youtube video](#), April 2020
58. **(Invited talk)** Swarthmore College Physics and Astronomy Colloquium: “TESTING INFLATION AND CONSTRAINING COSMOLOGY WITH COSMIC MICROWAVE BACKGROUND MEASUREMENTS,” Philadelphia, February 2020
57. **(Invited talk)** University of Pennsylvania Astronomy Seminar: “LENSING AND DELENSING: RESULTS AND UPDATES FROM BICEP/KECK AND THE SOUTH POLE TELESCOPE,” Philadelphia, February 2020

56. **(Invited talk)** SLAC Seminar: “TESTING INFLATION AND CONSTRAINING COSMOLOGY WITH COSMIC MICROWAVE BACKGROUND MEASUREMENTS,” Menlo Park, February 2020
55. **(Invited talk)** University of Illinois, Urbana-Champaign Astrophysics, Gravitation, and Cosmology Seminar: “TESTING INFLATION AND CONSTRAINING COSMOLOGY WITH COSMIC MICROWAVE BACKGROUND MEASUREMENTS,” Champaign, January 2020
54. B-mode from Space, “DELENSING: UPDATES FROM THE SOUTH POLE TELESCOPE AND THE BICEP/KECK ARRAY,” Munich, December 2020
53. KICP Postdoc Symposium, “DELENSING THE CMB,” Chicago, December 2019
52. **(Invited talk)** Johns Hopkins University CAS Wine & Cheese Seminar, “LENSING AND DELENSING: RESULTS AND UPDATES FROM BICEP/KECK AND THE SOUTH POLE TELESCOPE,” Baltimore, November 2019
51. **(Invited talk)** University of Michigan HEP-Astro Seminar: “LENSING AND DELENSING: RESULTS AND UPDATES FROM BICEP/KECK AND THE SOUTH POLE TELESCOPE,” Ann Arbor, October 2019
50. **(Invited talk)** Westmont College Research Seminar: “TESTING INFLATION WITH THE BICEP/KECK ARRAY AND SOUTH POLE TELESCOPE,” Santa Barbara, October 2019
49. **(Invited talk)** Dartmouth College Physics and Astrophysics Colloquium: “TESTING INFLATION WITH THE BICEP/KECK ARRAY AND SOUTH POLE TELESCOPE,” Hanover, September 2019
48. COSMO-19 International Conference on Particle Physics and Cosmology: “CMB LENSING MEASUREMENTS USING DATA FROM THE SPTPOL 500 DEG<sup>2</sup> SURVEY,” Aachen, Germany, September 2019
47. Seminar at Cambridge University: “LENSING RESULTS AND UPDATES FROM THE SOUTH POLE TELESCOPE,” Cambridge, UK, August 2019
46. University College London Cosmology Seminar: “CMB LENSING MEASUREMENTS USING DATA FROM THE SPTPOL 500 DEG<sup>2</sup> SURVEY,” London, UK, August 2019
45. Great Lakes Cosmology Workshop: “CMB LENSING MEASUREMENTS USING DATA FROM THE SPTPOL 500 DEG<sup>2</sup> SURVEY,” Rochester, NY, August 2019
44. **(Invited talk)** KITP Conference Tensions between the Early and the Late Universe: “OBSERVATIONAL TENSIONS IN LCDM: A VIEW FROM THE SOUTH POLE TELESCOPE,” Santa Barbara, July 2019
43. **(Invited talk)** UPenn Cosmology Retreat: “OBSERVATIONAL TENSIONS IN LCDM: A VIEW (MOSTLY) FROM THE SOUTH POLE TELESCOPE,” New York City, June 2019
42. **(Invited talk)** Princeton Cosmology Lunch: “DELENSING, LENSING, AND NEURAL NETWORKS: A PERSPECTIVE FROM THE CMB,” Princeton, May 2019
41. **(Invited talk)** Argonne National Lab Lunch Seminar: “TESTING INFLATION WITH THE BICEP/KECK ARRAY AND SOUTH POLE TELESCOPE,” Lemont, Apr 2019

40. **(Invited talk)** Caltech Astronomy Tea Talk: “TESTING INFLATION WITH THE BICEP/KECK ARRAY AND SOUTH POLE TELESCOPE,” Pasadena, Apr 2019
39. **(Invited talk)** APS April Meeting CMB mini-symposium: “SOUTH POLE CMB MEASUREMENTS: RESULTS FROM BICEP/KECK AND THE SOUTH POLE TELESCOPE, AND NEAR TERM PROSPECTS,” Denver, Apr 2019
38. Cosmology on Safari: “DELENSING: UPDATES FROM THE SOUTH POLE TELESCOPE AND BICEP/KECK ARRAY,” Hluhluwe, KwaZulu-Natal, South Africa, Mar 2019
37. **(Invited talk)** SLAC Seminar: “PROBING PHYSICS OF INFLATION AND NEUTRINO PROPERTIES WITH CMB MEASUREMENTS,” SLAC, Feb 2019
36. **(Invited talk)** Stanford Cosmology Seminar: “STRESS-TESTING LCDM AND SEARCHING FOR NEW PHYSICS USING CMB MEASUREMENTS,” Stanford, Jan 2019
35. **(Invited talk)** Institute for Astronomy Seminar, “STRESS-TESTING LCDM AND SEARCHING FOR NEW PHYSICS USING CMB MEASUREMENTS,” Honolulu, Jan 2019
34. **(Invited talk)** University of Hawaii Physics Department Colloquium, “TESTING INFLATION WITH THE BICEP/KECK ARRAY AND SOUTH POLE TELESCOPE,” Honolulu, Jan 2019
33. **(Invited talk)** BCCP Accurate lensing in the era of precision Cosmology workshop: “B-MODE DELENSING: CURRENT STATUS AND FUTURE PROSPECTS,” Berkeley, Jan 2019
32. AAS 233 Winter Meeting: “LENSING RECONSTRUCTION OF THE COSMIC MICROWAVE BACKGROUND WITH DEEP NEURAL NETWORKS,” Seattle, Jan 2019
31. **(Invited talk)** Lawrence Berkeley Lab INPA Seminar: “DELENSING, NEURAL NETWORKS, AND THE  $H_0$  PROBLEM – A PERSPECTIVE FROM THE CMB,” Berkeley, Dec 2018
30. KICP Postdoc Symposium: “CMB LENSING RECONSTRUCTION USING DEEP NEURAL NETWORKS,” Chicago, Oct 2018
29. The Future of  $H_0$  Workshop: “NEXT  $H_0$  FROM THE SOUTH POLE TELESCOPE,” Chicago, Oct 2018
28. Institute of High Energy Physics Group Seminar: “CONSTRAINING INFLATION WITH COSMIC MICROWAVE BACKGROUND POLARIZATION MEASUREMENTS,” Beijing, China, June 2018
27. Tenions in LCDM workshop: “FITTING LCDM TO SPT-SZ AND SPTPOL,” Mainz, Germany, May 2018
26. KICP Postdoc Symposium: “LCDM FROM SPTPOL,” Chicago, May 2018
25. KIPAC Tea talk: “UPDATES ON CMB B-MODE DELENSING,” Stanford, May 2018

24. **(Invited talk)** Hong Kong University of Science and Technology Seminar: “CONSTRAINING INFLATION WITH COSMIC MICROWAVE BACKGROUND POLARIZATION MEASUREMENTS,” Hong Kong, Mar 2018
23. CMB-S4 Argonne Workshop  $r$  Working Group: “INCORPORATING DELENSING IN PARAMETER ESTIMATION – A BICEP/KECK EXAMPLE,” Argonne National Lab, Mar 2018
22. **(Invited talk)** UCLA HEP Seminar: “CONSTRAINING INFLATION WITH BICEP/KECK ARRAY AND THE SOUTH POLE TELESCOPE,” UCLA, Feb 2018
21. **(Invited talk)** Fermilab Astrophysics Seminar: “CONSTRAINING INFLATION WITH BICEP/KECK ARRAY AND THE SOUTH POLE TELESCOPE,” Fermilab, Jan 2018
20. **(Invited talk)** Chinese University of Hong Kong Physics Seminar: “CONSTRAINING INFLATION WITH BICEP/KECK ARRAY AND THE SOUTH POLE TELESCOPE,” Hong Kong, Dec 2017
19. **(Invited talk)** B-mode from Space Workshop: “DELENSING: WORKED EXAMPLE FROM SPT, HERSCHEL, AND BICEP/KECK,” Berkeley, December 2017
18. KICP Postdoc Symposium: “DELENSING, NOW AND FUTURE,” Chicago, October 2017
17. Kavli CMB Lensing Workshop: “CURRENT LIMITATIONS TO DELENSING,” Stanford, September 2017
16. **(Invited talk)** TeVPA 2017: “CMB POLARIZATION B-MODE DELENSING WITH SPTPOL AND HERSCHEL,” Columbus, August 2017
15. Fermilab APS Division of Particles and Fields: “CMB POLARIZATION B-MODE DELENSING WITH SPTPOL AND HERSCHEL,” Batavia, August 2017
14. University of Pennsylvania Physics Department Journal Club: “CMB POLARIZATION B-MODE DELENSING WITH SPTPOL AND HERSCHEL,” Pennsylvania, April 2017
13. Princeton Gravity Group Seminar: “CMB POLARIZATION B-MODE DELENSING WITH SPTPOL AND HERSCHEL,” Princeton, April 2017
12. Lawrence Berkeley National Lab Research Progress Meeting: “CONSTRAINING INFLATION WITH BICEP/KECK ARRAY AND THE SOUTH POLE TELESCOPE,” Berkeley, November 2016
11. COSMO-16 International Conference on Particle Physics and Cosmology: “BICEP/KECK PROGRAM AND BICEP3 PERFORMANCE UPDATE,” Ann Arbor, August 2016
10. HKUST Institute of Advance Study Cosmology Seminar: “COSMIC MICROWAVE BACKGROUND B-MODES FROM BICEP/KECK ARRAY AND THE SOUTH POLE TELESCOPE,” Hong Kong, July 2016
9. CMB-S4 Workshop at Lawrence Berkeley National Lab: “FORECASTING NEUTRINOS,” Berkeley, March 2016

8. Berkeley CMB Bolometer Group Seminar: “BICEP3 AND CMB-S4: CURRENT AND FUTURE CMB POLARIZATION EXPERIMENTS TO PROBE FUNDAMENTAL PHYSICS,” Berkeley, September 2015
7. 16th International Conference on Low Temperature Detectors: “BICEP3: A 95 GHz DEGREE ANGULAR SCALE POLARIMETER,” Grenoble, France, July 2015
6. Meeting of Astrophysics Students at Stanford: “DISSECTING THE CMB POWER SPECTRUM”, Stanford, January 2014
5. KIPAC Tea Talk: “POLAR ARRAY AND LENSING SCIENCE”, Stanford, June 2012
4. Cosmology in Northern California: “DESIGNING THE POLAR ARRAY”, Davis, October 2011
3. Meeting of Astrophysics Students at Stanford: “BARYONIC ACOUSTICS OSCILLATION AND THE MATTER POWER SPECTRUM”, Stanford, July 2011
2. Berkeley CMB Lensing Workshop: “DESIGNING THE POLAR ARRAY”, Berkeley, April 2011
1. 212th AAS Annual meeting poster session: “RADIO SOURCES IN GALAXY CLUSTERS USING THE MAXBCG CLUSTER CATALOG, FIRST AND NVSS SURVEYS,” St. Louis, June 2008

TEACHING  
EXPERIENCE

**University of Chicago**, Chicago, Illinois

*Guest Lecturer*

**Spring 2020**

UChicago Astro 133 guest lecture on the cosmic microwave background.

**Stanford University**, Stanford, California

*Guest Lecturer*

**Summer 2011**

Stanford EPGY Cosmology course for talented high school students. Guest lecturer for the class on the Cosmic Microwave Background.

*Guest Lecturer*

**Summer 2017**

Stanford SPCS Summer Institutes for high school students. Guest lectured for Cosmology on the Search of Primordial Gravitational Waves in the CMB.

*Teaching Assistant*

**2010 – 2011**

Lead discussion sections, grade homework and finals.

- Introduction to Mechanics, Winter 2010
- Introduction to Electromagnetism, Spring 2010
- Intermediate Physics Lab III, Spring 2011

**Elements of Knowledge**, Hong Kong

*Math and Science Instructor*

**Nov 2008 – Jan 2009**

Prepared learning materials for middle school to high school level students, taught GCSE O-level physics and HKCEE level physics.

**University of Michigan – Ann Arbor**, Ann Arbor, Michigan

*Study Group Facilitator*

**Sep 2005 – Apr 2006**

Facilitated first year students in the WISE (Women in Science and Engineering) and MRC (Michigan Research Community) introductory electromagnetism study group.

*Physics Helproom Tutor*

**Sep 2005 – Dec 2006**

Helped introductory Physics courses students on questions they encountered when doing homework and studying course materials.

PROFESSIONAL  
SERVICE

- Referee for *Journal of Low Temperature Physics*, *Universe*, *Astrophysical Journal*, *Phys. Rev. D*, *JCAP*, *Phys. Rev. L*
- Review panel for NASA APRA, NSF AAG, DOE ALCC, DOE RENEW, DOE Comparative Review, Hubble Fellowship, NSF CAREER
- Session Chair for Delensing in Kavli CMB Lensing Workshop (September 2017)
- Publication Board of CMB-S4 (2018-2020)
- Organizer of “Joint SPT-DES Analysis” Workshop (June 2018)
- Organizer of “The Future of  $H_0$ : Crisis or Concordance?” Workshop (Oct 2018)
- KIPAC Friday Seminar Committee (September 2018 - June 2019)
- KIPAC Thunch Journal Club Committee (September 2017 - June 2018)
- SOC of CMB-S4 Oct 2019 Collaboration meeting
- SOC of “Cosmic Controversies” Conference (Oct 2019)
- SOC of South Pole Observatory inaugural collaboration meeting (Oct 2019)
- Governing Board of CMB-S4 (Aug 2019-Aug 2020); (Aug 2024–current)
- Co-chair of CMB-S4 low- $\ell$  BB  $r$  analysis working group (Oct 2019-2023)
- KIPAC tea organizing committee (2021-2023)
- KIPAC postdoc hiring committee (2020, 2021)
- KIPAC Equity and Inclusion committee co-chair (since Dec 2021)
- LOC of CMB-S4 Summer 2023 Collaboration meeting (2023)

OUTREACH,  
SERVICE, PRESS  
COVERAGE

- Summer School Instructor of Ethiopian Physics Society Summer School in Addis Ababa, August 2025
- KIPAC Community Day 2025 speaker
- CMB-S4 Saturday Science Series (2023)
- Chair of Conference for Undergraduate Women in Physics (CUWiP) Northern California Consortium (2021-2022)
- LOC Chair of Conference for Undergraduate Women in Physics (CUWiP) Stanford/SLAC 2023 (since 2021)
- Skype a Scientist (2021)
- A scientist walks into a bar outreach event, also featured in [UChicago News](#)
- Summer School Instructor of Ethiopian Physics Society Summer School in Addis Ababa, June 2019
- Neural Network Lensing Reconstruction paper featured in *Symmetry Magazine* [article](#) Oct 16, 2018
- Adler Planetarium Astronomy Conversations, Jan 2018 - 2019
- Lifelong Learning Senior Citizen Public Lecture, Fall 2017 - 2019
- BICEP3 tour at the South Pole Station [video](#) by *Deep Sky Videos* (50K+ views)
- Stanford Physics Department Small Group Evaluation Facilitator, Fall 2011- Summer 2014
- KIPAC Middle School Science Day, Summer 2013
- KIPAC@10 Inflation Blog: [Inflation solving puzzles of the Big Bang Model](#)

TECHNICAL SKILLS

- Software: Python, Matlab, Julia, IDL, C++
- Hardware: Cryogenics, He3/He4 sorption refrigerators, CAD

REFERENCES

**Chao-Lin Kuo**, Stanford University  
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Associate Professor, Particle Physics and Astrophysics  
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