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Professional Appointments

2018 - current Department of Physics & Astronomy, University of New Mexico, Albuquerque
Assistant Professor

2015 - 2018 Space Sciences Laboratory, University of California, Berkeley
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
Advisor: Akito Kusaka

Education

Ph.D. 2015 Department of Physics, University of California, San Diego
Advisor: Brian Keating

M.S. 2010 Department of Physics, University of California, San Diego

B.S. 2008 Department of Physics, University of Illinois, Urbana-Champaign

Research

Instrumentation and techniques for precision measurements of the polarization of the Cosmic Microwave Background

- CMB-S4 *(2017 - current)*
  - **Senior member** of CMB-S4 Collaboration *(2018 - current)*
  - **Readout Scientist** for CMB-S4 Project *(2020 - current)*
  - Member of Scientific Organizing Committee for CMB-S4 Collaboration meetings (Spring 2022, Spring 2021)
  - **Vice chair**, CMB-S4 Collaboration Governing Board *(July 2024 - July 2025)*
  - **Elected member**, CMB-S4 Collaboration Governing Board *(July 2022 - July 2026)*
  - **Chair** of CMB-S4 Collaboration Elections and Voting Committee *(July 2018 - July 2021)*
  - **Chair**, CMB-S4 Collaboration Junior Scientist Advancement Committee *(July 2020 - July 2022)*
  - **Member, Interim Collaboration Coordination Committee**, a temporary governing body guiding the formation of the CMB-S4 Collaboration *(2017 - 2018)*
- POLARBEAR/Simons Array *(2011 - current)*
  - Member of POLARBEAR Management Board *(2018 - current)*
  - Member of POLARBEAR/Simons Array Science Working Group *(2022 - current)*
  - Lead of POLARBEAR Cryogenic Readout working group *(2016 - 2020)*

Selected Publications

1. **D. Barron** et al., "Conceptual design of the modular detector and readout system for the CMB-S4 survey experiment," Proceedings of the SPIE, Volume 12190, id. 121900B 25 pp. (August 2022).
2. **D. Barron**, A. Bender, I. Birdwell, J. Carlstrom, J. Delabrouille, S. Guns, J. Kovac, C. Lawrence. S. Paine, N. Whitehorn, "Review of radio frequency interference and potential impacts on the CMB-S4 cosmic microwave background survey," Proceedings of the SPIE, Volume 12190, id 1219002 34 pp. (August 2022).
3. The POLARBEAR Collaboration (including **D. Barron**), "Improved Upper Limit on Degree-Scale CMB B-mode Polarization Power from the 670 Square-degree POLARBEAR Survey," *The Astrophysical Journal*, Volume 931, Issue 2, id. 101, 13 pp. (June 2022).
4. The CMB-S4 Collaboration (including **D. Barron**). CMB-S4: Forecasting constraints on primordial gravitational waves. *The Astrophysical Journal*, Volume 926, Issue 1, id. 54, 23 pp. (February 2022).
5. **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. *Journal of Cosmology and Astroparticle Physics*, Issue 2, article id. 009 (2018). doi:10.1088/1475-7516/2018/02/009
6. The POLARBEAR Collaboration (inc. **D. Barron**). 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.
7. **D. Barron** for the POLARBEAR Collaboration. Development and Characterization of the Readout 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
8. 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

Scholarly & Professional Service

- Member of Astronomy and Astrophysics Advisory Committee (a FACA committee advising the NSF, DOE and NASA on issues related to astronomy and astrophysics) (*appointment term: July 2023 - June 2026*)
- Member of US delegation to International Telecommunications Union Working Party 7D (Radio Astronomy) *(active in meetings 2021 - current)*
  - Led to publication of ITU-R report RA.2507-0,"Technical and Operational Characteristics of Broadband, Background-Limited Bolometers Operating in the mm-wave Regime," *(October 2022)*
- Reviewer for national funding agencies including DOE, NASA, NSF, RCSA, and NSERC
- Reviewer for Journal of Low Temperature Physics, Review of Scientific Instruments
- Graduate Committee, Dept. of Physics & Astronomy at UNM (*2023 - current)*)
- Early Career Astronomer Focus Session for the Decadal Survey *(October 2018)*
  - Selected as part of a small cohort to attend a workshop at the National Academies of Sciences, Engineering, and Medicine on the Astro2020 Decadal Survey process
  - Moravec et al. **(inc. D. Barron)**, *Astro2020 APC White Paper: The Early Career Perspective on the Coming Decade, Astrophysics Career Paths, and the Decadal Survey Process*

Teaching

- **Physics 306L**, Junior Laboratory: a course on electronics and circuit design *(Fall 2022)*
- **Physics 307L**, Junior Laboratory: a course on experimental techniques in modern physics *(Spring 2020, Spring 2021)*
- **Physics 1115**, Survey of Physics (formerly Physics 102): a general education course for all majors *(Fall 2018, Fall 2020, Spring 2024)*
- **Astronomy 426 & 526**, Optics and Instrumentation: a course on astronomical instrumentation and data analysis for undergraduate and graduate students *(Fall 2019, Spring 2022, Fall 2024)*
- **Academic coordinator, Advancing Space Science through Undergraduate Research Experiences (ASSURE) program** *(May 2016 - May 2018)*
  - Academic coordinator for the NSF REU program based at UC Berkeley's Space Science Lab, which focused on providing research experiences for underserved students, including community college and first-generation college students.

Community Outreach and Service

- Invited seminar, **Space Seminar Series - UNM Sustainable Space Research Grand Challenge** (*April 2025*)
  - Talk title: *A new era in precision cosmology – progress and challenges in surveying our universe*
- Invited seminar, **Quantum Undergraduate Research Experience at CHTM (QUREACH) Seminar Series** (*July 2024*)
  - Talk title: *Cosmology with Superconducting Quantum Interference Devices*
- Instructor at CMB-S4 Instrumentation Summer School (*August 2022*)
- Invited keynote speaker, **Society of Amateur Radio Astronomers Spring 2022 Conference** *(Virtual, April 2022)*
  - Talk title: *Precision Measurements of the Polarization of the Cosmic Microwave Background*
- Participant in virtual STEM Career Panel with Girl Scouts of Greater Chicago (*February 2022*)
- Invited speaker, **Astronomy on Tap Albuquerque** *(Marble Brewery, September 2018)*
  - Talk title: *How to Look at the Early Universe*
- Volunteer, University of New Mexico Campus Observatory *(Fall 2018 - present)*