

# Darcy R. Barron

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## CURRICULUM VITAE

### APPOINTMENTS

University of New Mexico Department of Physics & Astronomy	Assistant professor	August 2018 - present
University of California, Berkeley Space Sciences Laboratory	NSF Astronomy and Astrophysics Postdoctoral Research Fellow, Honorary Townes Postdoctoral Research Fellow Advisor: Adrian Lee	2015 - 2018
Lawrence Berkeley National Lab Physics Division	Honorary Chamberlain Postdoctoral Research Fellow Advisors: Adrian Lee and Akito Kusaka	2015 - 2018

### EDUCATION

University of California, San Diego	Physics	Ph.D. 2015 Advisor: Brian Keating
University of California, San Diego	Physics	M.S. 2010
University of Illinois, Urbana-Champaign	Physics	B.S. with Honors 2008 Minor: Astronomy

### FELLOWSHIPS AND AWARDS

National Science Foundation	Astronomy and Astrophysics Postdoctoral Fellowship (NSF-AST award no. 1501422)	2015
UC Berkeley Space Science Lab	Charles H. Townes Postdoctoral Fellowship	2015
Lawrence Berkeley National Lab	Owen Chamberlain Postdoctoral Fellowship	2015

### RESEARCH INTERESTS

Cosmology, Cosmic Microwave Background, Millimeter-Wave Astronomy, Interstellar Dust, Instrumentation, Cryogenics

### SELECTED PUBLICATIONS

1. **D. Barron**, Y. Chinone, A. Kusaka, J. Borrill, J. Errard, S. Feeney, S. Ferraro, R. Keskitalo, A. T. Lee, N. A. Roe, B. D. Sherwin, A. Suzuki. Optimization Study for the Experimental Configuration of CMB-S4. In press, *Journal of Cosmology and Astroparticle Physics*, October 2017, eprint arXiv:1702.07467.
2. The POLARBEAR Collaboration: P.A.R. Ade, M. Aguilar, Y. Akiba, K. Arnold, C. Baccigalupi, **D. Barron**, D. Beck, F. Bianchini, D. Boettger, J. Borrill, S. Chapman, Y. Chinone, K. Crowley,

- A. Cukierman, M. Dobbs, A. Ducout, R. Dunner, T. Elleflot, J. Errard, G. Fabbian, S.M. Feeney, C. Feng, T. Fujino, N. Galitzki, A. Gilbert, N. Goeckner-Wald, J. Groh, T. Hamada, G. Hall, N.W. Halverson, M. Hasegawa, M. Hazumi, C. Hill, L. Howe, Y. Inoue, G.C. Jaehnig, A.H. Jaffe, O. Jeong, D. Kaneko, N. Katayama, B. Keating, R. Keskitalo, T. Kisner, N. Krachmalnicoff, A. Kusaka, M. Le Jeune, A.T. Lee, E.M. Leitch, D. Leon, E. Linder, L. Lowry, F. Matsuda, T. Matsumura, Y. Minami, J. Montgomery, M. Navaroli, H. Nishino, H. Paar, J. Peloton, A. T. P. Pham, D. Poletti, G. Puglisi, C.L. Reichardt, P.L. Richards, C. Ross, Y. Segawa, B.D. Sherwin, M. Silva, P. Siritanasak, N. Stebor, R. Stompor, A. Suzuki, O. Tajima, S. Takakura, S. Takatori, D. Tanabe, G.P. Teply, T. Tomaru, C. Tucker, N. Whitehorn, A. Zahn. A Measurement of the Cosmic Microwave Background B-Mode Polarization Power Spectrum at Sub-Degree Scales from 2 years of POLARBEAR Data. *ApJ* Volume 848 No. 2 (2017). doi:10.3847/1538-4357/aa8e9f.
3. **D. Barron.** Precision Measurements of Cosmic Microwave Background Polarization to Study Cosmic Inflation and Large Scale Structure / by Darcy Riley Barron. Ph.D. Dissertation, University of California, San Diego, June 2015.
  4. **D. Barron** for the POLARBEAR Collaboration. Development and Characterization of the Read-out System for POLARBEAR-2. Proc. SPIE 9153, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VII, 915335, 2014. doi:10.1117/12.2055611
  5. The POLARBEAR Collaboration (**incl. D. Barron**), A Measurement of the Cosmic Microwave Background B-mode Polarization Power Spectrum at Sub-degree Scales with POLARBEAR. *ApJ*, **794**, 171, 2014. doi:10.1088/0004-637X/794/2/171
  6. The POLARBEAR Collaboration (**incl. D. Barron**), Measurement of the Cosmic Microwave Background Polarization Lensing Power Spectrum with the POLARBEAR Experiment. Phys. Rev. Lett. **113**, 021301, 2014. doi:10.1103/PhysRevLett.113.021301
  7. The POLARBEAR Collaboration (**incl. D. Barron**), Evidence for Gravitational Lensing of the Cosmic Microwave Background Polarization from Cross-Correlation with the Cosmic Infrared Background. Phys. Rev. Lett. **112**, 131302, 2014. doi:10.1103/PhysRevLett.112.131302
  8. **D. Barron** for the POLARBEAR Collaboration. The POLARBEAR Cosmic Microwave Background Polarization Experiment. J. Low Temp. Phys. Vol. 176, 5-6, pp 726-732, 2014. doi:10.1007/s10909-013-1065-5

## RECENT TALKS

- “Cosmology from CMB Polarization with POLARBEAR and the Simons Array”  
 American Physical Society Division of Particles and Fields Meeting, Fermilab, August 2017  
 “CMB-S4 Optimization Study”  
 Dept. of Energy High Energy Physics Institutional Review, Lawrence Berkeley National Lab, May 2017  
 “CMB Polarization Measurements with POLARBEAR”  
 Invited talk at Kavli IPMU, University of Tokyo, December 2016  
 “Cosmology from CMB Polarization with POLARBEAR and the Simons Array”  
 Invited talk at Arizona State University, October 2016  
 “Cutting the trail to CMB-S4”  
 Invited talk at University of Wisconsin, Madison, May 2016  
 “CMB Polarization Measurements: From the ground and from space”  
 Invited talk at UC Berkeley Space Science Lab, Electric Fields Seminar Series, Feb. 2016  
 “Cosmology from CMB Polarization with POLARBEAR and the Simons Array”  
 Invited talk at Dalhousie University, Physics Colloquium, Feb. 2016

## SCHOLARLY & PROFESSIONAL SERVICE

- Member of Interim Collaboration Coordination Committee for CMB-S4, a temporary governing body guiding the formation of the CMB-S4 Collaboration (Sept. 2017 - Mar. 2018)
- Member of organizing committee for NSF Astronomy and Astrophysics Postdoctoral Fellow Symposium 2016, and PI of conference grant 2017 (NST-AST 1700869), held Jan. 2016 and Jan. 2017
- Member of local organizing committee for Cosmology with CMB-S4 Collaboration workshop, Lawrence Berkeley National Lab, held Mar. 2016
- Referee for Journal of Cosmology and Astroparticle Physics
- Member of colloquium committee, UC Berkeley Space Sciences Lab, Fall 2015 - current
- Diversity and Outreach Committee Member, UC San Diego Physics Dept. (Sept. 2013 - Jun. 2014)
- Colloquium Committee Member, UC San Diego Physics Dept. (Sept. 2012 - Jun. 2013)
- Co-chair, Physics Graduate Council, UC San Diego (Sept. 2012 - Sept. 2014)
- Physics Department Representative, Graduate Student Association of UC San Diego (2010 - 2014)
- Science, Engineering and Technology Congressional Visits Day (setcvd.org), American Astronomical Society (March 2013)
- Volunteer, San Diego Mountain Rescue Team (2012 - 2015)
  - Certified as Wilderness First Responder (through Wilderness Medical Associates, wildmed.com)
  - Licensed amateur radio operator (through Federal Communications Commission, fcc.gov)

## TEACHING EXPERIENCE

- **Academic Coordinator**, Space Sciences Lab ASSURE REU program, May 2016 – current  
*Website:* [multiverse.ssl.berkeley.edu/ASSURE](http://multiverse.ssl.berkeley.edu/ASSURE)  
*Description:* Academic coordinator for the Advancing Space Science through Undergraduate Research Experiences (ASSURE) program, an NSF REU program based at UC Berkeley's Space Science Lab, which is focused on providing research experiences for underserved students. This position includes organizing and running a weeklong "bootcamp" with tutorials, lectures, and activities for introducing the students to research, organizing a summer seminar series and final poster session for the students, and acting as a mentor as part of the student multi-tiered support network.
- **Guest Lecturer**, UC San Diego, PHYS 162: Cosmology (Spring 2013, Spring 2014)
- **Teaching Assistant**, UC San Diego, PHYS 121: Experimental Techniques (Spring 2009)
- **Teaching Assistant**, UC San Diego, PHYS 1C: Waves, Optics and Modern Physics (Winter 2009)
- **Teaching Assistant**, UC San Diego PHYS 2C: Fluids, Waves, Thermodynamics, and Optics (Fall 2008)

## RECENT OUTREACH ACTIVITIES

**Speaker, Physics in and through Cosmology**      Lawrence Berkeley Nat. Lab      2016, 2017

*Description:* Speaker for the annual Physics in and through Cosmology program for high school students at Lawrence Berkeley National Lab, which includes presentations on cosmology topics as well as discussions of career topics.

**Volunteer, Be a Scientist**      Berkeley, CA      2016

*Description:* Volunteer with the Be a Scientist program at Willard Middle School, acting as a scientist mentor for 7th graders, guiding them through the process of designing and conducting scientific investigations.