

# Anna C. Baum, PhD

## Curriculum Vitae

242 E Walnut St.  
Bethlehem, PA 18018  
United States

Email: [acbaum98@gmail.com](mailto:acbaum98@gmail.com)  
ORCID: 0000-0002-9021-9780  
Website: [wordpress.lehigh.edu/acb220/](https://wordpress.lehigh.edu/acb220/)

## EDUCATION

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### Lehigh University

PhD	Physics— <i>advisor: Joshua Pepper</i>	May 2025
MS	Physics	May 2022

### Penn State University

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

## RESEARCH POSITIONS

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

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

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

## TEACHING POSITIONS

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### Teaching Assistant, Lehigh University

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| <ul style="list-style-type: none"><li>• Introductory Physics Recitation Instructor</li><li>• Introductory Physics Lab</li></ul> | Fall 2021, Spring 2024, Fall 2024, Spring 2025<br>Fall 2020, Spring 2021 |
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## PUBLICATIONS

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### First Author

1. “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*).
2. “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.

1. “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

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“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
- **Guest Lecture:** Energy Systems Engineering 460, *Lehigh University* Mar 2025

## CONFERENCE TALKS

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

- 245<sup>th</sup> American Astronomical Society Meeting, *National Harbor, MD* Jan 2025

## POSTER PRESENTATIONS

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“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
- 243<sup>rd</sup> 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
- 240<sup>th</sup> 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
- 235<sup>th</sup> 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**

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“The Asteroseismology of Red Giants in Eclipsing Binary Stars”	
• Guest Seminar: Society of Physics Students, <i>New Jersey Institute of Technology</i>	Feb 2025
“The Total Solar Eclipse”	
• Guest Talk: Allentown Building 21 School Assembly, <i>online</i>	Apr 2024
“Science Under the Stars”	
• Volunteer: Da Vinci Science Center, <i>Allentown, PA</i>	Oct 2023
“Chromospheric Activity in Sun-Like Stars and the Mystery of the Maunder Minimum”	
• Guest Talk: Lehigh Valley Amateur Astronomical Society, <i>Allentown, PA</i>	Apr 2023
“JWST: Unfolding the Secrets of the Universe”	
• Public Talk: Parkland Community Library, <i>Allentown, PA</i>	Jan 2023

## **SCHOLARSHIPS**

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

## **AWARDS & HONORS**

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

## **PROFESSIONAL WORKSHOPS**

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Teaching Assistant Workshop, <i>Lehigh University, Bethlehem, PA</i>	
• Attended five sessions to improve teaching techniques and best practices	Fall 2024
Porto Summer School for Asteroseismology, <i>Vila do Conde, Portugal</i>	Jul 2024
• Week-long school on asteroseismology theory and analysis techniques	
PHOEBE Workshop, <i>Villanova University, Philadelphia, PA</i>	Jun 2022
• Learned advanced modeling and analysis using PHOEBE software	
AAS Ambassadors Workshop, <i>online</i>	Feb–Mar 2022
• Developed public outreach and communication skills	

## **PROFESSIONAL MEMBERSHIPS & SERVICE**

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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 grant proposal review panel	