

# Emily Biermann

PHD CANDIDATE · ASTROPHYSICIST

Pittsburgh, PA

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## Education

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### University of Pittsburgh

PHD IN PHYSICS

**Thesis:** Exploring the Millimeter Transient Sky  
*Advised by Arthur Kosowsky*

Pittsburgh, PA

*In Progress*

### University of Pittsburgh

M.S. IN PHYSICS

Pittsburgh, PA

Aug. 2019 - Apr. 2022

### Stony Brook University

B.S. IN PHYSICS AND ASTRONOMY, *Magna Cum Laude*

**Thesis:** Composing an Answer Key for Weighing the Giant's Photometric Redshifts  
*Advised by Anja von der Linden*

Stony Brook, NY

Sep. 2015 - May. 2019

## Research History

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### Blind search for millimeter transients in ACT data

ADVISOR: ARTHUR KOSOWSKY

University of Pittsburgh

Jan. 2020 - Present

### Photometric redshift calibration for weak lensing cluster catalogs

ADVISOR: ANJA VON DER LINDEN, PAID INTERNSHIP SUMMER 2019

Stony Brook University

Jan. 2019 - July 2019

### Simulation of lepton-flavor violation events

ADVISOR: ERNST SICHTERMANN, PAID INTERNSHIP

Lawrence Berkeley National Labs

May. 2018 - July 2018

### IceCube: Flasher data calibration

ADVISOR: JOANNA KIRYLUK

Stony Brook, NY

Dec. 2016 - Dec. 2018

## Honors & Awards

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2023	<b>Fellowship Recipient</b> , PIT PACC Fall Term Fellowship	University of Pittsburgh
2021	<b>Honorable Mention</b> , NSF Graduate Research Fellowships Program	University of Pittsburgh
2020	<b>Fellowship Recipient</b> , Dietrich School of Arts and Sciences Summer Fellowship	University of Pittsburgh
2019	<b>Fellowship Recipient</b> , Elizabeth U. Baranger Predoctoral First Year Fellowship	University of Pittsburgh
2019	<b>Departmental Honors</b> , Dept. of Physics	Stony Brook University
2019	<b>Departmental Honors</b> , Dept. of Astronomy	Stony Brook University
2018	<b>Membership</b> , Sigma Pi Sigma National Physics Honor Society	Stony Brook University
2015	<b>Award Recipient</b> , Undergraduate Provost's Scholarship (\$40, 000)	Stony Brook University

## Talks and Presentations

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Jan 2024	<b>The Millimeter Transient Sky: CMB surveys as astrophysical transient detectors</b> , Transients Down Under, Swinburne Institute of Technology, Melbourne AUS	<i>contributed</i>
June 2023	<b>The Millimeter Transient Sky: CMB surveys as astrophysical transient detectors</b> , Department Seminar, The University of Chicago	<b><i>invited</i></b>
June 2023	<b>The Millimeter Transient Sky: CMB surveys as astrophysical transient detectors</b> , The Transient and Variable Universe, NCSA at the University of Illinois Urbana-Champaign	<i>contributed</i>
June 2023	<b>A Blind Search for Transients in ACT Data</b> , The Transient Universe Summer School, IESC Cargèse	<i>student talk</i>
May 2023	<b>Numpy III</b> , Python Bootcamp	<i>presenter</i>
Mar 2023	<b>A Blind Transient Search in ACT Data</b> , Galaxy Lunch Seminar at Cornell University, Dept. of Astronomy	<b><i>invited</i></b>
Jan 2023	<b>ACT Systematic Transient Search</b> , AAS 241 Winter Meeting	<i>contributed</i>
July 2022	<b>Transients in ACT Data</b> , CMB-S4 Transients and Sources Workshop	<b><i>invited</i></b>
May 2022	<b>Numpy I</b> , Python Bootcamp	<i>presenter</i>
April 2022	<b>Transients in ACT Data</b> , April APS Meeting	<i>contributed</i>
April 2019	<b>Composing and Answer Key for Weighing the Giants' Photometric Redshifts</b> , Astronomy Undergraduate Research Showcasing, Stony Brook University	<i>presenter</i>
April 2019	<b>Electron Ion Collider Simulated Detection of Lepton Flavor Violation via Displaced Tau Vertex</b> , URECA Undergraduate Research Symposium, Stony Brook University	<i>poster</i>
April 2018	<b>IceCube Flasher Data Reconstruction</b> , URECA Undergraduate Research Symposium, Stony Brook University	<i>poster</i>

## Teaching Experience

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### PHYS 0110: Introduction to Physics 1

RECITATION TA, UNDERGRADUATE COURSE

University of Pittsburgh  
Fall 2020, Spring 2021, Summer 2021,  
Fall 2021, Spring 2023

### PHYS 0111: Introduction to Physics 2

RECITATION TA, UNDERGRADUATE COURSE

University of Pittsburgh  
Summer 2021, Spring 2023

## Leadership and Service

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### AstroSnacks

ORGANIZER OF A WEEKLY STUDENT LED PRESENTATION PRACTICE GROUP

University of Pittsburgh, PA  
Sep. 2023 - PRESENT

### Ultra-VioLets

MODERATOR & FOUNDING MEMBER OF DEPARTMENT LGBTQ+ AFFINITY GROUP

University of Pittsburgh, PA  
Jun. 2020 - PRESENT

### Atacama Cosmology Telescope

REMOTE OBSERVER

ACT Collaboration  
Sep. 2021 - Feb. 2022

### Dept. of Physics and Astronomy Equity and Inclusion Committee

COMMITTEE MEMBER

University of Pittsburgh, PA  
Jun. 2020 - Dec. 2022

## Community Engagement

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Nov 2023	<b>Fourth Grade Classroom Visit</b> , How Do We See The Universe?	Swampscott Public
June 2022	<b>Astronomy on Tap: Pittsburgh</b> , Say Cheese! Capturing Our Galaxy's Camera-Shy Black Hole	Two Freys Brewing
June 2022	<b>Allegheny Health Network Burn Camp</b> , Guest Instructor	Camp Kon-O-Kwee
June 2017	<b>World Science Festival Ultimate Science Sunday</b> , IceCube Representative/Poster Presenter	New York City
March 2017	<b>IceCube Masterclass: Connecting Students and Researchers Through IceCube</b> , Facilitator	Stony Brook University

## Workshops and Schools

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August 2023	<b>Single Dish Summer School and GBT Training</b> , Green Bank Observatory	Green Bank, WV
June 2023	<b>The Transient Universe Summer School</b> , Institut d'Etudes Scientifiques	Cargèse, FR
August 2022	<b>Advancing Graduate Leadership</b> , American Physical Society	Washington DC

## Publications: Lead Author

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- 2024 **Biermann, E., Li, Y., Naess, S., et al.** 2024, *The Atacama Cosmology Telescope: Systematic Transient Search of Single Scan Maps* *in prep*
- 2023 **Li, Y., Biermann, E., Naess, S., et al.** 2023, *The Atacama Cosmology Telescope: Systematic transient search of 3 day maps. The Astrophysical Journal*, 956, 36, 10.3847/1538-4357/ace599 *published*

## Publications: Contributor

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- 2023 **Coulton, W. R., Madhavacheril, M. S., Duivenvoorden, A. J., et al.** 2023, *The Atacama Cosmology Telescope: High-resolution component-separated maps across one-third of the sky. 2307.01258* *submitted*
- 2023 **Orlowski-Scherer, J., Venterea, R., Battaglia, N., et al.** 2023, *The Atacama Cosmology Telescope: Millimeter Observations of a Population of Asteroids or: ACTeroids. 2306.05468* *submitted*
- 2023 **Madhavacheril, M. S., Qu, F. J., Sherwin, B. D., et al.** 2023, *The Atacama Cosmology Telescope: DR6 Gravitational Lensing Map and Cosmological Parameters. 2304.05203* *submitted*
- 2023 **Qu, F. J., Sherwin, B. D., Madhavacheril, M. S., et al.** 2023, *The Atacama Cosmology Telescope: A Measurement of the DR6 CMB Lensing Power Spectrum and its Implications for Structure Growth. 2304.05202* *submitted*