

# Stanford

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## Chao-Lin Kuo

Professor of Physics and of Particle Physics and Astrophysics

### CONTACT INFORMATION

- **Administrative Contact**

Julie L Shih

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### Bio

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#### ACADEMIC APPOINTMENTS

- Professor, Physics
- Professor, Particle Physics and Astrophysics

#### HONORS AND AWARDS

- Early Career Award, NSF (2011)
- Alfred P. Sloan Fellowship, Sloan Foundation (2009)

#### PROFESSIONAL EDUCATION

- Ph.D., UC Berkeley , Astrophysics (2003)
- B.Sc., National Taiwan University , Physics (1994)

### Research & Scholarship

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#### CURRENT RESEARCH AND SCHOLARLY INTERESTS

1. Searching/measuring primordial gravitational waves in the CMB (Cosmic Microwave Background) through experiments at the South Pole (BICEP and SPT), high plateaus in Tibet (AliCPT) and Atacama (Simons Observatory), as well as in space (LiteBIRD).
2. Development and applications of superconducting detector and readout systems in astrophysics, cosmology, and other areas.
3. Novel detector concepts for axion searches (<https://youtu.be/UBscQSFzpLE>)

### Teaching

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#### COURSES

##### 2020-21

- Physics in the 21st Century: PHYSICS 83N (Aut)

##### 2019-20

- Physics in the 21st Century: PHYSICS 83N (Aut)

#### 2018-19

- Astronomy Laboratory and Observational Astronomy: PHYSICS 50 (Aut)

#### 2017-18

- Astronomy Laboratory and Observational Astronomy: PHYSICS 50 (Aut)

### STANFORD ADVISEES

#### Postdoctoral Faculty Sponsor

Dominic Beck, Ari Cukierman, Neil Goeckner-Wald, Edward Young

#### Doctoral Dissertation Advisor (AC)

Eric Yang, Cyndia Yu

#### Doctoral (Program)

Noor Al-Sayyad, Joseph Curti, Elise Darragh-Ford, William DeRocco, Andrew Eberhardt, Anthony Flores, Ben Garber, Andrea Gaspert, Rachel Gruenke, George Halal, Brett Larsen, Kevin Multani, Ji Won Park, Jannicke Pearkes, Noah Shutty, Kianna Wan, Adele Zawada, Cady van Assendelft

### Publications

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#### PUBLICATIONS

- **Symmetrically tuned large-volume conic shell-cavities for axion searches** *Journal of Cosmology and Astroparticle Physics*  
Kuo, C.  
2021; February (02)
- **Large-volume centimeter-wave cavities for axion searches** *Journal of Cosmology and Astroparticle Physics*  
Kuo, C.  
2020
- **Constraints on Primordial Gravitational Waves Using Planck, WMAP, and New BICEP2/Keck Observations through the 2015 Season** *PHYSICAL REVIEW LETTERS*  
Ade, P. R., Ahmed, Z., Aikin, R. W., Alexander, K. D., Barkats, D., Benton, S. J., Bischoff, C. A., Bock, J. J., Bowens-Rubin, R., Brevik, J. A., Buder, I., Bullock, E., Buza, et al  
2018; 121 (22)
- **Highly-multiplexed microwave SQUID readout using the SLAC Microresonator Radio Frequency (SMuRF) Electronics for Future CMB and Sub-millimeter Surveys**  
Henderson, S. W., Ahmed, Z., Ausermann, J., Becker, D., Bennett, D. A., Brown, D., Chaudhuri, S., Cho, H., D'Ewart, J. M., Dober, B., Duff, S. M., Dusatko, J. E., Fatigoni, et al  
SPIE-INT SOC OPTICAL ENGINEERING.2018
- **BICEP2 / Keck Array IX: New bounds on anisotropies of CMB polarization rotation and implications for axionlike particles and primordial magnetic fields** *PHYSICAL REVIEW D*  
Ade, P. R., Ahmed, Z., Aikin, R. W., Alexander, K. D., Barkats, D., Benton, S. J., Bischoff, C. A., Bock, J. J., Bowens-Rubin, R., Brevik, J. A., Buder, I., Bullock, E., Buza, et al  
2017; 96 (10)
- **BICEP2/KECK ARRAY VIII: MEASUREMENT OF GRAVITATIONAL LENSING FROM LARGE-SCALE B-MODE POLARIZATION** *ASTROPHYSICAL JOURNAL*  
Ade, P. A., Ahmed, Z., Aikin, R. W., Alexander, K. D., Barkats, D., Benton, S. J., BISCHOFF, C. A., Bock, J. J., Bowens-Rubin, R., Brevik, J. A., Buder, I., Bullock, E., Buza, et al  
2016; 833 (2)
- **BICEP2/KECK ARRAY. VII. MATRIX BASED E/B SEPARATION APPLIED TO BICEP2 AND THE KECK ARRAY** *ASTROPHYSICAL JOURNAL*  
Ade, P. A., Ahmed, Z., Aikin, R. W., Alexander, K. D., Barkats, D., Benton, S. J., BISCHOFF, C. A., Bock, J. J., Bowens-Rubin, R., Brevik, J. A., Buder, I., Bullock, E., Buza, et al

2016; 825 (1)

● **Joint Analysis of BICEP2/Keck Array and Planck Data** *PHYSICAL REVIEW LETTERS*

Ade, P. A., Aghanim, N., Ahmed, Z., Aikin, R. W., Alexander, K. D., Arnaud, M., Aumont, J., Baccigalupi, C., Banday, A. J., Barkats, D., Barreiro, R. B., Bartlett, J. G., Bartolo, et al

2015; 114 (10)

● **Detection of B-Mode Polarization at Degree Angular Scales by BICEP2.** *Physical review letters*

Ade, P. A., Aikin, R. W., Barkats, D., Benton, S. J., BISCHOFF, C. A., Bock, J. J., Brevik, J. A., Buder, I., Bullock, E., Dowell, C. D., Duband, L., Filippini, J. P., Fliescher, et al

2014; 112 (24): 241101-?