DANIEL BABNIGG

email babnigg@uchicago.edu | **phone** 708-704-8519 | **GitHub** github.com/babnigg

5500 S University Ave, Room 1185, Chicago, IL, 60637

EDUCATION

The University of Chicago — Chicago, IL

Bachelor of Science — *Expected 2025*

Prospective Astronomy and Astrophysics (B.S., Honors) & Physics (B.A.) Majors; Data Science Minor

Lyons Township High School — La Grange, IL

Diploma — *June 2021*

Honors

National Cyber Scholarship Foundation Cybersecurity Scholarship (2021), LTHS Boosters Leadership Awards (2021), Outstanding Student in Mathematics Award (2021), National AP Scholar (2020)

RESEARCH EXPERIENCE

The University of Chicago Department of Astronomy and Astrophysics — Chicago, IL

COOL-LAMPS Collaboration Research Assistant — *January 2024 – present*

- creating a pipeline using Python code for the Integral Field Units for Magellan (IFUM) instrument
- developed a Python wrapper for GALFIT, connecting SAOImageDS9 and GALFIT through a text-based user interface to streamline single-band photometric model construction, propagation, and visualization
- contributed to strong gravitational lenses candidate selection from DECaLS optical survey, assisted in optical imaging and spectroscopic observations using the Magellan Telescopes in-person (March 2024)
- learned photometric and uncertainty analysis tools for distant strong gravitational lenses, from photometric modelling using GALFIT to Spectral Energy Distribution fitting using Prospector

The University of Chicago Department of Astronomy and Astrophysics — Chicago, IL

Glass Plates Research Assistant — *June 2022 – present*

- assist in the ongoing process of digitizing and providing access to historic materials from Yerkes Observatory, including photographic and spectra glass plates, for scientific and historic research
- use scientific tools and programming like SAOImageDS9 and Python to perform quality and statistical inspections, examine or create astrometric, photometric, and/or wavelength calibrated FITS files, and utilize public databases (Gaia, SDSS, etc.) to compare or refine produced catalogs from the glass plates
- collaborate with scholars from diverse fields to develop the scientific and historical legacy of Yerkes

PUBLICATIONS

Escapa, I., **Babnigg, D.**, et. al. *Digitization and Evaluation of Spectrograms from ε Aurigae's 1928-1930 Eclipse.* Submitted to PASP in August 2024.

Babnigg, D. & Gladders, M. *Analysis of IFU Observations of Extremely Strongly Lensed Galaxies.* In prep.

Babnigg, D., Do, H., et. al. *Quasar Variability Over a Century*. In prep.

CONTRIBUTED PRESENTATIONS and TALKS

UChicago Physical Sciences Division Student Panel at the College Parents Council Retreat Chicago, IL
Panelist October 2024

244th Meeting of the American Astronomical Society Madison, WI
iPoster Session Presentation June 2024
Edwin Hubble's Doctoral Thesis: Using OCHRE to Associate Interdisciplinary Materials

UChicago Undergraduate Research Symposium Chicago, IL
Poster Session Presentation April 2024
Edwin Hubble's Doctoral Thesis: Making the Interdisciplinary Materials Accessible Using OCHRE

Capturing the Stars: The Untold History of Women at Yerkes Observatory Exhibition Chicago, IL
Exhibition Piece & Digital Case September – December 2023
Telescope, constructed according to instructions written by Vera M. Gushee (1916)
& Epsilon Aurigae: A Case Study of Spectroscopic Work

Alliance of Historic Observatories Meeting at Yerkes Observatory Williams Bay, WI
Conference Session Presentation October 2023
A New Look at an Old Enigma: epsilon Aurigae

Biennial History of Astronomy Workshops University of Notre Dame Notre Dame, IN
Panel Session Presentation June 2023
Digitization and Analysis of a Yerkes Observatory Spectroscopic Glass Plate

History of Science Society Annual Meeting Chicago, IL
Poster Session Presentation November 2022
Capturing the Stars: Early 20th Century Astronomical Photography and the Material Legacy of Yerkes Observatory

OTHER EXPERIENCE

The University of Chicago Housing & Residence Life Chicago, IL
Resident Assistant *2022-23, 2023-24, 2024-25 academic years*
& Senior Resident Assistant *2024-25 academic year*
- develop house community and provide study break activities and events in a university dormitory for undergraduate students, supporting students as an student counselor for academic and personal matters
- assist in dealing with emergency issues and concerns, along with mediating conflicts among students
- encourage and guide other resident assistant staff in building as senior resident assistant

PERSONAL INFORMATION

Languages: English (native), German (conversational)

Computer: advanced Python coding knowledge, experience with SQL, LaTeX, Java, and C. experienced with Windows and Ubuntu OS.