

# Wai Ling Kimmy Wu

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CONTACT INFORMATION	KIPAC/SLAC, 2575 Sand Hill Rd Mailstop 0029 Fred Kavli Building Menlo Park, CA 94025	<i>Phone:</i> (650) 804-2550 <i>E-mail:</i> wlwu@slac.stanford.edu <i>Website:</i> web.stanford.edu/~wlwu
CURRENT POSITION	<b>Panofsky Fellow   Associate Scientist</b> SLAC National Accelerator Laboratory, Kavli Institute for Particle Astrophysics and Cosmology Junior research group leader, tenure-track	<b>September 2020 - present</b>
PREVIOUS POSITIONS	<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, instrumentation	
HONORS AND AWARDS	<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>
	<b>Sigma Phi Sigma National Physics Honor Society</b>	<b>2006</b>
	<b>Frank Sevcik Faculty Award in Physics</b> , University of Michigan Physics Dept.	<b>2005</b>

35. F. Bianchini, W. L. K. Wu, et al. [72 authors], “SEARCHING FOR ANISOTROPIC COSMIC BIREFRINGENCE WITH POLARIZATION DATA FROM SPTPOL,” *Phys. Rev. D* *accepted*, arXiv: 2006.08061
34. W. L. K. Wu, P. Motloch, W. Hu, M. Raveri, “HUBBLE CONSTANT DIFFERENCE BETWEEN CMB LENSING AND BAO MEASUREMENTS,” *Phys. Rev. D* *102* (2), 023510, arXiv:2004.10207
33. C. L. Reichardt, ..., W. L. K. Wu et al. [77 authors], “AN IMPROVED MEASUREMENT OF THE SECONDARY COSMIC MICROWAVE BACKGROUND ANISOTROPIES FROM THE SPT-SZ + SPTPOL SURVEYS,” *ApJ* *submitted*, arXiv: 2002.06197
32. F. Bianchini, W. L. K. Wu, et al. [71 authors], “CONSTRAINTS ON COSMOLOGICAL PARAMETERS FROM THE 500 DEG<sup>2</sup> SPTPOL LENSING POWER SPECTRUM,” *Astrophys.J.* *888* (2020) 119, arXiv: 1910.07157
31. JT Sayre, ..., W. L. K. Wu et al. [65 authors], “MEASUREMENTS OF -MODE POLARIZATION OF THE COSMIC MICROWAVE BACKGROUND FROM 500 SQUARE DEGREES OF SPTPOL DATA,” *Phys.Rev.D* *101* (2020) 12, 122003, arXiv: 1910.05748
30. L. Bleem, ..., W. L. K. Wu et al. [138 authors], “THE SPTPOL EXTENDED CLUSTER SURVEY,” *Astrophys.J.Suppl.* *247* (2020) 1, 25 arXiv: 1910.04121
29. S. Raghunathan, ..., W. L. K. Wu et al. [129 authors], “A DETECTION OF CMB-CLUSTER LENSING USING POLARIZATION DATA FROM SPTPOL,” *Phys. Rev. Letters*, *123* (2019) 18, 181301, arXiv: 1907.08605
28. N. Gupta, ..., W. L. K. Wu et al. [77 authors], “FRACTIONAL POLARISATION OF EXTRAGALACTIC SOURCES IN THE 500-SQUARE-DEGREE SPTPOL SURVEY,” *MNRAS* *490* (2019) 4, 5712-5721, arXiv: 1907.02156
27. N. Huang, ..., W. L. K. Wu et al. [76 authors], “GALAXY CLUSTERS SELECTED VIA THE SUNYAEV-ZEL'DOVICH EFFECT IN THE SPTPOL 100-SQUARE-DEGREE SURVEY,” *Astron.J.* *159* (2020) 3, 110, arXiv: 1907.09621
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 SPTPOL 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
22. J. Caldeira, W. L. K. Wu, B. Nord, C. Avestruz, S. Trivedi, K. T. Story, “DEEPCMB: LENSING RECONSTRUCTION OF THE COSMIC MICROWAVE BACKGROUND WITH DEEP NEURAL NETWORKS,” *Astronomy and Computing*, 28, 100307 (2019), arXiv: 1810.01483
21. S. Raghunathan, ..., W. L. K. Wu et al. [132 authors], “MASS CALIBRATION OF OPTICALLY SELECTED DES CLUSTERS USING A MEASUREMENT OF CMB-CLUSTER LENSING WITH SPTPOL DATA,” *ApJ* 872 (2), 170 (2018), arXiv: 1810.10998
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
19. Y. Omori, ..., W. L. K. Wu et al. [140 authors], “DARK ENERGY SURVEY YEAR 1 RESULTS: CROSS-CORRELATION BETWEEN DES Y1 GALAXY WEAK LENSING AND SPT+PLANCK CMB WEAK LENSING,” *Phys. Rev. D*, 100 (4) 043517 (2019), arXiv: 1810.02441
18. Y. Omori, ..., W. L. K. Wu et al. [140 authors], “DARK ENERGY SURVEY YEAR 1 RESULTS: TOMOGRAPHIC CROSS-CORRELATIONS BETWEEN DES GALAXIES AND CMB LENSING FROM SPT+PLANCK,” *Phys. Rev. D*, 100 (4) 043501 (2019), arXiv: 1810.02342
17. T. M. C. Abbott, ..., W. L. K. Wu et al. [166 authors], “DARK ENERGY SURVEY YEAR 1 RESULTS: JOINT ANALYSIS OF GALAXY CLUSTERING, GALAXY LENSING, AND CMB LENSING TWO-POINT FUNCTIONS,” *Phys. Rev. D* 100 (2), 023541 (2019), arXiv: 1810.02322
16. R Chown, ..., W. L. K. Wu et al. [46 authors], “MAPS OF THE SOUTHERN MILLIMETER-WAVE SKY FROM COMBINED 2500 DEG<sup>2</sup> SPT-SZ AND PLANCK TEMPERATURE DATA,” *ApJS*, 239, 1 (2018), arXiv: 1803.10682
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
14. G. Simard, ..., W. L. K. Wu et al. [47 authors], “CONSTRAINTS ON COSMOLOGICAL PARAMETERS FROM THE ANGULAR POWER SPECTRUM OF A COMBINED 2500 DEG<sup>2</sup> SPT-SZ AND PLANCK GRAVITATIONAL LENSING MAP,” *ApJ* 860 (2), 137, arXiv: 1712.07541
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
  10. A. Manzotti, K. T. Story, W. L. K. Wu et al. [63 authors], "CMB POLARIZATION B-MODE DELENSING WITH SPTPOL AND HERSCHEL," *ApJ*, *846*, 1, (2017), arXiv: 1701.04396
  9. CMB S4 Consortium: K. N. Abazajian, ..., W. L. K. Wu et al. [86 authors], "CMB-S4 SCIENCE BOOK, FIRST EDITION," arXiv: 1610.02743
  8. BICEP2 and Keck Array Collaborations: P.A.R. Ade, ..., W. L. K. Wu et al. [63 authors], "BK-VIII: MEASUREMENT OF GRAVITATIONAL LENSING FROM LARGE-SCALE B-MODE POLARIZATION," *ApJ*, *833*, 228 (2016). arXiv: 1606.01968
  7. BICEP2 and Keck Array Collaborations: P.A.R. Ade, ..., W. L. K. Wu et al. [63 authors], "BK-VII: MATRIX BASED E/B SEPARATION APPLIED TO BICEP2 AND THE KECK ARRAY," *ApJ*, *825*, 66 (2016). arXiv: 1603.05976
  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

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*
- Session Chair for Delensing in Kavli CMB Lensing Workshop (September 2017)
- Publication Board of CMB-S4 (since mid-2018)
- Organizer of “Joint SPT-DES Analysis” Workshop (June 2018)
- Organizer of “The Future of  $H_0$ : Crisis or Concordance?” Workshop (Oct 2018)
- KICP Friday Seminar Committee (September 2018 - June 2019)
- KICP 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 (since Aug 2019)
- Co-coordinator of CMB-S4 low- $\ell$  BB  $r$  analysis working group (since Oct 2019)

OUTREACH,  
SERVICE, PRESS  
COVERAGE

- 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, IDL, C++
- Hardware: Cryogenics, He3/He4 sorption refrigerators, CAD

REFERENCES

**Chao-Lin Kuo**, Stanford University

Associate Professor, Physics

Associate Professor, Particle Physics and Astrophysics

Email: [clkuo@stanford.edu](mailto:clkuo@stanford.edu)

Phone: (650) 736-7880

**John Carlstrom**, University of Chicago/Argonne National Laboratory

Subramanyan Chandrasekhar Distinguished Service Professor

Email: [jc@kip.uchicago.edu](mailto:jc@kip.uchicago.edu)

Phone: (773) 834-0269

**William Holzappel**, University of California Berkeley

Professor of Physics

Email: [swlh@cosmology.berkeley.edu](mailto:swlh@cosmology.berkeley.edu)

Phone: (510) 642-5036

**John M. Kovac**, Harvard University  
Professor of Astronomy and Physics  
Email: [jmkovac@cfa.harvard.edu](mailto:jmkovac@cfa.harvard.edu)  
Phone: (617) 496-0611