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RESEARCH INTERESTS	<b>Experimental cosmology, astrophysical instrumentation, data analysis, polarimetry, cosmic microwave background, interstellar medium, dust, cryogenics, balloon-borne telescopes</b>	
EDUCATION	<b>The University of Pennsylvania</b> , Philadelphia, PA Ph.D., Physics and Astronomy <span style="float: right;"><b>Aug. 2016</b></span> <ul style="list-style-type: none"> <li>• <i>Magnetic Fields in Molecular Clouds: The BLASTPol<sup>1</sup> and BLAST-TNG<sup>2</sup> Experiments</i></li> <li>• Adviser: Prof. Mark Devlin</li> </ul> <b>California Institute of Technology</b> , Pasadena, CA B.S., Astrophysics <span style="float: right;"><b>June 2008</b></span>	
RESEARCH POSITIONS	<b>University of Texas at Austin</b> , Austin, TX <span style="float: right;"><b>Aug. 2022 - Present</b></span> <i>Assistant Professor, Department of Physics</i> <b>Fulbright Scholar Program</b> , Santiago, Chile <span style="float: right;"><b>Jan. 2022 - May 2022</b></span> <i>Postdoctoral Fulbright Scholar</i> <ul style="list-style-type: none"> <li>• Developing a drone-based polarized calibration technique for millimeter telescopes with Prof. Rolando Dünner Paella at Pontificia Universidad Católica de Chile.</li> </ul> <b>University of California San Diego</b> , La Jolla, CA <span style="float: right;"><b>Sept. 2016 - July 2022</b></span> <i>Simons Observatory Postdoctoral Scholar</i> <ul style="list-style-type: none"> <li>• Simons Observatory leader for camera design, integration, and testing.</li> <li>• Simons Observatory systematic studies, data acquisition, and analysis.</li> <li>• BLAST-TNG flight preparations and Antarctic deployment.</li> </ul> <b>University of Pennsylvania</b> , Philadelphia, PA <span style="float: right;"><b>Sept. 2010 - May 2016</b></span> <i>Graduate Student</i> <ul style="list-style-type: none"> <li>• BLAST-TNG leader for liquid helium camera design, integration, and testing.</li> <li>• BLASTPol data reduction and analysis.</li> <li>• BLASTPol commissioning, testing, and Antarctic launch.</li> </ul> <b>California Institute of Technology</b> , Pasadena, CA <span style="float: right;"><b>Jun. 2006 - Jun. 2008</b></span> <i>Undergraduate Researcher</i>	
FELLOWSHIPS AND AWARDS	<b>PI Launchpad</b> <span style="float: right;"><b>June 2021</b></span> <i>2021 Virtual PI Launchpad Participant</i> <ul style="list-style-type: none"> <li>• Selected for the workshop which trains potential PIs to navigate the flight mission proposal process.</li> <li>• Organized by the NASA SMD, the Heising-Simons Foundation, and the University of Arizona.</li> </ul> <b>Fulbright Scholar Program</b> <span style="float: right;"><b>Selected Feb. 2020</b></span> <i>Fulbright Postdoctoral Scholar Award</i> <ul style="list-style-type: none"> <li>• Awarded for 2020/2021 grant cycle, completed Jan. to May, 2022.</li> </ul> <b>University of Pennsylvania</b> , Philadelphia, PA <span style="float: right;"><b>Sept. 2015 - May 2016</b></span> <i>School of Arts and Sciences Dissertation Completion Fellowship</i> <b>American Astronomical Society (AAS)</b> <span style="float: right;"><b>Jan. 2015</b></span> <i>Astronomy Ambassador</i>	

<sup>1</sup>BLASTPol: The Balloon-borne Large Aperture Submillimeter Telescope for Polarimetry

<sup>2</sup>BLAST-TNG: The Balloon-borne Large Aperture Submillimeter Telescope - The Next Generation

RECENT PROFESSIONAL TALKS	2025 Scientific Ballooning Technologies Workshop, Minneapolis, MN	May 2025
	<i>Hooked on Liquid Helium: Pathways to Alternatives</i>	
	<b>Invited</b> , MIT Kavli Institute for Astrophysics and Space Research, Boston, MA	April 2025
	<i>Probing the beginning of the universe with precision microwave polarimetry observations</i>	
	<b>Invited</b> , Weinberg Inaugural Conference, Austin, TX	Nov. 2024
	<i>Experimental Cosmology at UT Austin: Probing the beginning of the Universe with the Simons Observatory</i>	
	SPIE Astronomical Telescopes + Instrumentation, Yokohama, Japan	June 2024
	<i>The Balloon-Borne Large Aperture Submillimeter Telescope Observatory (BLAST Observatory)</i>	
	National Radio Science Meeting, Boulder, CO	Jan. 2023
	<i>The Design and Validation of the Simons Observatory Cryogenic Receivers</i>	
	SPIE Astronomical Telescopes + Instrumentation, Montreal, Canada	July 2022
	<i>The Simons Observatory: Development and validation of the first Small Aperture Telescope, SAT-MF1</i>	
	From Planck to the Future of CMB, Ferrara, Italy	May 2022
	<i>The Characterization and Calibration of the Simons Observatory Small Aperture Telescope: Status and future plans</i>	
	<b>Invited</b> , University of Texas at Austin, Dept. of Physics Colloquium, Virtual	Jan. 2022
	<i>The Simons Observatory, CMB-S4, and BLAST: Probing the beginning of the Universe with precision polarimetry experiments</i>	
	2021 Scientific Ballooning Technologies Workshop, Virtual	May 2021
	<i>The Enabling Technology Instrument</i>	
	<b>Invited</b> , Cornell University LEPP Seminar, Virtual	Jan. 2021
	<i>The Simons, BLAST, and CCAT Observatories: Probing the beginning of the Universe with precision polarimetry experiments</i>	
	237th Meeting of the American Astronomical Society, Virtual	Jan. 2021
	<i>The Simons Observatory: the Small Aperture Telescopes (SATs)</i>	
	<b>Invited</b> , San Diego Astronomy Association Monthly Meeting, Virtual	Aug. 2020
	<i>The Microwave Telescopes of the Simons Observatory</i>	
	<b>Invited</b> , University of California Riverside Dept. of Physics and Astronomy Seminar, Virtual	May. 2020
	<i>The Simons Observatory and BLAST-TNG: Probing the beginning of the Universe with precision polarimetry experiments</i>	
	<b>Invited</b> , University of Iowa Dept. of Physics and Astronomy Colloquium, Iowa City, IA	Feb. 2020
	<i>The Simons Observatory and BLAST-TNG: Probing the beginning of the Universe with precision polarimetry experiments</i>	
	<b>Invited</b> , Cardiff University Seminar, Cardiff, UK	Sept. 2019
	<i>Forethought for foregrounds: Next steps in precision cosmology with the Simons Observatory and BLAST-TNG</i>	
	<b>Invited</b> , Midwest Magnetic Fields Meeting 2019, Madison, WI	May 2019
	<i>Dust polarimetry of the interstellar medium with the Simons Observatory and BLAST-TNG</i>	
	233rd Meeting of the American Astronomical Society, Seattle, WA	Jan. 2019
	<i>BLAST-TNG: Antarctic pre-flight integration</i>	
	<b>Invited</b> , University of Southern California Colloquium, Los Angeles, CA	Sept. 2018
	<i>Forethought for foregrounds: Next steps in precision cosmology</i>	
	SPIE Astronomical Telescopes + Instrumentation, Austin, TX	Jun. 2018
	<i>The Simons Observatory: Instrument Overview</i>	
PROFESSIONAL SERVICE	<b>Simons Observatory Collaboration</b>	
	Chilean Joint Implementation Committee member.	Nov. 2023 - Present
	Science organizing committee member	July 2025
	Education and public engagement committee co-leader.	Sept. 2016 - Oct. 2020
	Local organizing committee member.	Jun. 2017



TEACHING EXPERIENCE	<b>University of Texas at Austin</b> , Austin, TX	
	<i>PHY386K: The Physics of Sensors</i>	SP2026
	<i>CNS Expert Teaching Assessment Program</i>	Aug. 2025 - Present
	<ul style="list-style-type: none"> <li>Provides teaching assessment training to faculty followed by observations of colleague's teaching to generate feedback as part of the advancement process.</li> </ul>	
	<i>PHY353L: Modern Lab</i>	FA2025
	<i>PHY386K: The Physics of Sensors</i>	SP2025
	<i>PHY303L: Engineering Physics II</i>	FA2024
	<i>Mentoring Mindset Initiative</i>	Jan. 2024 - Dec. 2024
	<ul style="list-style-type: none"> <li>Program to introduce faculty members to evidence based teaching practices for introductory physics courses.</li> </ul>	
	<i>PHY301: Mechanics</i>	FA2023
	<i>PHY380N: Experimental Physics</i>	Aug. 2023 - Dec. 2024
	<ul style="list-style-type: none"> <li>Advised three student projects with my lab.</li> </ul>	
	<i>PHY303L: Engineering Physics II</i>	FA2022
	<i>Various guest lectures on experimental cosmology</i>	Aug. 2022 - Present
	<b>University of California San Diego</b> , La Jolla, CA	
	<i>PHYS 162 - Cosmology Guest Lecture</i>	May 12, 2021
	<b>The Center for Engaged Teaching</b> , La Jolla, CA	
	<i>Introduction to College Teaching</i>	Oct. 2017 - Dec. 2017
	<ul style="list-style-type: none"> <li>Developed expertise in evidence-based teaching practices that support student learning.</li> </ul>	
	<b>The Netter Center</b> , Philadelphia, PA	
	<i>The Netter Center Astronomy Curriculum Chair</i>	Aug. 2015 - May 2016
	<ul style="list-style-type: none"> <li>Developed a 12 Lesson Astronomy Curriculum for an under-served inner-city high school.</li> <li>Mentored undergraduate student volunteers who assisted in teaching the course.</li> </ul>	
	<b>iPraxis</b> , Philadelphia, PA	
	<i>iPraxis Afterschool Class Mentor</i>	Jan. 2015 - May 2015
	<b>University of Pennsylvania</b> , Philadelphia, PA	
	<i>Teaching Assistant</i>	Jan. 2013 - May 2013
	<ul style="list-style-type: none"> <li>Phys 101: General Physics: Mechanics, Heat, and Sound</li> </ul>	
	<i>Teaching Assistant</i>	Aug. 2011 - Dec. 2011, Jan. 2012 - May 2012, Aug. 2012 - Dec. 2012, Aug. 2013 - Dec. 2013
	<ul style="list-style-type: none"> <li>Astr 001: Survey of the Universe</li> </ul>	
	<i>Center for Teaching and Learning</i>	Aug. 2012
	<ul style="list-style-type: none"> <li>Teaching Assistant Training Workshop Leader</li> <li>Responsible for training new teaching assistants for the School of Arts and Sciences.</li> </ul>	
	<i>Teaching Assistant</i>	Aug. 2010 - Dec. 2010
	<ul style="list-style-type: none"> <li>Phys 101 and Phys 102 - Laboratory</li> </ul>	
	<b>The University of Texas at Austin</b>	
	Article: <i>Big Bang Vision: Exploring the Cosmic Microwave Background at Simons Observatory</i>	June 2025
	Article: <i>Simons Observatory blazes toward understanding our Universe's birth</i>	2024
	Article: <i>Postcards from the Field: First Light for a New High-Desert Telescope</i>	April 2024
PUBLIC ENGAGEMENT		

## University of California San Diego

*The Cosmos Show Co-Host*

**June 2021 - Dec. 2022**

- Co-Host of public engagement Youtube channel with biweekly live shows supported by Wyoming Stargazing.

*Astronomy on Tap San Diego Co-Lead*

**Aug. 2017 - April 2020**

*Comicon panel member, "Putting more science in your fiction"* **July 2017, 2018, 2019, 2020(Remote)**

- Invited by the STEM advocacy group "The League of Extraordinary Scientists and Engineers."

*San Diego Festival of Science and Engineering - Sponsored Booth*

**March 2017, 2018, 2019, 2020**

- Primary organizer for the physics department's booth.

*Skype a Scientist*

**Jan. 2017 - Jan. 2018**

*Fleet Science Center - #2Scientists*

**Sept. 2016 - Feb. 2020**

- Members of the public ask participating scientists a wide range of science questions.

*San Diego area public talks*

**Sept. 2016 - Jan. 2022**

- Occurred once per quarter on average.

*San Diego Astronomy Association*

**Sept. 2016 - Jan. 2022**

## University of Pennsylvania

*Department of Physics and Astronomy - Public Astronomy Nights*

**Sept. 2011 - May 2016**

*Philadelphia Science Festival - Science Carnival Sponsored Booth*

**May 2015, May 2016**

- Organized the Department of Physics and Astronomy's demonstration booth.