

Anna C. Baum, PhD

Curriculum Vitae

Department of Physics
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EDUCATION

Lehigh University

PhD	Physics— <i>advisor: Joshua Pepper</i>	May 2025
	<i>Dissertation: The Asteroseismology of Evolved Solar-Like Oscillators in Eclipsing Binaries</i>	
MS	Physics	May 2022

Penn State University

BS	Astronomy & Astrophysics— <i>advisor: Jason Wright</i>	May 2020
Minors	Physics, English	

RESEARCH POSITIONS

Graduate Research Assistant , Lehigh University	Jun 2021–May 2025
<i>Advisors: Joshua Pepper, Kelly Hambleton</i>	

Undergraduate Researcher , Penn State University	2018–2020
<i>Advisor: Jason Wright</i>	

Eberly College of Science Summer Undergraduate Research Program	Summer 2018
<i>Advisor: Fabienne Bastien</i>	

TEACHING POSITIONS

Visiting Assistant Teaching Professor , Widener University	Fall 2025—present
<ul style="list-style-type: none">Physics I Lecture/Recitation/Lab, Physics II Lab	

Teaching Assistant , Lehigh University	
<ul style="list-style-type: none">Introductory Physics Recitation InstructorIntroductory Physics Lab	Fall 2021, Spring 2024—Spring 2025 Fall 2020, Spring 2021

PUBLICATIONS

First Author

- “Eclipse Depth Variations in Seven Eclipsing Binaries as Observed by KELT and TESS”
Anna C. Baum, Joshua Pepper, James R.A. Davenport, Steve B. Howell, (submitted, *AJ*).
- “Five Decades of Chromospheric Activity in 59 Sun-like Stars and New Maunder Minimum Candidate HD 166620”
Anna C. Baum, Jason T. Wright, Jacob K. Luhn, and Howard Isaacson, 2022, *AJ* 163, 183.

First Author In Prep.

- “A Search for Evolved Solar-like Oscillators in Eclipsing Binaries Observed by TESS”
Anna C. Baum, Joshua Pepper, Kelly Hambleton, (in prep).

Co-author

1. “HD 166620: Portrait of a Star Entering a Grand Magnetic Minimum”
Jacob K. Luhn, Jason T. Wright, Gregory W. Henry, Steven H. Saar, **Anna C. Baum**, 2022, *ApJL* 936, 2.

INVITED TALKS

“Towards Precise Stellar Parameters: Asteroseismology of Red Giants in Eclipsing Binary Stars”

- **Invited Colloquium:** Villanova University, *Philadelphia, PA* Apr 2024

“Five Decades of Chromospheric Activity in Sun-like Stars and the Discovery of New Maunder Minimum Star HD 166620”

- **Invited Seminar:** Penn State University, *State College, PA* Dec 2023
- **Invited Seminar:** Carnegie Earth and Planets Laboratory, *Washington, D.C.* Apr 2023

“Discovering the First Sun-like Star to Enter a Maunder Minimum”

- **Guest Lecture:** Energy Systems Engineering 405, *Lehigh University* Jun 2022

CONFERENCE TALKS

“The Asteroseismology of Evolved Solar-like Oscillators in Eclipsing Binaries”

- 245th American Astronomical Society Meeting, *National Harbor, MD* Jan 2025

POSTER PRESENTATIONS

“Towards Precise Stellar Parameters: Asteroseismology of Red Giants in Eclipsing Binaries”

- Anna C. Baum**, Joshua Pepper, Kelly Hambleton
- TASC8/KASC15, *Porto, Portugal* Jul 2024

“The Effects of Shifting Timestamps to Fill Gaps in Light Curves on the Resulting Power Spectra of Solar-like Oscillators”

- Anna C. Baum**, Joshua Pepper, Kelly Hambleton
- 243rd American Astronomical Society Meeting, *New Orleans, LA* Jan 2024

“A Search for Pulsating Red Giants In Eclipsing Binaries”

- Anna C. Baum**, Joshua Pepper, Kelly Hambleton
- TASC7/KASC14, *Honolulu, HI* Jul 2023

“Changing Inclination Eclipsing Binary Systems Observed with KELT”

- Anna C. Baum**, Joshua Pepper, James R. A. Davenport
- 240th American Astronomical Society Meeting, *Pasadena, CA* Jun 2022
[Chambliss Competition Honorable Mention]
 - Graduate Research Exhibition, *Lehigh University* Sept 2021

“Five Decades of Chromospheric Activity in 185 Sunlike Stars”

- Anna C. Baum**, Jason T. Wright, Jacob K. Luhn
- 235th American Astronomical Society Meeting, *Honolulu, HI* Jan 2020

“The Classification and Characterization of Stellar Activity”

- Anna C. Baum**, Fabienne Bastien, Jason T. Wright, Jacob K. Luhn

- Penn State Undergraduate Research Exposition, *Penn State University* 2018, 2019
- Benefactor & Distinguished Faculty Recognition Poster Session, *Penn State University* 2018

PUBLIC TALKS & OUTREACH

- “The Total Solar Eclipse”
- Guest Talk: Allentown Building 21 School Assembly, *online* Apr 2024
- “Science Under the Stars”
- Volunteer: Da Vinci Science Center, *Allentown, PA* Oct 2023
- “Chromospheric Activity in Sun-Like Stars and the Mystery of the Maunder Minimum”
- Guest Talk: Lehigh Valley Amateur Astronomical Society, *Allentown, PA* Apr 2023
- “JWST: Unfolding the Secrets of the Universe”
- Public Talk: Parkland Community Library, *Allentown, PA* Jan 2023

SCHOLARSHIPS

- College of Arts and Sciences Dean’s Research Fellowship, *Lehigh University* Fall 2023
- Homer Braddock Eberly College of Science Scholarship, *Penn State University* 2016–2020
- Provost Award, *Penn State University* 2016–2020

AWARDS & HONORS

- Poster Honorable Mention, Chambliss Astronomy Achievement Student Award Jun 2022
- 240th American Astronomical Society Meeting
- Penn State University Dean’s List 5 semesters

PROFESSIONAL WORKSHOPS

- Teaching Assistant Workshop, *Lehigh University, Bethlehem, PA*
- Attended five sessions to improve teaching techniques and establish best practices for instruction and student interactions Fall 2024
- Porto Summer School for Asteroseismology, *Vila do Conde, Portugal* Jul 2024
- Attended one week of seminars and tutorials detailing asteroseismology theory and applications for analysis
- PHOEBE Workshop, *Villanova University, Philadelphia, PA* Jun 2022
- Learned advanced modeling and analysis using PHOEBE software
- AAS Ambassadors Workshop, *online* Feb–Mar 2022
- Developed public outreach and communication skills

PROFESSIONAL MEMBERSHIPS & SERVICE

- American Astronomical Society (AAS) Member 2019– present
- TESS Asteroseismic Science Consortium (TASC) Member 2022– present
- AAS Astronomy Ambassador 2022– present
- Facilitator of public outreach in astronomy and science

NASA ADAP Panel Executive Secretary

Aug 2023

- Took detailed notes for proposal review panel

A-7, Penn State THON Organization

2016-2020

Elected President 2019-2020, Public Relations Chair 2017-2019

- Ran philanthropic organization supporting families with pediatric cancer