Katherine (Katya) Gozman

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EDUCATION

University of Michigan, Ann Arbor, MI
Ph.D. Candidate in Astronomy and Astrophysics — June 2022 – present
M.Sc. in Astronomy and Astrophysics — June 2022
GPA: 4.0/4.0

University of Chicago, Chicago, IL
B.S. in Astrophysics, *Magna Cum Laude* — June 2020
GPA: Cumulative: 3.9/4.0, Major: 3.9/4.0

RESEARCH EXPERIENCE

University of Michigan, Ann Arbor, MI

Advisor: Eric Bell — 2020-present

Measuring the kinematics of NGC 253's stellar halo: Obtained and analyzed multi-object, fiber-fed spectroscopic data of resolved stars in NGC 253's stellar halo with Magellan/M2FS. Implemented sky-subtraction methods and kinematic fitting using python and pPXF to measure the velocity of the halo.

Finding and characterizing ultra-faint dwarf galaxies in the Local Volume: Analyzed resolved star data from an HST Snapshot survey to characterize four faint dwarfs around the M81 group, including their structural parameters and luminosities using MCMC fitting.

Characterizing M94's stellar halo: Used resolved stellar population data from the Subaru Hyper Suprime-Cam to characterize the properties of spiral galaxy M94's stellar halo, including finding its mass and metallicity and inferring its merger history.

University of Chicago, Chicago, IL

Advisor: Michael Gladders — 2018-2020

COOL-LAMPS: ChicagO Optically-selected strong Lenses - Located At the Margins of Public Surveys: Worked in a collaboration of faculty, students, and staff at various institutions characterizing strong gravitationally lensed galaxies and quasars across a range of redshifts. Looked through ground-based imaging surveys for potential lensing candidates and completed follow-up with imaging and spectroscopy from various observatories including HST, Magellan, and Gemini.

Photometric data from morphological models of strongly lensed galaxies: Created detailed morphological models of two bright lensed galaxies with HST imaging using GALFIT to derive photometric data and used Stellar Population Synthesis (SPS) Modelling and Spectral Energy Distribution (SED) fitting in a Markov Chain Monte Carlo (MCMC) framework to derive stellar masses of the galaxies.

Advisor: Brian Nord — 2019-2020

Fast Inference for strong gravitational lenses: Worked on creating an optimal model-architecture-hardware pipeline that balances the tradeoff between accuracy and efficiency using neural networks for fast inference of strong gravitational lenses in images using Python.

Advisor: Daniel Fabrycky — 2017-2018

Alpha Centauri flybys and habitability of exoplanets: Modeled the effect fly-by stars had on the Alpha Centauri star system using Python and investigated the effect Proxima Centauri's orbit has on the stability of the binary and any potential planetary systems, as well as effects that fly-by stars have on the system.

PUBLICATIONS

Refereed:

First Author or Major Contributions:

[1] **Gozman K.**, Bell E. F., Mateo M., et al. (in prep), *She Sees Shells by the Stellar Shore: A Kinematic View of NGC 253's Stellar Halo*

[2] Arias J. M., Bell E. F., **Gozman K.**, et al. (2025), *Andromeda XXXV: The Faintest Dwarf Satellite of the Andromeda Galaxy*, ApJL, 982, L3. http://doi.org/10.3847/2041-8213/adb433

[3] **Gozman K.**, Bell E. F., Jang I. S., et al. (2024), *Exploring the Diversity of Faint Satellites in the M81 Group*, ApJ, 977, 179. http://doi.org/10.3847/1538-4357/ad8c3a

[4] **Gozman K.**, Bell E. F., Smercina A., et al. (2023), *Saying Hallo to M94's Stellar Halo: Investigating the Accretion History of the Largest Pseudobulge Host in the Local Universe*, ApJ, 947, 21. http://doi.org/10.3847/1538-4357/acbe3a

[5] Khullar G., **Gozman K.**, Lin J. J., et al. (2021), *COOL-LAMPS. I. An Extraordinarily Bright Lensed Galaxy at Redshift 5.04*, ApJ, 906, 107. http://doi.org/10.3847/1538-4357/abcb86

Nth Author:

[1] Cloonan A. P., Khullar G., Napier K. A., et al. (2025), *COOL-LAMPS. VIII. Known Wide-separation Lensed Quasars and Their Host Galaxies Reveal a Lack of Evolution in $M_{BH}/M_{\star}$ since z~3,* ApJ, 987, 194. http://doi.org/10.3847/1538-4357/addabf

[2] Mork S. D., Gladders M. D., Khullar G., et al. (2025), *COOL-LAMPS. VII. Quantifying Strong-lens Scaling Relations with 177 Cluster-scale Strong Gravitational Lenses in DECaLS*, ApJ, 979, 184. http://doi.org/10.3847/1538-4357/ada24c

[3] Velguth B. N., Bell E. F., Smercina A., et al. (2024), *A Timeline of the M81 Group: Properties of the Extended Structures of M82 and NGC 3077*, ApJ, 974, 189. http://doi.org/10.3847/1538-4357/ad6cd8

[4] Klein M., Sharon K., Napier K., et al. (2024), *COOL-LAMPS. VI. Lens Model and New Constraints on the Properties of COOL J1241+2219, a Bright z = 5 Lyman Break Galaxy and its z = 1 Cluster Lens*, ApJ, 963, 44. http://doi.org/10.3847/1538-4357/ad22de

[5] Zhang Y., Manwadkar V., Gladders M. D., et al. (2023), *COOL-LAMPS. IV. A Sample of Bright Strongly Lensed Galaxies at 3 < z < 4*, ApJ, 950, 58. http://doi.org/10.3847/1538-4357/acc9be

[6] Smercina A., Bell E. F., Price P. A., et al. (2023), *Origins of the Evil Eye: M64's Stellar Halo Reveals the Recent Accretion of an SMC-mass Satellite*, ApJL, 949, L37. http://doi.org/10.3847/2041-8213/acd5d1

[7] Martinez M. N., Napier K. A., Cloonan A. P., et al. (2023), *COOL-LAMPS. III. Discovery of a 25."9 Separation Quasar Lensed by a Merging Galaxy Cluster*, ApJ, 946, 63. http://doi.org/10.3847/1538-4357/acbe39

[8] Sukay E., Khullar G., Gladders M. D., et al. (2022), *COOL-LAMPS. II. Characterizing the Size and Star Formation History of a Bright Strongly Lensed Early-type Galaxy at Redshift 1.02*, ApJ, 940, 42. http://doi.org/10.3847/1538-4357/ac9974

[9] Bell E. F., Smercina A., Price P. A., et al. (2022), *Ultrafaint Dwarf Galaxy Candidates in the M81 Group: Signatures of Group Accretion*, ApJL, 937, L3. http://doi.org/10.3847/2041-8213/ac8e5e

[10] Florian M. K., Rigby J. R., Acharyya A., et al. (2021), *Spatial Variation in Strong Line Ratios and Physical Conditions in Two Strongly Lensed Galaxies at z~1.4*, ApJ, 916, 50. http://doi.org/10.3847/1538-4357/ac0257

General Public:

[1] **Gozman, K.** (2023, October 25). *Astronomers find stars cast away from Galactic Neighbors*. Sky & Telescope. https://skyandtelescope.org/astronomy-news/astronomers-find-stars-cast-away-from-galactic-neighbors/

[2] >20 Astrobites posts, including daily summaries, interviews, live-blogging, and reviews, with 3 bites reposted on AAS Nova. https://astrobites.org/author/kgozman/

WORK and TEACHING EXPERIENCE

University of Michigan, Ann Arbor, MI

Detroit Observatory Student Docent 2022-present

(Lead Docent since 2024)

Lead tours of the historic building as well as observing with our 1857 Fitz refracting telescope during public Astronomy Nights, give outreach talks on various astronomy-related topics, supervise tours or observing experiences for group visits, process images taken through the Fitz telescope with a CMOS camera, help with events and operations including managing the front desk and giving visitor support.

Teaching Assistant, "Astronomical Techniques" Winter 2025

Graded lab reports, supervised 4-hour python and data analysis labs on introductory photometric and spectroscopic techniques in astronomy, held 3 office hours per week.

University of Michigan Museum of Natural History Planetarium Operator 2022

Wrote and presented a planetarium show using Digistar software focusing on finding your bearings in the night sky, the Winter Circle constellations, planets currently in the sky, exoplanets and sonification of radial velocity exoplanet data.

Teaching Assistant, "Ground-Based Observatories" May 2023
Full appointment for month-long immersive class that resides on Kitt Peak. Responsible for supervising 5 observing nights on the MDM 1.3m telescope, presenting 4 lectures, supervising and assisting with research projects, helping with grading, helping chaperone and drive student for tours and off-site visits, supervising kitchen duties, helping manage general logistics and safety.

Teaching Assistant, "Introduction to Astrophysics" Winter 2021, Fall 2022
Graded homework and exams, supervised labs on various introductory astronomy topics, held 3 office hours per week.

Yerkes Observatory, Williams Bay, WI

Innovators Developing Accessible Tools in Astronomy (IDATA) Undergraduate Mentor 2017-2019
Developed hands-on and accessible activities and educational content for learning modules, including instructional videos, on asteroid astronomy. Collaborated with research, evaluation, and design teams on education research and the user-centered design (UCD) process for ~20 high school classrooms participating in a project to develop an astronomical image processing software accessible to the blind and visually impaired.

Intern Supervisor Jun-Aug 2018
Supervised 15 high school and undergraduate students during a summer internship at Yerkes: planned and executed intern orientation week, taught about basic observing skills, public interpretation and accessibility in astronomy, organized interns for all public events and star parties, was responsible for logistics and weekly meetings.

Telescope Operator and Tour Guide Jun-Sep 2018
Certified operator of the Yerkes 40-inch refracting telescope. Assisted during daily nighttime public viewings with set-up, operations, and narration. Responsible for specifically scheduling, planning, and executing nine special evening viewings with the 40-inch refractor in September.

University of Chicago, Chicago, IL

Teaching Assistant, "Stars" and "Black Holes" Jun-Jul 2020
Assisted in two accelerated introductory summer courses on stellar structure and compact objects. Graded homework, wrote solutions to the problem sets, supervised and answered questions during class, taught by Prof. Fausto Cattaneo

Teaching Assistant, "The Physics of Stars" Jan-Mar 2020
Assisted in major-level class on stellar structure. Graded homework, ran lab sessions, wrote solutions to the problem sets, supervised and answered questions during lab, taught by Prof. Robert Rosner

Teaching Assistant, "Physics of Stars: An Introduction" Jun-Jul 2019
Assisted in a 24-person high-school level class administered through the University of Chicago Summer Session. Graded homework and lab work, wrote solutions to the problem sets, supervised and answered questions during lab, and gave a lecture on the history of women in stellar spectroscopy

Grader, "The Milky Way" Apr-Jun 2019
Graded problem sets and exams for an introductory general course on the Milky Way, taught by Prof. Nickolay Gnedin

POSTERS, TALKS, and CONFERENCES

Invited Talk, Johns Hopkins University and STScI ISM* Journal Club	Oct 2025
Invited Talk, Johns Hopkins University and STScI Galaxies and AGN Seminar and Journal Club	Oct 2025
Poster, IAU Symposium 403 "The Hidden Beauty of the Galactic Outskirts"	Oct 2025
Code/Astro Workshop Attendee	Aug 2025
Poster & Flash Talks, Galactic Frontiers II: Dwarf Galaxies in the Local Volume and Beyond	Jun 2025
Seminar, Universidad de Chile	Jun 2025
Seminar, Pontificia Universidad Católica de Chile	Jun 2025
Seminar, European Southern Observatory	Jun 2025
Poster & Flash Talk, Dwarf Galaxies, Star Clusters, and Streams in the LSST Era	Jul 2024
8 public talks at the Detroit Observatory on various astronomy-related topics	2022-2024
Seminar, Universidad de La Serena, Chile	Sep 2023

Webinar, iTelescope	Feb 2023
Invited Talk, University of Connecticut Astronomy Seminar	Oct 2022
Poster, AAS 240	Jun 2022
Invited Press Conference, AAS 240	Jun 2022
Invited Public Talk, Chicago Astronomical Society	Feb 2020
Poster, AAS 235	Jan 2020
Conference Talk, SciAccess Conference	Jun 2019
Poster, AAS 233	Jan 2019

SERVICE and OBSERVING

Service:

UM Astronomy Admissions Committee Member	2025
UM Astronomy Prospective Student Weekend Coordinator	2024, 2026
University of Michigan Internal Magellan TAC Member	2023A, B Semesters

Observing Experience:

Blanco/DECam, ½ night, remote	2025A
Magellan/FOURSTAR, ½ night, remote	2025A
Magellan/FIRE, 1 night, remote	2025A
Magellan/MagE, 2 nights, remote	2025A
Magellan Service Observing run w/ M2FS and IFUM, 21 nights, in-person	Sep 2022, 2023, 2024
MDM Observatory, 4 nights, in-person	2023
Magellan/LDSS3/PISCO/IMACS/FOURSTAR/FIRE, 6 nights, remote	2020-2021
Stone Edge Observatory, imaging, >50 nights, remote	2019-21

ACCEPTED OBSERVING PROPOSALS

JWST #8277 NIRCam/Imaging & NIRISS/Imaging (Co-I, 73.9 primary/34.2 parallel hours)	Cycle 4
HST #17797 (Co-I, SNAP 106 orbits)	Cycle 32
Magellan/M2FS (PI, total 4 nights)	2023B, 2024B
Gemini Exchange w/ HSC (Co-I, 7 hours)	2023A
JWST #2566 (Co-I, 20.3 hours)	Cycle 1
HST #16444 (Co-I, GO, 3 orbits)	Cycle 28
Gemini GNIRS (Co-I, DDT, 1.9 hours)	2020A

OUTREACH and ACTIVITIES

University of Michigan, Michigan, MI

Ann Arbor Astronomy on Tap Organizer Fall 2025-present

Along with other UM Astronomy students, restarted the Ann Arbor chapter of Astronomy on Tap. Organized event logistics, reached out to and coordinated with speakers, helped with the setup and running of the actual show.

Saturday Morning Physics Presenter March 2025

Alongside other UM Physics and Astronomy students created a show for the general public centered around waves and vibrations. Co-presented a segment on sound spectrograms and created and led a hands-on activity about the sound spectra of bird calls.

Astronomía en Español Hispanic Heritage Month Event Planner Fall 2024, 2025

Coordinate events at the Detroit Observatory during Hispanic Heritage Month to emphasize Latin American contributions to astronomy. Helped design advertising and posters highlighting Latina women in astronomy, organized talks and events logistics, gave a Spanish-language tour of the observatory.

Interactive Local Volume Database 2024

Created an interactive web app using Streamlit that allows users to build intuition about physical properties of local dwarf galaxies and globular clusters using data from Andrew Pace's Local Volume Database on Github.

Letters to a Pre-Scientist Writer 2023-24, 2025-26

Matched with middle schoolers to exchange 4 hand-written letters sharing my experiences as a scientist and encouraging them in their STEM pursuits.

National Association of Science Writers (NASW) David Perlman Virtual Mentoring Program Mentee Summer 2023
Worked with an established science writer to pitch, write, and conduct interviews for a science news article on a recent paper. Accepted for publication in Sky & Telescope magazine.

Astrobites 2021-present
Author, Website Chair ('21-22), AAS Chair ('22-23), Scheduling ('23-25), Undergrad Chair ('23-24), Admin ('24-25)

Geneva Lake Astrophysics and Steam, Williams Bay, WI

Volunteer 2018-present
Assist in public programs, livestreams, and star parties, create marketing + media materials
Stone Edge All-Sky Survey (SEAS) 2020-2021
Mentored students from Western Africa in astronomy, observing, and data reduction

University of Chicago, Chicago, IL

Society of Women in Physics (SWIP)
Co-President 2019-2020
Outreach Coordinator 2018-2019
Ryerson Astronomical Society
Outreach Coordinator 2019-2020
UChicago Science Olympiad
Logistics Coordinator 2016-2017

MEDIA COVERAGE

Life and Death in Nearby Galaxies (https://skyandtelescope.org/astronomy-news/galaxies-life-death/) 2022
The Quiet Life of M94 (https://news.umich.edu/the-quiet-life-of-messier-94/) 2022
The Stone Edge All-Sky Survey — Addressing Undergraduate Research Experiences During the Pandemic (https://aas.org/posts/news/2021/04/stone-edge-all-sky-survey-addressing-undergraduate-research-experiences-during) 2021

SKILLS

Computer: Python, LaTeX, SAOImage DS9, Github, Microsoft Office, Adobe Illustrator, Wordpress, Tableau, Flourish, Streamlit
Language: Russian (Heritage Speaker), Spanish (working proficiency)

HONORS, GRANTS, and AWARDS

Rackham Conference Travel Grant 2024, 2025
NSF Graduate Research Fellowship Program Honorable Mention 2021
Harper Award for Exceptional Performance in a Course: Field Course in Astronomy and Astrophysics 2020
Phi Beta Kappa 2020
Dean's Fund for Undergraduate Research (presentation support at the 2020 American Astronomical Society conference) 2020
Student Marshal (among the highest honors conferred by the University upon undergraduate students, based upon academic performance and involvement in and contributions to campus and the community) 2019
Dean's List 2016-2019

REFERENCES

Academic:

Eric Bell – Arthur F. Thurnau Professor; Associate Chair; Graduate Program Chair at the University of Michigan
Relation: PhD advisor
ericbell@umich.edu | 1085 S. University Ann Arbor, MI 48109 USA | +1 (734) 764-3408

Adam Smercina – Hubble Fellow at the Space Telescope Science Institute
Relation: Close collaborator, mentor
asmercina@stsci.edu | 3700 San Martin Drive Baltimore, MD 21218 USA | +1 410-338-4700x4546

Richard D'Souza - Director of the Vatican Observatory
Relation: Close collaborator, mentor
rdsouza@specola.va

Outreach/Observatory Work:

Kate Meredith - President and Director of Education at Geneva Lake Astrophysics and STEAM
Relation: Direct Supervisor as Director of Education and Outreach at Yerkes Observatory, current collaborator
kate@glaseducation.org | N 2270 WI-67, Walworth, WI 53184 Building W5659-1 USA | +1 (608) 498-9008

Austin Edmister – Assistant Director at the Judy and Stanley Frankel Detroit Observatory
Relation: Direct Supervisor
edmister@umich.edu | 1150 Beal Avenue Ann Arbor, MI 48109 USA | +1 (734) 764-3639