

# CLAIRE ZWICKER

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## EDUCATION

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**University of Wisconsin - Madison**, Madison, WI Aug 2024 - May 2029

*College of Letters & Science*

Ph.D., Astronomy

GPA: 3.68/4.00

**Illinois Institute of Technology**, Chicago, IL Aug 2020 - Dec 2023

*Lewis College of Science*

Bachelor of Science in Astrophysics

Bachelor of Science in Physics

GPA: 3.76/4.00

**McHenry County College**, McHenry, IL Aug 2017 - May 2020

Associate in Engineering Science

GPA: 3.29/4.00

## RESEARCH EXPERIENCE

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**University of Wisconsin - Madison**, Madison, WI

*Graduate Researcher*

Aug 2024 - Present

*Advisor: Dr. Melinda Soares-Furtado*

- Project: “Stellar Rotation and Microturbulence as Key Predictors in a Young Stellar Population: Multivariate Regression Analysis in Upper Scorpius”
- Graduate Researcher with the Wisconsin Center for Origins Research (WiCOR), contributing to interdisciplinary research on the origins of life in the universe

**Northwestern University Center for Interdisciplinary Exploration and Research in Astrophysics**, Evanston, IL

*Research Experience for Undergraduates (REU)*

June 2022 - Aug 2025

*Advisor: Dr. Aaron M. Geller*

- Analyzed Gaia photometry data with a Bayesian statistics software to derive global star cluster parameters, identify binary stars, and calculate their mass ratios within an open cluster
- Investigated the radial distribution of stars within an open cluster, finding evidence of dynamical mass segregation between binary and single stars
- Visualized large data sets using Python to test hypotheses
- Assisted in the creation of Python code pipelines for data analysis
- Produced papers, posters and presentations at Northwestern REU, MODEST-23, AAS, CUWiP, & [website](#)

**PROSPECT Muon Analysis at Illinois Institute of Technology**, Chicago, IL

*Undergraduate Research*

Aug 2022 - May 2023

*Advisor: Dr. Bryce Littlejohn*

- Used ROOT, C++ and a high-performance computing cluster to analyze and investigate an anomaly present in the PROSPECT antineutrino detector data
- Identified muon-like events with unexplained high variations for follow-up investigation
- Concluded variations in signal correspond to previously unidentified data acquisition issues and an atmospheric attenuation of muons

**PROSPECT Decommissioning Studies at Illinois Institute of Technology**, Chicago, IL

*Undergraduate Research*

Jan 2022 - May 2022

*Advisor: Dr. Bryce Littlejohn*

- Characterized sources of unintended liquid scintillator ingress in reflective panels of the PROSPECT reactor based antineutrino detector
- Examined over 330 reflective panels and attributed liquid scintillator ingress to several different modes

- Based on findings, developed improved designs for the next-generation PROSPECT detector

## PEER-REVIEWED PUBLICATIONS

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1. **“Stellar Rotation and Microturbulence as Key Predictors in a Young Stellar Population: Multivariate Regression Analysis in Upper Scorpius”**  
*Claire Zwicker, Melinda Soares-Furtado, Jessi Cisewski Kehe, and Kendall Sullivan - In preparation*
2. **“Investigation of TOI 7032”**  
*Maxwell Kroft et al. (including Claire Zwicker) - In preparation*
3. **[“Investigating Mass Segregation of the Binary Stars in the Open Cluster NGC 6819”](#)**  
*Claire Zwicker, Aaron M. Geller, Anna C. Childs, Erin Motherway, and Ted von Hippel - Published in ApJ*
4. **[“Goodbye to Chi-by-Eye: A Bayesian Analysis of Photometric Binaries in Six Open Clusters”](#)**  
*Anna C. Childs, Aaron M. Geller, Ted von Hippel, Erin Motherway, and Claire Zwicker - Published in ApJ*
5. **[“Tracing the Origins of Mass Segregation in M35: Evidence for Primordially Segregated Binaries”](#)**  
*Erin Motherway, Aaron M. Geller, Anna C. Childs, Claire Zwicker, and Ted von Hippel - Published in ApJL*

## AWARDS & HONORS

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**[Summer Training in Astrobiology Research \(2025\)](#)**: Interdisciplinary research in astrobiology and origins of life  
**[NSF GREP Honorable Mention \(2024\)](#)**: For exceptional academic & research potential in the field of astronomy  
**[Illinois Space Grant Consortium Recipient \(2023\)](#)**: Undergraduate Research at Northwestern University  
**[Chambliss Honorable Mention for Research Poster](#)**: AAS 241st Meeting  
**[Conference for Undergraduate Women in Physics at Argonne](#)**: 3rd place in poster presentation  
**Lewis College of Science Undergraduate Research Day**: 1st place in poster presentation  
**Dean’s List**: Fall 2020 - Fall 2023

## CONFERENCES & PRESENTATIONS

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- **[Great Lakes Exoplanet Area Meeting](#)**, Madison, WI, 6-7 November 2025 (talk, SOC member)
- **[ELT Science in Light of JWST, Part II, Asia](#)**, Sendai, Japan, 3-7 June 2024
- **[RESCEU-NBIA Workshop on Gravitational-Wave Sources](#)**, Tokyo, Japan, 7-15 December 2023 (talk)
- **[MODEST-23](#)**, Evanston, IL, August 28 - September 1, 2023 (poster)
- **[Great Lakes Clusters & Streams Conference](#)**, Ann Arbor, MI, 21-24 August 2023 (poster)
- Illinois Space Grant End of Program Presentation, Chicago, IL, August 2023 (talk)
- **[Conference for Undergraduate Women in Physics at Argonne](#)**, Lemont, IL, 20-22 January 2023 (poster)
- **[American Astronomical Society 241st Meeting](#)**, Seattle, WA, 8–12 January 2023 (iPoster)
- PROSPECT Internal Group End of Semester Presentation, Chicago, IL, December 2022 (talk)
- CIERA REU End of Program Presentation, Evanston, IL, August 2022 (talk)
- **[Gaia DR3 Chicago Sprint Workshop](#)**, Chicago, IL, June 2022
- Lewis College of Science Undergraduate Research Day, Chicago, IL, April 2022 (poster)
- Illinois Tech Research Showcase, Chicago, IL, April 2022 (poster)

## TEACHING, OUTREACH, & PUBLIC ENGAGEMENT

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- Washburn Observatory Public Viewing Nights** Aug 2024 - Present
- Co-led public observing nights by setting up the observatory, assisting with operations, and facilitated astronomy discussions to engage visitors
- Journal Club** Aug 2024 - Present
- Organized and lead discussions of recent research papers with graduate students and faculty
- Online Tutoring with Varsity Tutors** Mar 2024 - Present
- Tutored physics, mathematics, and astronomy topics to individual high school and undergraduate students, providing personalized support and guidance within an online learning environment

**Expanding Your Horizons Conference**

Nov 2024

- Co-led and designed activities for young women and non-binary youth in middle school to support and encourage interest in astronomy, math, & science
- Completed training in lesson design and science communication for diverse audiences

**Graduate School Application Workshops**

Nov 2024

- Reviewed and provided mentorship on graduate school application essays for undergraduate students, offering feedback on structure, clarity, and content
- Conducted one-on-one sessions to help students prepare for graduate admission interviews

**Media Features**

- Featured in Illinois Tech News, [“Unraveling the Secrets Inside Our Universe” \(Apr 2024\)](#)
- Featured in CIERA / Northwestern News, [“REU Student Claire Zwicker Wins Chambliss Honorable Mention” \(Mar 2023\)](#)

**TECHNICAL SKILLS**

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Languages: Python, Tableau, C++, git, Bash, ROOT, LaTeX, C, CSS, HTML

Environments: VS Code, Jupyter Notebook, Github, Overleaf

High Performance Computing Clusters: Quest (Northwestern), Vejur (IIT)